

June 26, 2025

Mr. Mark Cancian

Bolton Shore Holdings Ltd.  
P.O. Box 174 Station Main  
Bolton, ON L7E ST2

**Re: Proposed Residential Redevelopment  
15, 21 and 27 Shore Street, Town of Caledon (Bolton), Peel Region  
Transportation Addendum Letter and REVISED Transportation Study  
Town File No.: POPA 2024-0007 & RZ 2024-0024**

On behalf of Bolton Shore Holdings Ltd., CGE Transportation Consulting acknowledges receipt of the Town's comments on the initial Transportation Study. We are pleased to submit this revised second edition, which reflects the feedback received and incorporates the updated site plan dated May 22, 2025.

The updated site plan continues to propose a four-storey residential apartment building consisting of 19 dwelling units, supported by 27 vehicular parking spaces and 14 bicycle parking spaces. The development also retains two full-movement access driveways in a looped configuration connecting to Shore Street.

The study demonstrates that the development will have minimal impact on the surrounding road network, and the access driveways are projected to operate with excellent Levels of Service (LOS). The proposed parking supply is sufficient to meet the parking demand.

Should you have any questions regarding this study, please do not hesitate to contact the undersigned.

Yours truly,

CGE TRANSPORTATION CONSULTING



Casey Ge, P.Eng.  
President

**TOWN OF CALEDON  
PLANNING  
RECEIVED**

**September 4th, 2025**

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## TRANSPORTATION STUDY REVIEW COMMENTS:

**Comment 1:** Section 3.4: it is noted that the Average Rate is used to determine the trips generated by the proposed site. Per Town comments in the ToR, the report should clearly state that average rates are used and also justify that average rate are most applicable for the proposed use. Town staff also requested information to confirm that the proposal fits the definition of ITE LUC 220 Midrise and that the proposed number of units falls within the parking data point range in the graph. The requested information is not currently included in the report.

### **Response:**

- ITE Land Use Code 220 – Multifamily Housing (Mid-Rise) applies to apartment buildings with 3 to 10 storeys featuring elevator access and shared entries. The proposed four-storey development is consistent with this classification.
- The trip generation methodology employed is as follows:
  - **AM Peak Hour:** The ITE Trip Generation Manual provides both a fitted curve equation ( $T = 0.44x - 11.61$ ) and an average rate of 0.37 trips per dwelling unit for LUC 220. For this study, the average rate was applied for the AM peak hour as it yields a higher trip estimate at the proposed scale, ensuring a more conservative analysis.
  - **PM Peak Hour:** For the PM peak hour, the fitted curve equation ( $T = 0.39x + 0.34$ ) and an average rate of 0.39 trips per dwelling unit. The fitted curve rate was used for a more conservative estimate.

**Comment 2:** Please include Autoturn Analysis for the two parallel parking spaces provided adjacent to the proposed apartment building. Additionally, please include the analysis for the highlighted spaces. Analysis to be done with a standard vehicle (PTAC for passenger vehicles).

### **Response:**

Noted and Updated.

**Comment 3:** Section 5.1, 5.2: Comments on the traffic analyses for the intersection of Queen Street South at Ellwood Drive and Queen Street South at Shore Street will be deferred to the Region of Peel.

### **Response:**

Acknowledged.

**Comment 4:** Section 6: It is unclear why Land Use Code 220 was utilized for parking usage estimation and Land Use Code 221 was used for trip generation. Updates are required to ensure consistency and appropriate justification should be provided justifying the use of the Land Use Code.

**Response:**

Land Use Code 220 – *Multifamily Housing (Low-Rise)* was selected for parking demand estimation in accordance with the ITE Parking Generation Manual, 5th Edition. This code was deemed more appropriate due to the limited availability of parking data under LUC 221, particularly for developments of this scale when stratified by unit count. LUC 220 provides a broader and more statistically robust dataset for estimating parking demand based on the number of units.

Moreover, the application of LUC 220 aligns with direction received from Town Staff, who noted that the proposed unit count should fall within the valid data range represented in the ITE graphs. This approach ensures a conservative and defensible estimate of parking requirements for both weekday and Saturday conditions.

**Comment 5:** The site currently proposes a 21% parking space reduction. As such, a parking justification study is requested. This study may be included within the revised Transportation Study. Overarching Parking Study ToR were circulated as part of the Transportation Study ToR comments; however, the consultant is encouraged to reach out to clarify any concerns.

**Response:**

It is acknowledged that the proposed parking supply of 27 vehicular spaces for 19 dwelling units reflects a reduction relative to the general parking requirements of the Town's current Comprehensive Zoning By-law. However, this parking provision aligns with the minimum parking standards outlined in the Draft Zoning By-law Amendment (dated July 10, 2024) for the subject site, which establishes the following specific requirements:

- 1.0 resident parking space per dwelling unit
- 0.29 visitor parking spaces per dwelling unit

Applying these standards to the proposed 19-unit development yields:

- Resident parking required:  $19 \times 1.0 = 19$  spaces
- Visitor parking required:  $19 \times 0.29 = 5.51$  (rounded up to 6)
- Total required: 25 parking spaces

The proposed supply of 27 spaces exceeds the minimum requirement defined in the draft site-specific zoning by-law, thereby complying with the emerging policy framework and addressing projected on-site demand.

Given that the proposed parking supply exceeds the draft site-specific zoning requirements and aligns with emerging Town policy, a separate stand-alone parking justification study is not warranted at this time.

## 1.0 INTRODUCTION

CGE Transportation Consulting was retained by Bolton Shore Holdings Ltd. to prepare a REVISED Transportation Study for a proposed residential redevelopment, located at 15, 21 and 27 Shore Street in the Town of Caledon (Bolton), Peel Region.

### Existing Site Description:

The site, currently zoned Residential One (R1), is bounded by mixed-use and residential developments to the north and west, Shore Street to the south, and Queen Street South (Highway 50) to the east. The site currently includes single-detached family dwellings that will be demolished for the proposed development.

The location of the proposed development is illustrated in **Figure 1**.

### Development Proposal Description:

The redevelopment will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces. The development will include two full-access connections to Shore Street in a looped configuration. Full Build for the project is targeted for 2029.

The most recent site plan is provided in **Figure 2**.

### Scope of Work:

A Terms of Reference (ToR) was formally submitted to the Town and Region before initiating the study. For comprehensive details, the ToR and feedback from the Town and Region have been included in **Appendix A**.

The study area consists of the following intersections:

- Queen Street South (Highway 50) & Ellwood Drive West/ Ellwood Drive East
- Queen Street South (Highway 50) & Shore Street
- Shore Street & Proposed West Site Access
- Shore Street & Proposed East Site Access
- The study analyzed the following scenarios
  - Existing 2024 Conditions
  - Future Background 2029 Conditions
  - Full Build 2029 Conditions
  - Future Year 2034 Conditions
- The analysis has been conducted for both weekday AM and PM peak hours.

**Figure 1 Site Location**





## 2.0 EXISTING AREA

### 2.1 Existing Roadway Conditions

The existing road network, lane configuration and existing traffic control for the study area are described below and shown in **Figure 3**:

- Queen Street S (Highway 50) in the vicinity of the site, is a five-lane arterial road with two-way left-turn lane (TWTL) and a 50 km/h speed limit under the Region's control. It has sidewalks along both sides of the street. On-street parking is prohibited.
- Ellwood Drive is a two-lane, east-west local road under the Town's control, with a speed limit of 40 km/h. It has sidewalks on both sides along Ellwood Drive West, but only along the north side along Ellwood Drive East.
- Shore Street is a two-lane, east-west local road under the Town's control, with a 40 km/h speed limit. It currently has a discontinuous sidewalk, and on-street parking is prohibited.

A review of the Town and Region's capital projects website indicates no planned roadway improvements within the study area at this time.

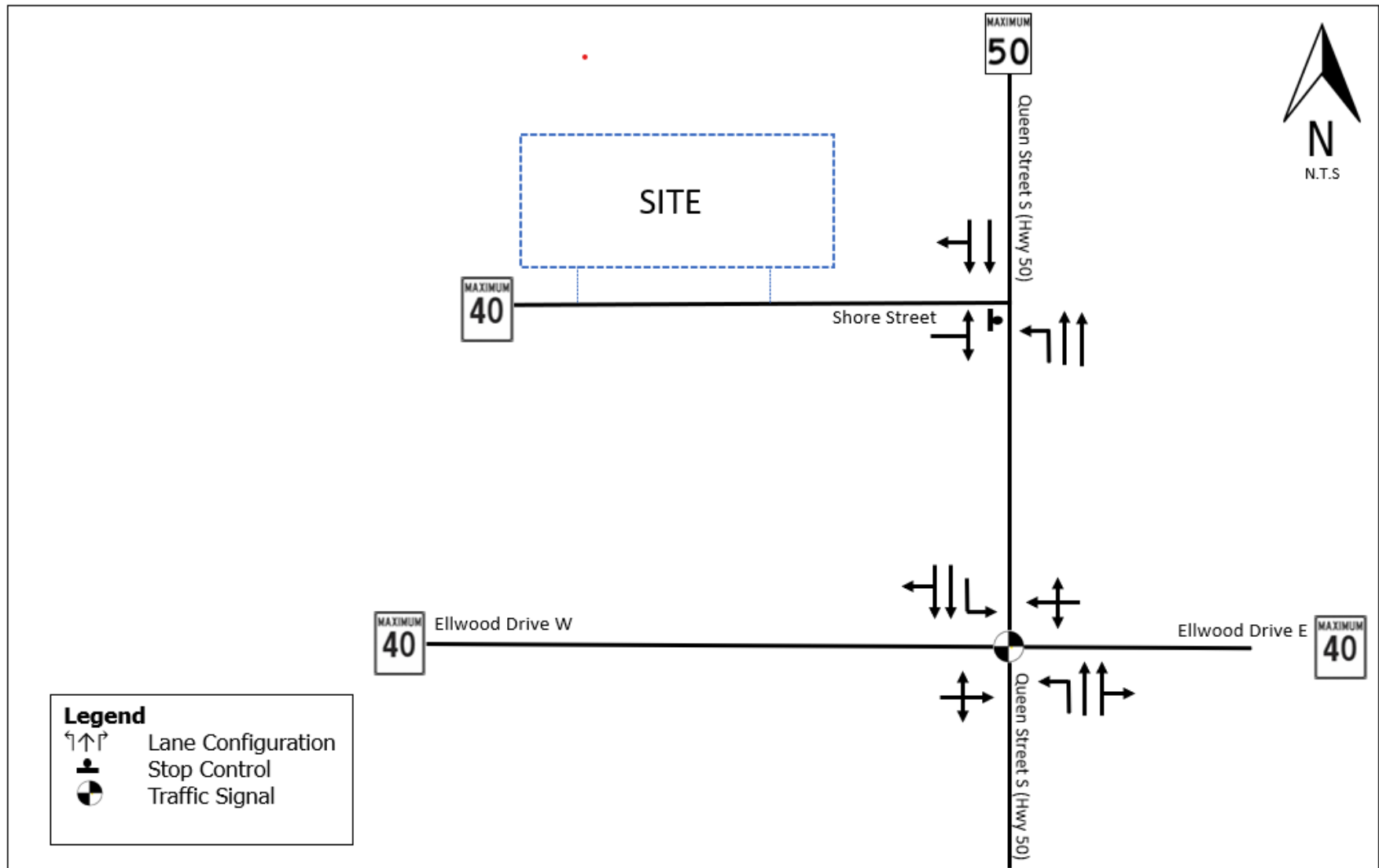
### 2.2 Existing Intersection Geometry

Queen Street South (Highway 50) & Ellwood Drive is a signalized intersection. The eastbound and westbound approaches consist of a single lane. The northbound and southbound approaches both have a left-turn lane, a through lane and a shared through-right lane.

Queen Street South (Highway 50) & Shore Street is an unsignalized T-intersection with stop control for the eastbound approach. The northbound approach consists of a left-turn lane and two through lanes. The southbound approach consists of a shared through-right lane and a through lane. The eastbound approach consists of single lane.

The proposed development features a looped configuration with two full-access connections to Shore Street. Both connections will intersect existing driveways currently serving commercial developments south of the site.

**Figure 3 Existing Road Network**



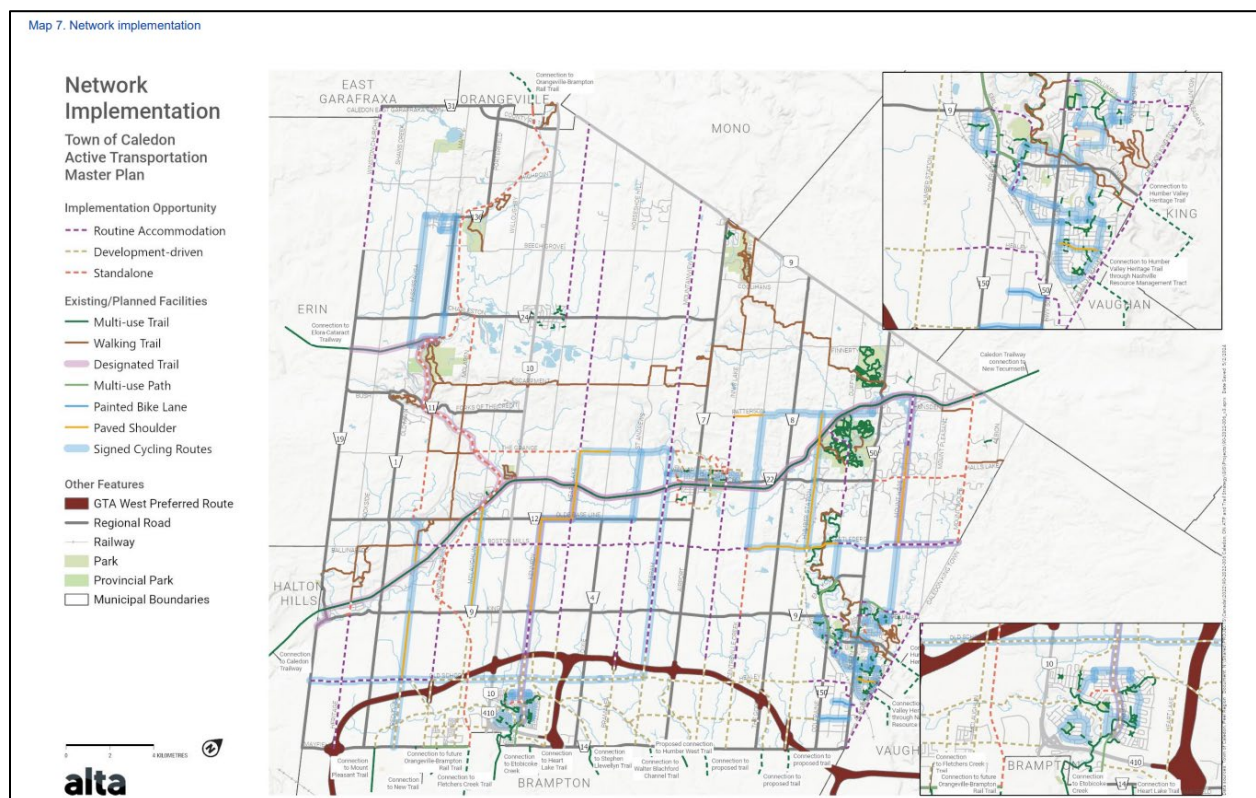
## 2.3 Multi-Modal Transport

The study area is currently served by GO Transit and Brampton Transit. GO Transit Route 38 operates on weekdays only between Malton GO Station and Bolton GO Station, primarily along Queen Street (Highway 50). It has a headway of 1-2 hours during peak periods. Brampton Transit Route 41 operates only on weekdays between Brampton Gateway Terminal and Bolton, also along Queen Street (Highway 50), with a headway of approximately 110 minutes. There are four transit stops within a 200-meter radius of the site.

The Town's *Active Transportation Master Plan* (ATMP) indicates no existing cycling facilities within the study area road network. However, the ATMP does recommend signed cycling routes along Ellwood Drive in the vicinity of the site (See **Figure 4**).

The subject site currently lacks sidewalks along its Shore Street frontage. However, the most recent site plan includes a 1.5-meter sidewalk along the entire frontage, connecting to the existing roadway (See **Figure 2**).

**Figure 4 Recommended Active Transportation Plan**



Source: Town of Caledon Active Transportation Plan

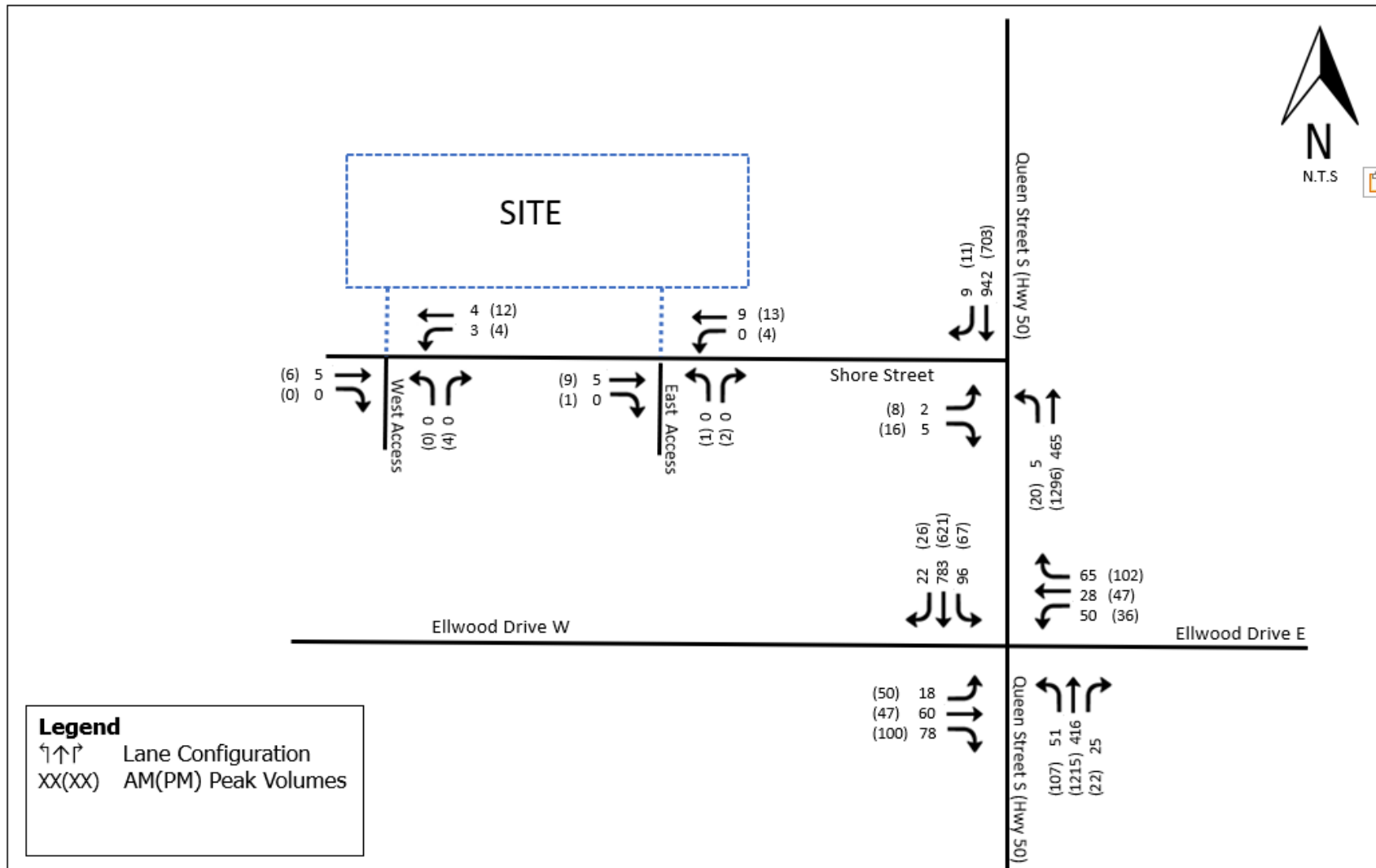
## 2.4 Traffic Volumes

Traffic data collection for the study area intersection was performed on June 05, 2024. The signal timing plan for the study area intersections was provided by the Region. **Figure 5** displays existing traffic volumes. The existing traffic volume counts and signal timing plans are shown in **Appendix B**.



**Existing Dwellings Units on Subject Site**

**Figure 5 Existing Traffic Volumes**



## 3.0 METHODOLOGY

### 3.1 Base Assumptions

Intersection capacity analysis was conducted using Synchro v11.0. Trip generation for the proposed development was calculated using the 11th edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*.

Turn lane requirements were assessed using the *Geometric Design Guide for Canadian Roads* (Transportation Association of Canada) and the *Geometric Design Standards for Ontario Highways* (Ministry of Transportation, Ontario).

### 3.2 Background Developments

As identified in the TOR study, the Town's Planning website identifies one background development, 84 Nancy Street, located near the subject site. Trip generation data for this development was obtained from its June 2019 Transportation Impact, Parking, and TDM Study. Detailed site-specific trip information is available in **Appendix C** for further review.

### 3.3 Background Growth

The average annual background growth rate is calculated using historical AADT volumes obtained from the Region's website. Calculations show that the background growth on Queen Street South (Highway 50) in the vicinity of the site is 4.27% per year. These calculations can be found in **Appendix D**.

Existing volumes were increased by 4.27% per year to estimate background growth for Full Build and Future Year conditions.

### 3.4 Site Trip Generation

The proposed redevelopment will consist of a four-storey residential apartment building with 19 units. The *ITE Trip Generation Manual, 11th Edition*, ITE Code 221 (Multifamily Housing (Mid-Rise)) was used to estimate the projected trips by this development.

The ITE Land Use Code (LUC) 220 – Multifamily Housing (Mid-Rise) applies to apartment buildings with 3 to 10 stories and includes developments with elevator access and shared building entries. The proposed four-storey apartment building with elevators is consistent with this definition.

For this study, the AM peak hour trip generation was based on the ITE average rate (0.37 trips/unit) for a more conservative estimate than the fitted curve, while the PM peak hour used the fitted curve equation ( $T = 0.39x + 0.34$ ) as it yielded higher volumes than the average rate.

**Table 1** summarizes the land uses and sizes used for trip generation estimates. The trip generation graphs, and trip rates are provided in **Appendix E**.

**Table 1 Estimated Traffic Generation**

| Land Use                                                 |          |          | AM Peak Hour |      |       | PM Peak Hour |      |       |
|----------------------------------------------------------|----------|----------|--------------|------|-------|--------------|------|-------|
| Land Use                                                 | ITE Code | Size     | Enter        | Exit | Total | Enter        | Exit | Total |
| (Multifamily Housing (Mid-Rise) No Close to Rail Transit | 221      | 19 Units | 2            | 5    | 7     | 5            | 3    | 8     |

The trip generation analysis results indicate that the proposed development is anticipated to generate 7 and 8 new two-way trips to the adjacent network during the weekday AM and PM peak hours, respectively.

### 3.5 Trip Distribution

Trips for this proposed development were assigned to the surrounding roadway network using engineering judgment and existing traffic patterns.

The proposed trip distribution for this project is:

#### AM Peak Hour Inbound:

- 55% to/from north on Queen Street South (Highway 50)
- 25% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

#### AM Peak Hour Outbound:

- 25% to/from north on Queen Street South (Highway 50)
- 55% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

#### PM Peak Hour Inbound:

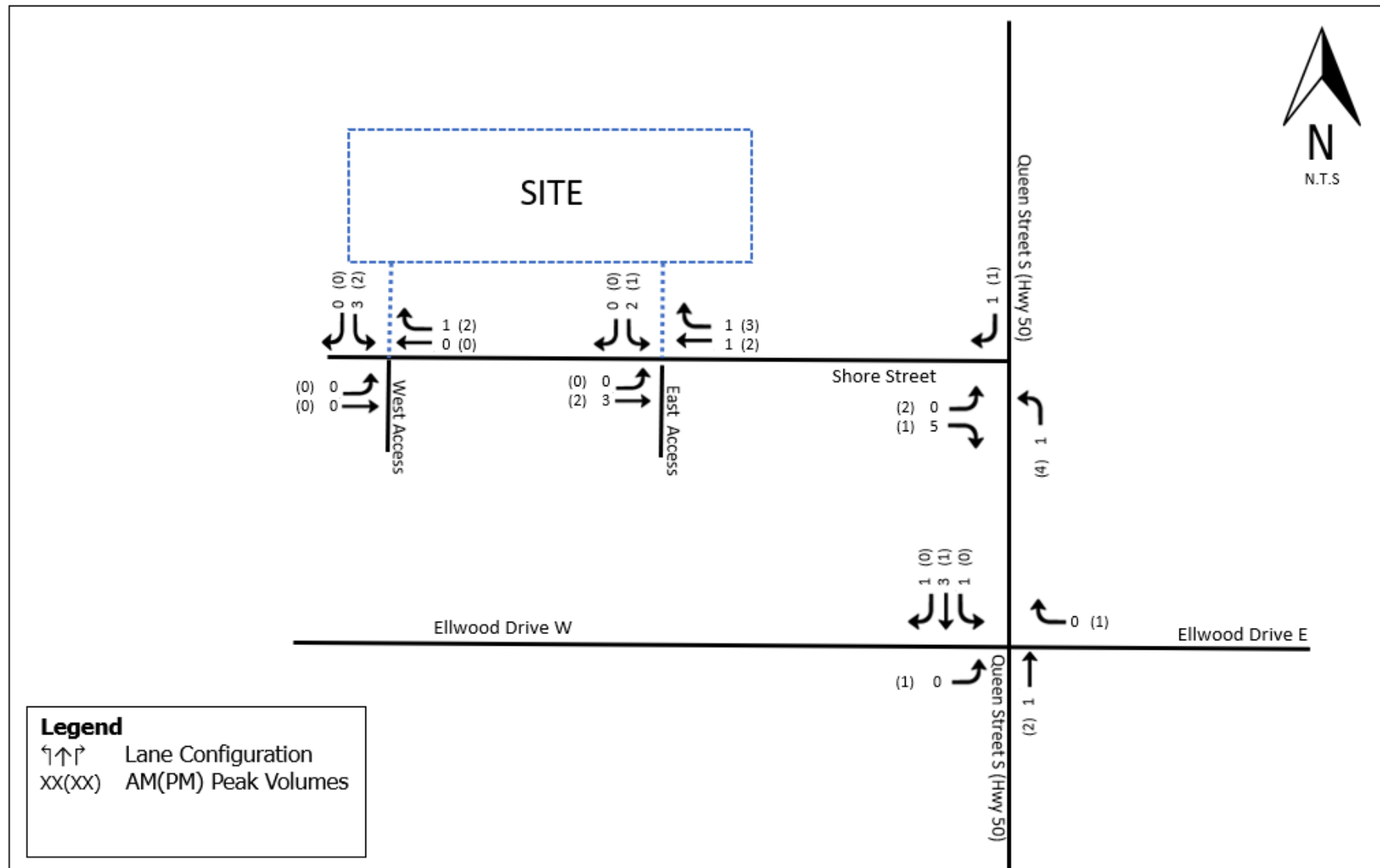
- 25% to/from north on Queen Street South (Highway 50)
- 55% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

#### PM Peak Hour Outbound:

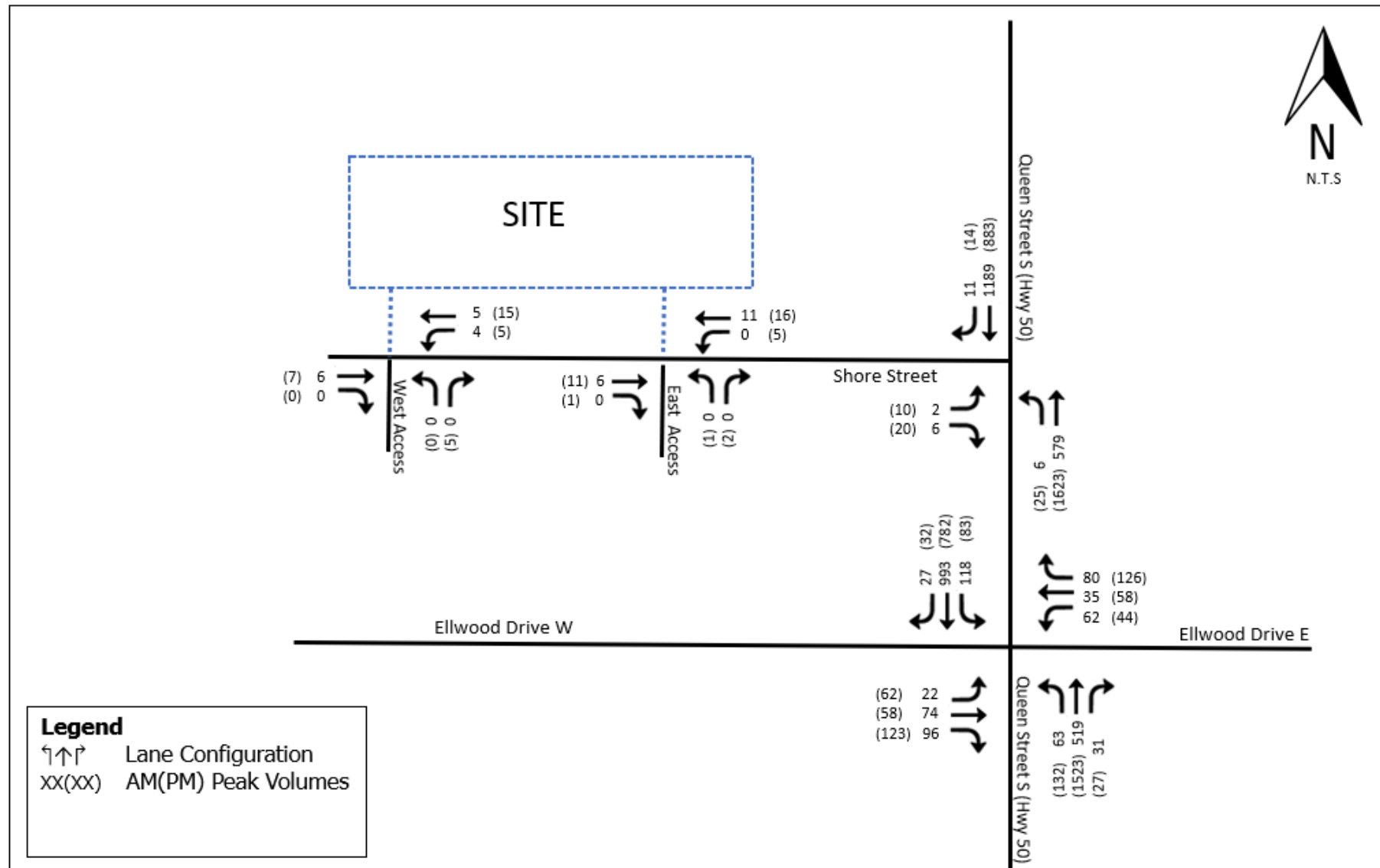
- 55% to/from north on Queen Street South (Highway 50)
- 25% to/from south on Queen Street South (Highway 50)
- 10% to/from east on Ellwood Drive East
- 10% to/from west on Ellwood Drive West

The project site trips are shown in **Figure 6**. Future Background volumes for 2029 are shown in **Figure 7**. Full Build 2029 volumes are shown in **Figure 8**. Future Year 2034 volumes are shown in **Figure 9**.

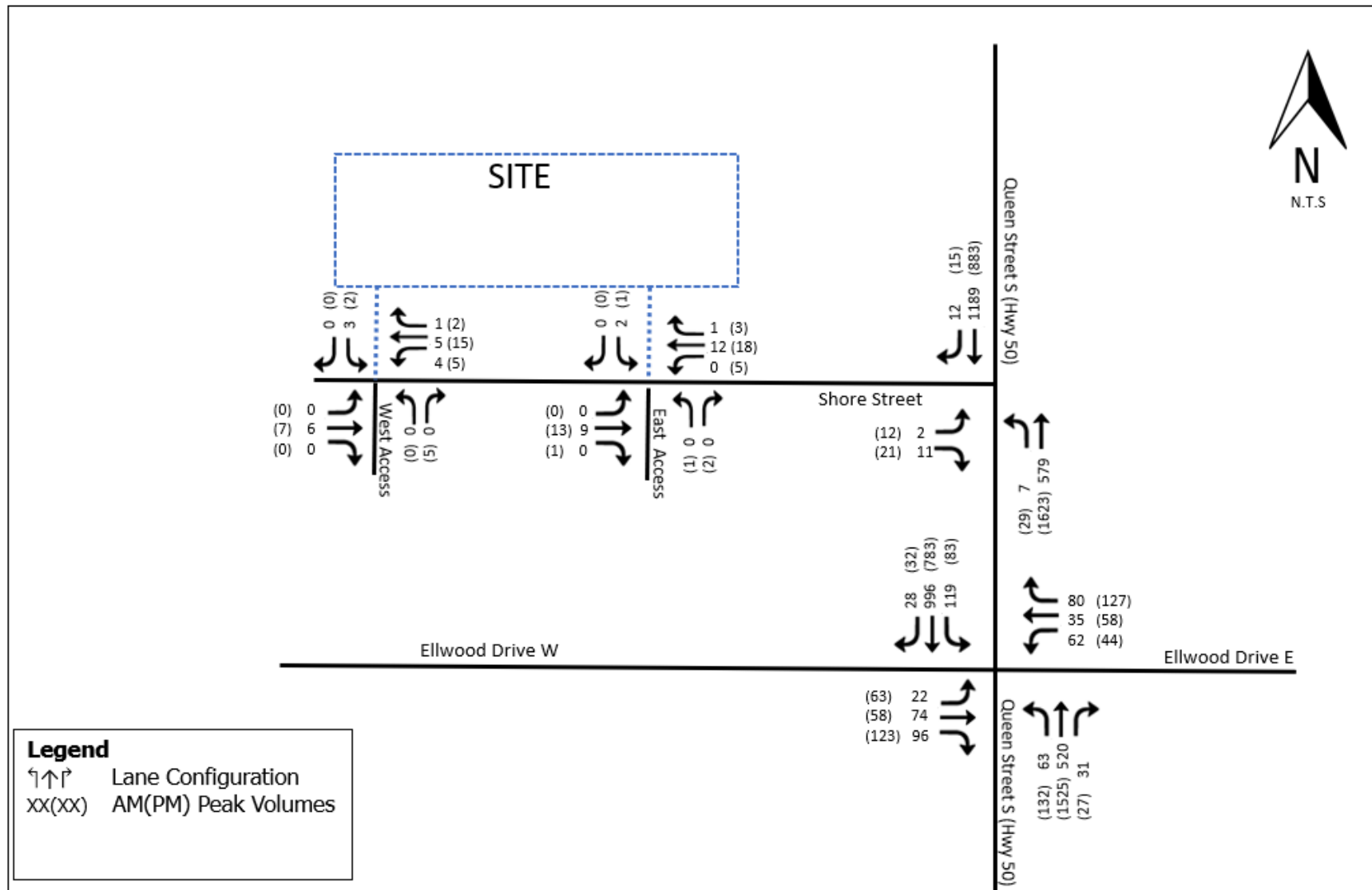
**Figure 6 Project Site Trips**



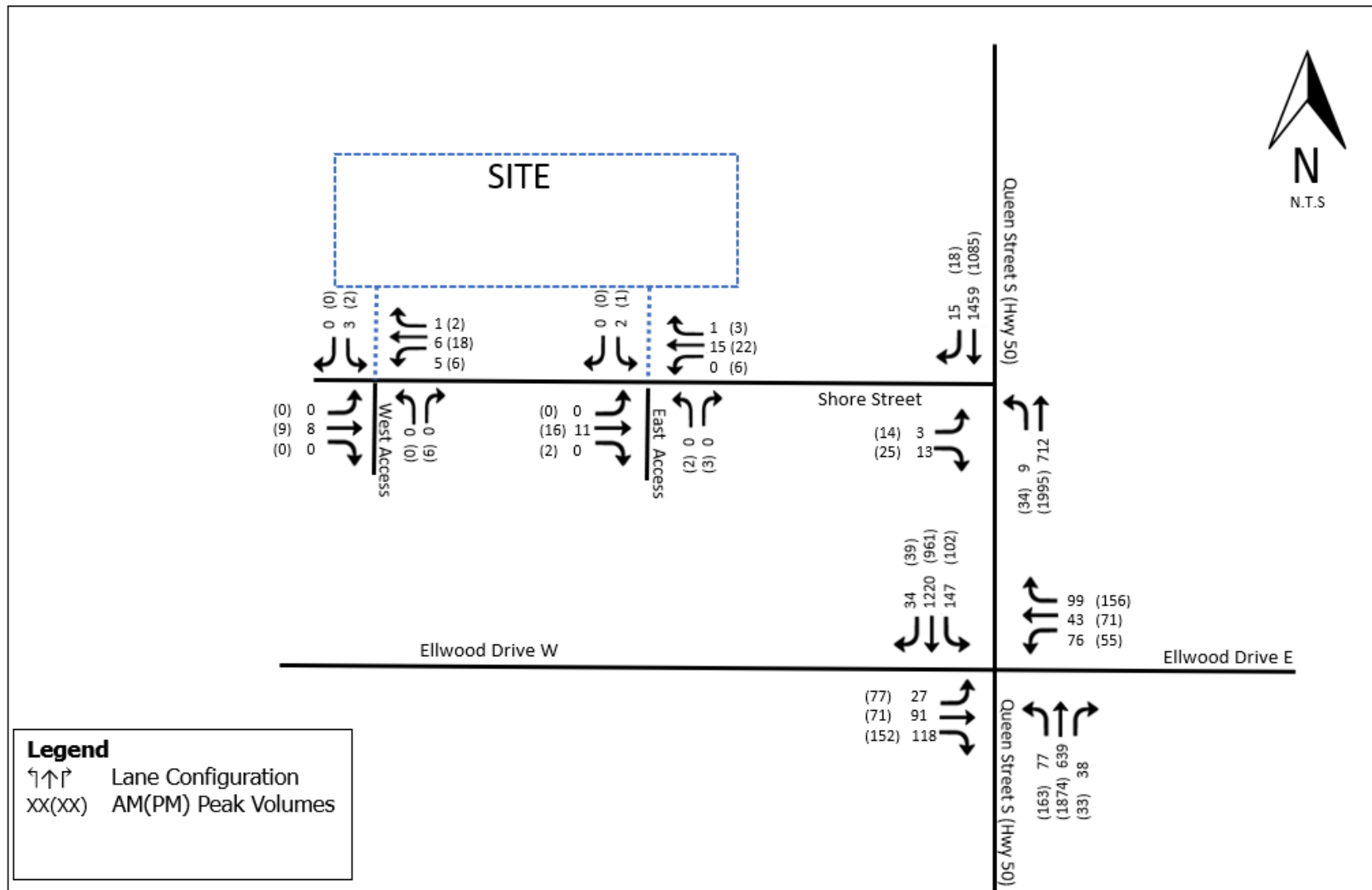
**Figure 7 Future Background 2029 Volumes**



**Figure 8 Full Build 2029 Volumes**



**Figure 9 Future Year 2034 Volumes**



## 4.0 TURN LANE/ACCESS MANAGEMENT

### 4.1 Right-Turn Lanes

The *Geometric Design Guide for Canadian Roads*, TAC recommends the use of an exclusive right-turn lane when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard.

In general, an exclusive right-turn lane should be considered when the volume of right-turning vehicles is between 10 to 20 percent of the through volume, subject to a minimum of 60 vehicles per hour in the design hour. **Table 2** shows the Future Year 2034 volumes used in the analysis.

| Driveway               | Approach | AM Volume |       |      | PM Volume |       |      | Hourly Threshold | Turn Lane needed? |
|------------------------|----------|-----------|-------|------|-----------|-------|------|------------------|-------------------|
|                        |          | Through   | Right | % RT | Through   | Right | % RT |                  |                   |
| Shore St & East Access | WB       | 15        | 1     | 7%   | 22        | 3     | 14%  | 60               | No                |
| Shore St & West Access | WB       | 6         | 1     | 17%  | 18        | 2     | 11%  | 60               | No                |

Based on Future Year 2034 volumes, no right-turn lanes are required for the project accesses.

### 4.2 Left-Turn Lanes

The warrant for left turn lanes was based on *Chapter E, Section E.B.1 of the Geometric Design Standards for Ontario Highways by the Ministry of Transportation, Ontario* for 2-lane undivided roadways. **Table 3** shows the Future Year 2034 volumes used in the analysis.

**Table 3 Left-Turn Lane Analysis**

| Driveway               | Design Speed | Peak | Approach | Advancing Volume | Opposing Volume | Left-Turn Vol | Left-Turn % | Threshold met? |
|------------------------|--------------|------|----------|------------------|-----------------|---------------|-------------|----------------|
| Shore St & East Access | 50 km/h      | AM   | EB       | 11               | 16              | 0             | 0%          | No             |
|                        |              | PM   |          | 18               | 31              | 0             | 0%          | No             |
| Shore St & West Access | 50 km/h      | AM   | EB       | 8                | 12              | 0             | 0%          | No             |
|                        |              | PM   |          | 9                | 26              | 0             | 0%          | No             |

Based on Future Year 2034 volumes, no left-turn lanes are required for the project accesses.

### 4.3 Sight Distance Evaluation

Regarding stopping sight distance, which allows drivers to stop safely under normal conditions, the minimum requirement for a level grade on wet pavement at a 50 km/h design speed is 65 meters as summarized below. The stopping sight distance requirements are satisfied at the site accesses

| Design Speed (km/h)                  | 50 | 60 | 70  | 80  | 90  | 100 |
|--------------------------------------|----|----|-----|-----|-----|-----|
| Minimum Stopping Sight Distance (m)* | 65 | 85 | 110 | 140 | 170 | 210 |

Source: Table 2.5.2, Chapter 2, Geometric Design Guidelines for Canadian Roads

Regarding turning sight distance, which is the distance needed for a driver to detect an unexpected or otherwise difficult-to-perceive information source or condition in a roadway environment that may be visually cluttered, recognize the condition or its potential threat, select an appropriate speed and path, and initiate and complete complex maneuvers. The minimum requirement for a 50 km/h design speed is 75 meters as summarized below. The turning sight distance requirements are satisfied at the site accesses.

Field observations show that there are no sight distance obstructions that obscure the view of vehicles at the proposed accesses.



Shore Street at Site Access – Looking East



Shore Street at Site Access – Looking West

## 5.0 CAPACITY ANALYSIS

The Transportation Research Board's Highway Capacity Manual (HCM) utilizes a term "level of service" (LOS) to measure how traffic operates in intersections. There are currently six levels of service ranging from A to F. Level of Service "A" represents the best conditions and Level of Service "F" represents the worst. Synchro software was used to determine the level of service for intersections in the study area. All worksheet reports from the analyses can be found in **Appendix F**.

**Table 4** shows the control delay per vehicle associated with LOS A through F for signalized and unsignalized intersections.

| <b>Table 4 Highway Capacity Manual Levels of Service and Control Delay</b> |                                        |                                  |                                        |
|----------------------------------------------------------------------------|----------------------------------------|----------------------------------|----------------------------------------|
| <b>Signalized Intersection</b>                                             |                                        | <b>Unsignalized Intersection</b> |                                        |
| <b>Level of Service</b>                                                    | <b>Control Delay per Vehicle (sec)</b> | <b>Level of Service</b>          | <b>Control Delay per Vehicle (sec)</b> |
| A                                                                          | $\leq 10$                              | A                                | $\leq 10$                              |
| B                                                                          | $> 10$ and $\leq 20$                   | B                                | $> 10$ and $\leq 15$                   |
| C                                                                          | $> 20$ and $\leq 35$                   | C                                | $> 15$ and $\leq 25$                   |
| D                                                                          | $> 35$ and $\leq 55$                   | D                                | $> 25$ and $\leq 35$                   |
| E                                                                          | $> 55$ and $\leq 80$                   | E                                | $> 35$ and $\leq 50$                   |
| F                                                                          | $> 80$                                 | F                                | $> 50$                                 |

## 5.1 Queen Street South (Highway 50) & Ellwood Drive

Queen Street South (Highway 50) & Ellwood Drive is a signalized intersection. The eastbound and westbound approaches consist of a single lane. The northbound and southbound approaches both have a left-turn lane, a through lane and a shared through -right lane.

Table 5 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

| Table 5 Intersection LOS, Delay, and Queue by Movement - 2024 Existing |          |          |           |       |        |           |       |        |
|------------------------------------------------------------------------|----------|----------|-----------|-------|--------|-----------|-------|--------|
| Intersection                                                           | Approach | Movement | AM        |       |        | PM        |       |        |
|                                                                        |          |          | LOS       | Delay | Queue  | LOS       | Delay | Queue  |
| Queen St S (Hwy 50) & Ellwood Dr                                       | EB       | LT       | D         | 45.3  | 44.4 m | E         | 62.9  | 68.3 m |
|                                                                        |          | TH       |           |       |        |           |       |        |
|                                                                        |          | RT       |           |       |        |           |       |        |
|                                                                        | WB       | LT       | D         | 45.6  | 42.8 m | D         | 53.8  | 60.8 m |
|                                                                        |          | TH       |           |       |        |           |       |        |
|                                                                        |          | RT       |           |       |        |           |       |        |
|                                                                        | NB       | LT       | A         | 8.5   | 11.3 m | A         | 8.9   | 22.9 m |
|                                                                        |          | TH       | A         | 8.1   | 30.7 m | B         | 11.3  | 120.6m |
|                                                                        |          | RT       |           |       |        |           |       |        |
|                                                                        | SB       | LT       | A         | 3.8   | 10.8 m | A         | 6.7   | 9.8 m  |
|                                                                        |          | TH       | A         | 4.8   | 43.2 m | A         | 5.2   | 40.5 m |
|                                                                        |          | RT       |           |       |        |           |       |        |
|                                                                        | OVERALL  |          | B (12.9s) |       |        | B (16.8s) |       |        |

Analysis shows that the intersection currently operates with acceptable LOS. However, the eastbound and westbound approaches are experiencing poor LOS and significant delays.

Table 6 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

| Table 6 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background |          |          |           |       |        |           |       |         |
|---------------------------------------------------------------------------------|----------|----------|-----------|-------|--------|-----------|-------|---------|
| Intersection                                                                    | Approach | Movement | AM        |       |        | PM        |       |         |
|                                                                                 |          |          | LOS       | Delay | Queue  | LOS       | Delay | Queue   |
| Queen St S (Hwy 50) & Ellwood Dr                                                | EB       | LT       | D         | 46.3  | 55.2 m | E         | 72.2  | 95.4 m  |
|                                                                                 |          | TH       |           |       |        |           |       |         |
|                                                                                 |          | RT       |           |       |        |           |       |         |
|                                                                                 | WB       | LT       | D         | 53.7  | 54.9 m | E         | 55.7  | 77.6 m  |
|                                                                                 |          | TH       |           |       |        |           |       |         |
|                                                                                 |          | RT       |           |       |        |           |       |         |
|                                                                                 | NB       | LT       | B         | 11.4  | 16.8 m | B         | 13.1  | 31.0 m  |
|                                                                                 |          | TH       | A         | 9.8   | 44.6 m | B         | 17.2  | 173.8 m |
|                                                                                 |          | RT       |           |       |        |           |       |         |
|                                                                                 | SB       | LT       | A         | 4.9   | 15.8 m | B         | 14.6  | 11.8 m  |
|                                                                                 |          | TH       | A         | 6.6   | 71.3 m | A         | 7.1   | 53.1 m  |
|                                                                                 |          | RT       |           |       |        |           |       |         |
|                                                                                 | OVERALL  |          | B (15.0s) |       |        | C (21.5s) |       |         |

While the overall intersection is expected to function acceptably with future growth, the persistent poor LOS and significant delays on the eastbound and westbound approaches highlight the need for targeted improvements to address these specific areas.

Table 7 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

| Table 7 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build |          |          |     |           |        |     |           |         |
|--------------------------------------------------------------------------|----------|----------|-----|-----------|--------|-----|-----------|---------|
| Intersection                                                             | Approach | Movement | AM  |           |        | PM  |           |         |
|                                                                          |          |          | LOS | Delay     | Queue  | LOS | Delay     | Queue   |
| Queen St S (Hwy 50) & Ellwood Dr                                         | EB       | LT       | D   | 46.3      | 55.2 m | E   | 72.6      | 96.9 m  |
|                                                                          |          | TH       |     |           |        |     |           |         |
|                                                                          |          | RT       |     |           |        |     |           |         |
|                                                                          | WB       | LT       | D   | 53.7      | 54.9 m | E   | 55.6      | 78.2 m  |
|                                                                          |          | TH       |     |           |        |     |           |         |
|                                                                          |          | RT       |     |           |        |     |           |         |
|                                                                          | NB       | LT       | B   | 11.4      | 16.9 m | B   | 13.2      | 31.0 m  |
|                                                                          |          | TH       | A   | 9.8       | 44.7 m | B   | 17.3      | 174.1 m |
|                                                                          |          | RT       |     |           |        |     |           |         |
|                                                                          | SB       | LT       | A   | 4.9       | 16.0 m | B   | 14.7      | 11.8 m  |
|                                                                          |          | TH       | A   | 6.6       | 71.8 m | A   | 7.2       | 53.2 m  |
|                                                                          |          | RT       |     |           |        |     |           |         |
|                                                                          | OVERALL  |          |     | B (15.0s) |        |     | C (21.7s) |         |

Table 8 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

| Table 8 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year |          |          |     |           |         |     |           |         |
|---------------------------------------------------------------------------|----------|----------|-----|-----------|---------|-----|-----------|---------|
| Intersection                                                              | Approach | Movement | AM  |           |         | PM  |           |         |
|                                                                           |          |          | LOS | Delay     | Queue   | LOS | Delay     | Queue   |
| Queen St S (Hwy 50) & Ellwood Dr                                          | EB       | LT       | D   | 45.8      | 69.8 m  | F   | 96.5      | 133.5 m |
|                                                                           |          | TH       |     |           |         |     |           |         |
|                                                                           |          | RT       |     |           |         |     |           |         |
|                                                                           | WB       | LT       | E   | 62.2      | 71.7 m  | E   | 61.6      | 107.8 m |
|                                                                           |          | TH       |     |           |         |     |           |         |
|                                                                           |          | RT       |     |           |         |     |           |         |
|                                                                           | NB       | LT       | C   | 29.4      | 39.5 m  | C   | 20.4      | 45.3 m  |
|                                                                           |          | TH       | B   | 12.6      | 62.5 m  | C   | 26.1      | 248.8 m |
|                                                                           |          | RT       |     |           |         |     |           |         |
|                                                                           | SB       | LT       | A   | 7.1       | 22.0 m  | E   | 61.2      | 42.1 m  |
|                                                                           |          | TH       | B   | 10.8      | 126.6 m | A   | 9.4       | 67.3 m  |
|                                                                           |          | RT       |     |           |         |     |           |         |
|                                                                           | OVERALL  |          |     | B (18.8s) |         |     | C (30.7s) |         |

Traffic analysis indicates that the proposed development will not adversely impact the overall LOS at the subject intersection under full build-out and future year conditions. The intersection is projected to operate with acceptable LOS, consistent with forecasts under future background traffic conditions.

However, the analysis indicates that the eastbound and westbound approaches are currently experiencing poor LOS and significant delays under both existing and future background traffic conditions. This analysis has determined that the proposed development is not a contributing factor to these deficiencies, as the anticipated site-generated traffic volumes are minimal (less than 10 vph).

Based on these findings, it is recommended that the Region/Town prioritize potential mitigation measures to address the existing operational deficiencies on the eastbound and westbound approaches. These measures may include geometric improvements, signal timing optimization, or the implementation of turning restrictions. Continued monitoring of the intersection's performance is advised to evaluate the effectiveness of any implemented improvements and to identify any future needs.

## 5.2 Queen Street South (Highway 50) & Shore Street

Queen Street South (Highway 50) & Shore Street is an unsignalized T-intersection with stop control for the eastbound approach. The northbound approach consists of a left-turn lane and two through lanes. The southbound approach consists of a shared through -right lane and a through lane. The eastbound approach consists of single lane.

Table 9 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

| Table 9 Intersection LOS, Delay, and Queue by Movement - 2024 Existing |          |          |      |       |       |      |       |       |
|------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                           | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                        |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Queen St S (Hwy 50) & Shore St                                         | EB       | LT       | B    | 14.2  | 0.4 m | B    | 12.5  | 1.2 m |
|                                                                        |          | RT       | B    | 10.3  | 0.2 m | A    | 9.3   | 0.6 m |
|                                                                        | NB       | LT       | Free |       |       | Free |       |       |
|                                                                        |          | TH       | Free |       |       | Free |       |       |
|                                                                        | SB       | TH       | Free |       |       | Free |       |       |
|                                                                        |          | RT       |      |       |       |      |       |       |

Table 10 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

| Table 10 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                                     | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                                  |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Queen St S (Hwy 50) & Shore St                                                   | EB       | LT       | C    | 16.7  | 0.6 m | B    | 14.0  | 1.8 m |
|                                                                                  |          | RT       | B    | 11.7  | 0.3 m | B    | 10.1  | 0.8 m |
|                                                                                  | NB       | LT       | Free |       |       | Free |       |       |
|                                                                                  |          | TH       | Free |       |       | Free |       |       |
|                                                                                  | SB       | TH       | Free |       |       | Free |       |       |
|                                                                                  |          | RT       |      |       |       |      |       |       |

Table 11 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

| Table 11 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build |          |          |      |       |       |      |       |       |
|---------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                              | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                           |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Queen St S (Hwy 50) & Shore St                                            | EB       | LT       | C    | 16.1  | 1.0 m | B    | 14.3  | 2.0 m |
|                                                                           |          | RT       | B    | 11.7  | 0.3 m | B    | 10.1  | 1.0 m |
|                                                                           | NB       | LT       | Free |       |       | Free |       |       |
|                                                                           |          | TH       | Free |       |       | Free |       |       |
|                                                                           | SB       | TH       | Free |       |       | Free |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |

Table 12 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

| Table 12 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                               | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                            |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Queen St S (Hwy 50) & Shore St                                             | EB       | LT       | C    | 20.2  | 1.6 m | C    | 17.2  | 3.1 m |
|                                                                            |          | RT       | B    | 13.8  | 0.6 m | B    | 11.3  | 1.4 m |
|                                                                            | NB       | LT       | Free |       |       | Free |       |       |
|                                                                            |          | TH       | Free |       |       | Free |       |       |
|                                                                            | SB       | TH       | Free |       |       | Free |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |

Analysis shows that acceptable LOS will be maintained with the proposed development traffic/ Full Build conditions and Future Year conditions.

### 5.3 Shore Street & East Access

The proposed development features a looped configuration with two full-access connections to Shore Street, an east and west access. Both connections will intersect existing driveways currently serving commercial developments south of the site.

Table 13 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

| Table 13 Intersection LOS, Delay, and Queue by Movement - 2024 Existing |          |          |      |       |       |      |       |       |
|-------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                            | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                         |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & East Access                                                  | EB       | TH       | Free |       |       | Free |       |       |
|                                                                         |          | RT       |      |       |       |      |       |       |
|                                                                         | WB       | LT       | Free |       |       | A    | 1.6   | 0.1 m |
|                                                                         |          | TH       |      |       |       |      |       |       |
|                                                                         | NB       | LT       | A    | -     | -     | A    | 8.5   | 0.1 m |
|                                                                         |          | RT       |      |       |       |      |       |       |

Table 14 shows the expected LOS, control delay, and 95th percentile queue length for Future Background 2029 conditions.

| Table 14 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                                     | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                                  |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & East Access                                                           | EB       | TH       | Free |       |       | Free |       |       |
|                                                                                  |          | RT       |      |       |       |      |       |       |
|                                                                                  | WB       | LT       | Free |       |       | A    | 1.8   | 0.1 m |
|                                                                                  |          | TH       |      |       |       |      |       |       |
|                                                                                  | NB       | LT       | A    | -     | -     | A    | 8.6   | 0.1 m |
|                                                                                  |          | RT       |      |       |       |      |       |       |

Table 15 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

| Table 15 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build |          |          |      |       |       |      |       |       |
|---------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                              | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                           |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & East Access/Private Driveway                                   | EB       | LT       | Free |       |       | Free |       |       |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | WB       | LT       | Free |       |       | A    | 1.4   | 0.1 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | NB       | LT       | A    | -     | -     | A    | 8.6   | 0.1 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | SB       | LT       | A    | 8.7   | 0.1   | A    | 9.0   | 0.1 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |

Table 16 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions.

| Table 16 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                               | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                            |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & East Access/Private Driveway                                    | EB       | LT       | Free |       |       | Free |       |       |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | WB       | LT       | Free |       |       | A    | 1.5   | 0.1 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | NB       | LT       | A    | -     | -     | A    | 8.7   | 0.2 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | SB       | LT       | A    | 8.8   | 0.1   | A    | 9.1   | 0.1 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |

Analysis shows that east site access will operate with acceptable LOS and minimal delays and queue lengths.

## 5.4 Shore Street & West Access

The proposed development features a looped configuration with two full-access connections to Shore Street, an east and west access. Both connections will intersect existing driveways currently serving commercial developments south of the site.

Table 17 shows the current LOS, control delay, and 95th percentile queue length for existing conditions.

| Table 17 Intersection LOS, Delay, and Queue by Movement - 2024 Existing |          |          |      |       |       |      |       |       |
|-------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                            | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                         |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & West Access                                                  | EB       | TH       | Free |       |       | Free |       |       |
|                                                                         |          | RT       |      |       |       |      |       |       |
|                                                                         | WB       | LT       | A    | 3.0   | 0.1 m | A    | 1.8   | 0.1 m |
|                                                                         |          | TH       |      |       |       |      |       |       |
|                                                                         | NB       | LT       | A    | -     | -     | A    | 8.4   | 0.1 m |
|                                                                         |          | RT       |      |       |       |      |       |       |

Table 18 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions.

| Table 18 Intersection LOS, Delay, and Queue by Movement – 2029 Future Background |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                                     | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                                  |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & West Access                                                           | EB       | TH       | Free |       |       | Free |       |       |
|                                                                                  |          | RT       |      |       |       |      |       |       |
|                                                                                  | WB       | LT       | A    | 3.4   | 0.1 m | A    | 1.9   | 0.1 m |
|                                                                                  |          | TH       |      |       |       |      |       |       |
|                                                                                  | NB       | LT       | A    | -     | -     | A    | 8.4   | 0.2 m |
|                                                                                  |          | RT       |      |       |       |      |       |       |

Table 19 shows the expected LOS, control delay, and 95th percentile queue length for Full Build 2029 conditions

| Table 19 Intersection LOS, Delay, and Queue by Movement – 2029 Full Build |          |          |      |       |       |      |       |       |
|---------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                              | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                           |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & West Access/Private Driveway                                   | EB       | LT       | Free |       |       | Free |       |       |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | WB       | LT       | A    | 3.0   | 0.1   | A    | 1.7   | 0.1 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | NB       | LT       | A    | -     | -     | A    | 8.4   | 0.2 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |
|                                                                           | SB       | LT       | A    | 8.7   | 0.1   | A    | 8.9   | 0.1 m |
|                                                                           |          | TH       |      |       |       |      |       |       |
|                                                                           |          | RT       |      |       |       |      |       |       |

Table 20 shows the expected LOS, control delay, and 95th percentile queue length for Future Year 2034 conditions

| Table 20 Intersection LOS, Delay, and Queue by Movement – 2034 Future Year |          |          |      |       |       |      |       |       |
|----------------------------------------------------------------------------|----------|----------|------|-------|-------|------|-------|-------|
| Intersection                                                               | Approach | Movement | AM   |       |       | PM   |       |       |
|                                                                            |          |          | LOS  | Delay | Queue | LOS  | Delay | Queue |
| Shore St & West Access/Private Driveway                                    | EB       | LT       | Free |       |       | Free |       |       |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | WB       | LT       | A    | 2.9   | 0.1   | A    | 1.7   | 0.1 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | NB       | LT       | A    | -     | -     | A    | 8.4   | 0.2 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |
|                                                                            | SB       | LT       | A    | 8.8   | 0.1   | A    | 9.0   | 0.1 m |
|                                                                            |          | TH       |      |       |       |      |       |       |
|                                                                            |          | RT       |      |       |       |      |       |       |

Analysis shows that east site access will operate with acceptable LOS and minimal delays and queue lengths.



Queen Street South at Shore Street – Looking North

## 6.0 PARKING REQUIREMENTS

The proposed redevelopment will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces.

While the vehicular parking supply falls short of the minimum requirement of 34 spaces outlined in Comprehensive Zoning By-law 2006-50, it aligns with the minimum parking standards outlined in the Draft Zoning By-law Amendment (dated July 10, 2024) for the subject site, which establishes the following specific requirements:

- 1.0 resident parking space per dwelling unit
- 0.29 visitor parking spaces per dwelling unit

Applying these standards to the proposed 19-unit development yields:

- Resident parking required:  $19 \times 1.0 = 19$  spaces
- Visitor parking required:  $19 \times 0.29 = 5.51$  (rounded up to 6)
- Total required: 25 parking spaces

The proposed supply of 27 spaces exceeds the minimum requirement defined in the draft site-specific zoning by-law, thereby complying with the emerging policy framework and addressing projected on-site demand.

In light of this, a separate stand-alone parking justification study is not considered necessary. Should Town staff require additional clarification, the consulting team remains available for further coordination.

To support the parking demand of this development, the *ITE Parking Generation Manual 5th Edition* was consulted, as per discussions with Town Staff noted in the study's TOR. For a conservative analysis, ITE Code 220 (Multifamily Housing (Low-Rise)) was applied to the weekday and Saturday periods, as directed by Town Staff. This decision was made because the proposed number of units falls within the data range of the ITE graphs for this land use code, ensuring a more cautious estimate of parking needs.

The following table summarizes the ITE-based calculations, with details available in the appendices:

**Table 21 ITE Parking Generation 5th Edition**

| Land Use                                                    | Size     | ITE Code | Time Period | ITE Equation/Rate                            | Peak Period Parking Demand |
|-------------------------------------------------------------|----------|----------|-------------|----------------------------------------------|----------------------------|
| Multifamily Housing (Low-Rise)<br>(Occupied dwelling Units) | 19 units | 220      | Weekday     | Fitted Curve Equation: $P = 1.33(X) - 20.15$ | 5 Spaces                   |
|                                                             |          |          |             | Average Rate: 1.22                           | 23 spaces                  |
|                                                             |          |          | Saturday    | Fitted Curve Equation: $P = 1.29(X) - 1.37$  | 23 Spaces                  |
|                                                             |          |          |             | Average Rate: 1.28                           | 24 spaces                  |

Based on the ITE analysis, the proposed 27 parking spaces exceed the estimated peak demand for both weekdays and Saturdays. On weekdays, the estimated demand is 23 spaces, and on Saturdays, it is 24 spaces. Therefore, it can be concluded that the proposed parking supply is adequate to accommodate the anticipated demand from this development. This aligns with the current trend towards demand-based parking management, which prioritizes efficient land use and responsiveness to actual parking needs over rigid, potentially excessive minimums.

## 6.1 Site Circulation Analysis

To ensure the feasibility of the proposed driveway connection and internal driveway, an AutoTURN swept path analysis was conducted. This analysis generated vehicular turning templates to confirm the accessibility of these areas.

Swept path analysis was performed specifically for passenger vehicles at the on-street parallel parking spaces and other highlighted stalls. The results confirm that all highlighted spaces can accommodate a standard P-TAC design vehicle (5.6 metres in length).

However, it is noted that simultaneous maneuvering of two P-TAC vehicles into adjacent parallel parking spaces presents operational challenges, particularly if both spaces are occupied. In such instances, the usability of one space is dependent on the other being unoccupied. That said, most vehicles in regular use—including compact cars, sedans, and full-size SUVs—can be accommodated without issue. Drivers of oversized vehicles, such as full-size pickup trucks or work vans, are generally aware of spatial constraints and tend to self-select appropriate parking.

With the exception of the two parallel spaces, all remaining stalls have been confirmed to accommodate oversized vehicles. Given the limited number of constrained spaces and their expected infrequent use by larger vehicles, this configuration is considered acceptable for the subject site.

Detailed swept path diagrams supporting this analysis are included in the appendices

## 6.2 On-site Transportation Demand Management (TDM)

Transportation Demand Management (TDM) refers to variety of strategies to reduce congestion, minimize the number of single-occupant vehicle, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. In short, TDM works to change how, when, where, and why people travel.

TDM strategies that can be applied to the subject site including the followings:

- **Bicycle Parking** – The redevelopment proposes to provide a total of 14 bicycle parking spaces. Provision of bicycle parking spaces will complement the Town's and Regions cycling plan. The applicant is responsible for this initiative.
- **Transit Incentives** – It is recommended that pre-loaded Presto Cards (\$25) be provided to homeowners at the time of registration to encourage transit use. The applicant is responsible for this initiative.
- **Information Packages (Transit maps, Transit Schedules, Cycling maps)** – It is recommended that homeowners be provided with transit and cycling information packages at the time of registration. The applicant is responsible for this initiative.
- **TDM Communication Outreach Strategy** - It is recommended that an event be organized by the applicant to invite representatives from the Region and City to distribute the pre-loaded Presto Cards and Information Packages as described above to the new homeowners. The event will be initiated once the occupancy reached 75% and the location of the event will be determined closer to the event date.

## **7.0 SUMMARY AND CONCLUSIONS**

CGE Transportation Consulting was retained by Bolton Shore Holdings Ltd. to prepare a Transportation Study for a proposed residential redevelopment, located at 15, 21 and 27 Shore Street in the Town of Caledon (Bolton), Peel Region

### **Proposed Development**

The development will consist of a four-storey residential apartment building with 19 units, 27 vehicular parking spaces, and 14 bike parking spaces. The development will include two full-access connections to Shore Street in a looped configuration. Full Build for the project is targeted for 2029.

### **Trip Generation**

The trip generation analysis results indicate that the proposed development is anticipated to generate 7 and 8 new two-way trips to the adjacent network during the weekday AM and PM peak hours, respectively.

### **Turn Lanes**

Based on Future Year 2034 volumes, no left-turn and no right-turn lanes are required for the project accesses.

### **Traffic Impacts**

Analysis shows that overall acceptable levels of service are maintained with the 2029 Full Build development traffic as well as 2034 Future Year conditions at the Queen Street South (Highway 50) & Ellwood Drive signalized intersection. Traffic analysis confirms the proposed development will not worsen the overall traffic flow at the intersection. While the eastbound and westbound approaches already experience delays, this is unrelated to the project's minimal traffic contribution. To address these existing issues, it's recommended that the Region/Town focus on improvements like adjusting road layout, signal timing, or turning restrictions, while continuing to monitor the intersection's performance.

Analysis shows that acceptable LOS will be maintained with the proposed development traffic or full build conditions at the Queen Street South (Highway 50) & Shore Street intersection.

Analysis shows that proposed site accesses will operate with acceptable LOS and minimal delays and queue lengths.

### **Parking**

The proposed 27 parking spaces are deemed adequate to serve the development despite falling short of zoning by-law minimums, aligning with the trend towards demand-based parking strategies.

## **Appendix A:**

### **Terms of Reference and Feedback**

---

**From:** Alex Mior <Alex.Mior@caledon.ca>  
**Sent:** Monday, May 6, 2024 11:51 AM  
**To:** Maurizio Rogato <mrogato@blackthorncorp.ca>  
**Subject:** FW: Shore Street: Traffic Study Terms of Reference...

Hi Maurizio,

I hope you had a great weekend & are doing well.

It was nice to meet you (in-person) at the Delta event a couple weeks ago.

Please see the comments on your Terms of Reference for the Traffic Study below.

If you have any questions, please don't hesitate to contact me.

Kind Regards,

**Alex Mior**

Community Planner, Development  
Planning Department

Office: [905.584.2272](tel:905.584.2272) x. 4528

Email: [alex.mior@caledon.ca](mailto:alex.mior@caledon.ca)

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**From:** Emma Howlett <[Emma.Howlett@caledon.ca](mailto:Emma.Howlett@caledon.ca)>  
**Sent:** Monday, May 6, 2024 11:46 AM  
**To:** Alex Mior <[Alex.Mior@caledon.ca](mailto:Alex.Mior@caledon.ca)>  
**Cc:** Kavleen Younan <[Kavleen.Younan@caledon.ca](mailto:Kavleen.Younan@caledon.ca)>  
**Subject:** RE: Shore Street: Traffic Study Terms of Reference...

Hello Alex,

Town Transportation staff have reviewed the Terms of Reference (TOR) submitted for PRE 2023-0116: 15, 21 & 27 Shore Street, Town of Caledon – Transportation Impact Study and offer the following comments:

1. Average rates were used to establish the anticipated trip generation stated in the TOR, staff are in agreement with this approach in the case specified. In the body of the report please state that average rates were used and justify that average rate are most applicable in this specific case.
2. Regarding the proposed Institute of Transportation Engineers (ITE) parking rates please review to ensure:
  - that the proposal fits the definition of ITE LUC 220 Midrise;
  - that the proposed number of units falls within the parking data point range in the graph;
  - that the density surveyed is comparable to the proposed development; and

- Revise if required. Please note in this specific case, ITE definitions and data should be included in the Appendix of the report.
- 3. Proxy sites may or may not be required depending on the findings of the comment above. If proxy site data is required proposing comparable proxy sites is the responsibility of the consultant. Please see below for standard requirements:
  - For residential apartments the ideal data will be the result of vehicle ownership rates from proxy sites in a similar context. If this is not possible, the resident parking demand may be determined through appropriate survey periods.
  - Proposed proxy sites should be comparable to the proposed development's context within Caledon. Staff recommend reviewing the [Zoning - Town of Caledon](#) maps or areal imagery to determine locations of apartment buildings within Caledon. However, Staff are open to reviewing locations outside Caledon provided adequate justification is made to the comparability of the context.
  - Proxy site data should be collected at peak periods reflective of typical conditions (i.e., major holiday or construction is not occurring preventing usage of units or parking).
  - Data should be included in the appendix of the report including:
    - Days of the survey;
    - Total onsite parking spaces;
    - Number of units on site;
    - # of vacancies;
    - Observed parking - separating out legal, illegal, off-site, and total parking;
    - percentage of the total parking capacity; and
    - observed parking demand ratio per unit.
- 4. Please ensure that as part of the proposal the proposed development will be connected the existing sidewalk network, this could be done in a simple pedestrian circulation plan if desired.
- 5. Please use standard vehicles where specific vehicles are not applicable, PTAC vehicles should be used for passenger vehicle parking spaces.
- 6. Given the proposed development's location, a TOR should be circulated with the Region to provide additional insight as required.

Regards,

**Emma Howlett, EIT**

Transportation Coordinator, Engineering, Public Works, & Transportation Department

Office: 905.584.2272 x 4309 | Email: [Emma.Howlett@caledon.ca](mailto:Emma.Howlett@caledon.ca)

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**From:** Alex Mior <[Alex.Mior@caledon.ca](mailto:Alex.Mior@caledon.ca)>

**Sent:** April 23, 2024 1:07 PM

**To:** Kavleen Younan <[Kavleen.Younan@caledon.ca](mailto:Kavleen.Younan@caledon.ca)>; Emma Howlett <[Emma.Howlett@caledon.ca](mailto:Emma.Howlett@caledon.ca)>

**Subject:** FW: Shore Street: Traffic Study Terms of Reference...

Hi Kavleen & Emma,

Hope you're both doing well.

Please see the Terms of Reference for the Traffic Study for Shore Street (PRE 2023-0116 & PRE 2023-0274).

Please let me know if you have any questions.

Kind Regards,

**Alex Mior**

Community Planner, Development  
Planning Department

Office: [905.584.2272](tel:905.584.2272) x. 4528

Email: [alex.mior@caledon.ca](mailto:alex.mior@caledon.ca)

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**From:** Maurizio Rogato <[mrogato@blackthorncorp.ca](mailto:mrogato@blackthorncorp.ca)>

**Sent:** Tuesday, April 23, 2024 9:42 AM

**To:** Alex Mior <[Alex.Mior@caledon.ca](mailto:Alex.Mior@caledon.ca)>

**Cc:** Kody Giallonardo <[kody@blackthorncorp.ca](mailto:kody@blackthorncorp.ca)>; Casey Ge <[casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)>

**Subject:** Shore Street: Traffic Study Terms of Reference...

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the contents to be safe.

Alex,

Good morning and hope you are doing great.

Attached are the proposed Terms of Reference for the Traffic Study at Shore Street.

Please circulate internally and let us know if the Terms are acceptable.

Looking forward.

Thanks,

Maurizio

Maurizio Rogato B.U.R.Pl., M.C.I.P., R.P.P.  
Principal



Land Development | Land Use Planning | Project Management | Government Relations

**Tel:** 416-888-7159

**[www.blackthorncorp.ca](http://www.blackthorncorp.ca)**

**From:** [Shen, Yifan](#)  
**To:** [Casey Ge](#)  
**Cc:** [Zare, Mina](#); [Maurizio Rogato](#); [Hamdani, Hashim](#)  
**Subject:** RE: Shore Street: Traffic Study Terms of Reference...  
**Date:** May 28, 2024 2:53:07 PM

---

Hi Casey,

Thank you for passing along the Terms of Reference. Please find my comments below:

Please see the traffic comments below and the [link](#) here for the detailed Region of Peel TIS formatting and contact information for background traffic (growth rate, AADT, signal timing, etc.).

- Regional Road 50 (Highway 50) – Urban Main Street (for information)

| Access Type    | Minimum Spacing Requirement |
|----------------|-----------------------------|
| Full to Full   | 150 m                       |
| Full to RI/RO  | 75 m                        |
| RI/RO to RI/RO | Individual Site Review      |

- Please review the Controlled Access By-law 62-2013, which speaks to the [Road Characterization Study \(RCS\)](#). The RCS defines our various road classifications as well as the minimum access spacing distances that are associated with them.
- [Analysis Period](#) - Acceptable.
- [Intersections](#) – Please include the intersection of **Highway 50 and Ellwood Drive West** due to proximity and to understand the stress put onto the surrounding intersections.
- [Horizon Years](#) - Please include a 10-year horizon period.
- Please see the following contacts to obtain data for your analysis:
  - Please contact [transportationplanningdata@peelregion.ca](mailto:transportationplanningdata@peelregion.ca) to confirm growth rates along the subject Regional road(s).
  - Please contact Damian Jamroz ([damian.jamroz@peelregion.ca](mailto:damian.jamroz@peelregion.ca)) Supervisor of Traffic Operations to obtain the most recent TMCs and/or average annual daily traffic (AADT).
  - Please contact Rebecca Caughey ([Rebecca.caughey@peelregion.ca](mailto:Rebecca.caughey@peelregion.ca)) Supervisor of Traffic Signals and Streetlighting, to obtain traffic signal timing parameters and ensure that the information includes the appropriate walk/don't walk splits, recall modes and offsets.
  - Please contact your Local Municipality Planning Department to obtain details on surrounding developments in the area that would affect traffic capacity in the planning horizon year(s).

Should you have any questions or concerns, please do not hesitate to let me know.

Thank you,

**Yifan Shen**

Specialist, Transportation Development  
Transportation Development  
Region of Peel  
10 Peel Centre Drive, Suite B, 4<sup>th</sup> Floor  
Brampton, ON L6T 4B9



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**From:** Casey Ge <casey@cgeconsulting.ca>  
**Sent:** Tuesday, May 28, 2024 2:21 PM  
**To:** Shen, Yifan <yifan.shen@peelregion.ca>; Zare, Mina <mina.zare@peelregion.ca>  
**Cc:** Maurizio Rogato <mrogato@blackthorncorp.ca>  
**Subject:** RE: Shore Street: Traffic Study Terms of Reference...

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Hi Yifan, TOR attached for your review.

Thanks

**Casey Ge, P.Eng.**  
President

**CGE Consulting**  
e: [casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)  
p: 416-602-1885

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**From:** Shen, Yifan <[yifan.shen@peelregion.ca](mailto:yifan.shen@peelregion.ca)>  
**Sent:** Tuesday, May 28, 2024 2:15 PM  
**To:** Casey Ge <[casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)>; Zare, Mina <[mina.zare@peelregion.ca](mailto:mina.zare@peelregion.ca)>

**Cc:** Maurizio Rogato <[mrogato@blackthorncorp.ca](mailto:mrogato@blackthorncorp.ca)>

**Subject:** RE: Shore Street: Traffic Study Terms of Reference...

Hi Casey,

Good afternoon, apologies for the delay. Would you happen to have the TOR that I assume was initially attached to the email? I believe it got lost in the email chain.

Warm regards,

**Yifan Shen**

Specialist, Transportation Development

Transportation Development

Region of Peel

10 Peel Centre Drive, Suite B, 4<sup>th</sup> Floor

Brampton, ON L6T 4B9



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**From:** Casey Ge <[casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)>

**Sent:** Tuesday, May 28, 2024 2:00 PM

**To:** Zare, Mina <[mina.zare@peelregion.ca](mailto:mina.zare@peelregion.ca)>; Shen, Yifan <[yifan.shen@peelregion.ca](mailto:yifan.shen@peelregion.ca)>

**Cc:** Maurizio Rogato <[mrogato@blackthorncorp.ca](mailto:mrogato@blackthorncorp.ca)>

**Subject:** RE: Shore Street: Traffic Study Terms of Reference...

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Good afternoon Yifan,

Please advise if you are able to provide a response to us by end of this week. We would like to get started with the traffic study as soon as possible.

Thank you

**Casey Ge, P.Eng.**  
President

**CGE Consulting**e: [casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)

p: 416-602-1885

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**From:** Zare, Mina <[mina.zare@peelregion.ca](mailto:mina.zare@peelregion.ca)>**Sent:** Monday, May 6, 2024 1:34 PM**To:** Casey Ge <[casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)>; Shen, Yifan <[yifan.shen@peelregion.ca](mailto:yifan.shen@peelregion.ca)>**Cc:** Maurizio Rogato <[mrogato@blackthorncorp.ca](mailto:mrogato@blackthorncorp.ca)>**Subject:** RE: Shore Street: Traffic Study Terms of Reference...

Hi Casey,

I am forwarding the TOR to my colleague (Yifan Shen) who is working in this area of Highway 50.

Warm regards,

**Mina Zare, MA, PMP (She, Her)**

Specialist, Transportation Development

Transportation Division, Public Works

Region of Peel

10 Peel Centre Drive Suite B, 4<sup>th</sup> Floor

Brampton, ON L6T 4B9

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**From:** Casey Ge <[casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)>**Sent:** Monday, May 6, 2024 1:09 PM**To:** Zare, Mina <[mina.zare@peelregion.ca](mailto:mina.zare@peelregion.ca)>**Cc:** Maurizio Rogato <[mrogato@blackthorncorp.ca](mailto:mrogato@blackthorncorp.ca)>**Subject:** FW: Shore Street: Traffic Study Terms of Reference...

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YOU DO NOT TRUST.**

Hello Mina, we have been retained to undertake the transportation study for the proposed 4-storey 19-unit apartment building.

It is a small development and nominal amount of traffic is anticipated, however due to its proximity to Highway 50 I am circulating a terms of reference for your review. City also requested that Region be consulted for TOR approval.

If you have any questions please feel free to contact me.

Thank you and look forward to receive your response.

**Casey Ge, P.Eng.**

President

**CGE Consulting**

e: [casey@cgeconsulting.ca](mailto:casey@cgeconsulting.ca)

p: 416-602-1885

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## **Appendix B:**

### **Traffic Volumes and Signal Timing Plan**

## Project #24-248 - CGE Transportation Consulting

### Intersection Count Report

**Intersection:** Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W

**Municipality:** Bolton

**Count Date:** Wednesday, Jun 05, 2024

**Site Code:** 2424800004

**Count Categories:** Cars, Trucks, Bicycles, Pedestrians

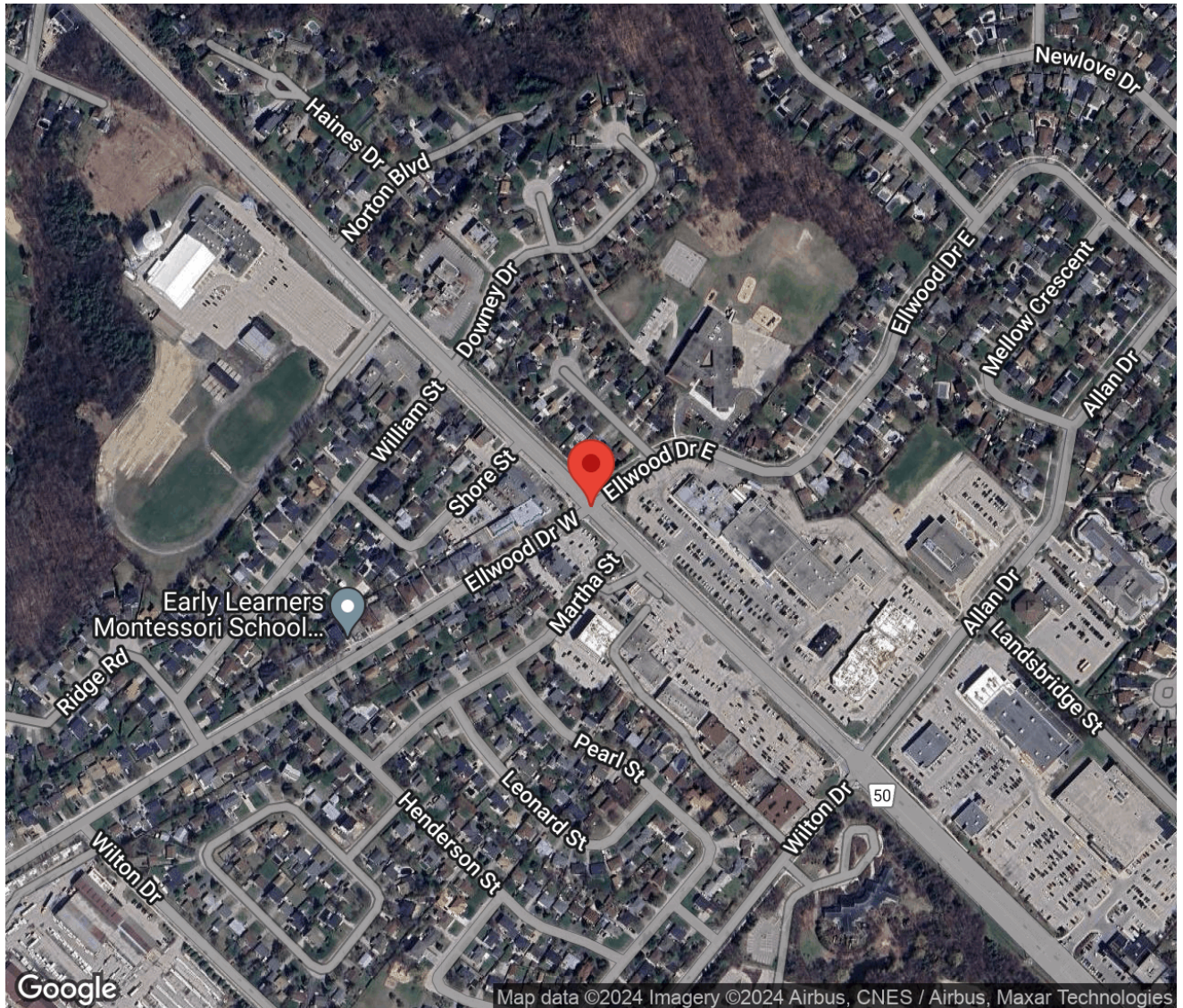
**Count Period:** 07:00-09:00, 16:00-18:00

**Weather:** Clear

**Comments:**

## Traffic Count Map

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E -  
Ellwood Dr W  
Site Code: 2424800004  
Municipality: Bolton  
Count Date: Jun 05, 2024



## Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E -  
Ellwood Dr W  
Site Code: 2424800004  
Municipality: Bolton  
Count Date: Jun 05, 2024

### Hwy 50 (Queen St S) - Traffic Summary

| Hour          | North Approach Totals           |      |       |        |       |      | South Approach Totals           |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 30                              | 862  | 12    | 0      | 904   | 2    | 36                              | 335  | 13    | 0      | 384   | 0    | 1288  |
| 08:00 - 09:00 | 96                              | 783  | 22    | 0      | 901   | 33   | 51                              | 416  | 25    | 0      | 492   | 1    | 1393  |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 67                              | 621  | 26    | 0      | 714   | 8    | 107                             | 1215 | 22    | 0      | 1344  | 2    | 2058  |
| 17:00 - 18:00 | 85                              | 568  | 26    | 0      | 679   | 7    | 123                             | 1171 | 24    | 0      | 1318  | 8    | 1997  |
| GRAND TOTAL   | 278                             | 2834 | 86    | 0      | 3198  | 50   | 317                             | 3137 | 84    | 0      | 3538  | 11   | 6736  |

## Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E -  
Ellwood Dr W  
Site Code: 2424800004  
Municipality: Bolton  
Count Date: Jun 05, 2024

### Ellwood Dr E - Traffic Summary

| Hour          | East Approach Totals            |      |       |        |       |      | West Approach Totals            |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 29                              | 9    | 46    | 0      | 84    | 1    | 13                              | 13   | 61    | 0      | 87    | 0    | 171   |
| 08:00 - 09:00 | 50                              | 28   | 65    | 0      | 143   | 7    | 18                              | 60   | 78    | 0      | 156   | 12   | 299   |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 36                              | 47   | 102   | 0      | 185   | 8    | 50                              | 47   | 100   | 0      | 197   | 1    | 382   |
| 17:00 - 18:00 | 33                              | 39   | 69    | 0      | 141   | 7    | 52                              | 39   | 91    | 0      | 182   | 10   | 323   |
| GRAND TOTAL   | 148                             | 123  | 282   | 0      | 553   | 23   | 133                             | 159  | 330   | 0      | 622   | 23   | 1175  |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### North Approach - Hwy 50 (Queen St S)

| Start Time      | Cars |      |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|------|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑    | →  | ↺ | Total | ←      | ↑  | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 3    | 202  | 1  | 0 | 206   | 1      | 0  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 4    | 194  | 1  | 0 | 199   | 1      | 7  | 0 | 0 | 8     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 8    | 216  | 3  | 0 | 227   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| 07:45           | 13   | 231  | 7  | 0 | 251   | 0      | 11 | 0 | 0 | 11    | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 13   | 193  | 5  | 0 | 211   | 0      | 6  | 0 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 20   | 214  | 3  | 0 | 237   | 0      | 7  | 0 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 6          |
| 08:30           | 38   | 178  | 6  | 0 | 222   | 4      | 6  | 0 | 0 | 10    | 0        | 0 | 0 | 0 | 0     | 17         |
| 08:45           | 21   | 175  | 8  | 0 | 204   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 10         |
| <b>SUBTOTAL</b> | 120  | 1603 | 34 | 0 | 1757  | 6      | 42 | 0 | 0 | 48    | 0        | 0 | 0 | 0 | 0     | 35         |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### North Approach - Hwy 50 (Queen St S)

| Start Time         | Cars |      |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|--------------------|------|------|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                    | ←    | ↑    | →  | ↻ | Total | ←      | ↑  | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00              | 20   | 157  | 8  | 0 | 185   | 0      | 6  | 0 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 3          |
| 16:15              | 12   | 159  | 9  | 0 | 180   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 2          |
| 16:30              | 14   | 146  | 4  | 0 | 164   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45              | 20   | 144  | 5  | 0 | 169   | 1      | 4  | 0 | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 3          |
| 17:00              | 26   | 147  | 6  | 0 | 179   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15              | 16   | 133  | 8  | 0 | 157   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 4          |
| 17:30              | 23   | 159  | 7  | 0 | 189   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 3          |
| 17:45              | 20   | 126  | 5  | 0 | 151   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b>    | 151  | 1171 | 52 | 0 | 1374  | 1      | 18 | 0 | 0 | 19    | 0        | 0 | 0 | 0 | 0     | 15         |
| <b>GRAND TOTAL</b> | 271  | 2774 | 86 | 0 | 3131  | 7      | 60 | 0 | 0 | 67    | 0        | 0 | 0 | 0 | 0     | 50         |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### South Approach - Hwy 50 (Queen St S)

| Start Time      | Cars |     |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|-----|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑   | →  | ↺ | Total | ←      | ↑  | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 8    | 82  | 5  | 0 | 95    | 0      | 2  | 1 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 7    | 67  | 0  | 0 | 74    | 1      | 6  | 2 | 0 | 9     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 10   | 79  | 3  | 0 | 92    | 2      | 3  | 0 | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 8    | 88  | 2  | 0 | 98    | 0      | 8  | 0 | 0 | 8     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 12   | 96  | 4  | 0 | 112   | 1      | 3  | 1 | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 5    | 105 | 5  | 0 | 115   | 1      | 1  | 1 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 16   | 86  | 7  | 0 | 109   | 3      | 3  | 1 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:45           | 12   | 117 | 5  | 0 | 134   | 1      | 5  | 1 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 1          |
| <b>SUBTOTAL</b> | 78   | 720 | 31 | 0 | 829   | 9      | 31 | 7 | 0 | 47    | 0        | 0 | 0 | 0 | 0     | 1          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### South Approach - Hwy 50 (Queen St S)

| Start Time  | Cars |      |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|------|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑    | →  | ↺ | Total | ←      | ↑  | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 16:00       | 29   | 286  | 4  | 0 | 319   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 25   | 293  | 4  | 0 | 322   | 1      | 4  | 1 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 2          |
| 16:30       | 25   | 332  | 7  | 0 | 364   | 0      | 2  | 1 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 27   | 296  | 5  | 0 | 328   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00       | 15   | 267  | 5  | 0 | 287   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 2          |
| 17:15       | 30   | 276  | 7  | 0 | 313   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 36   | 301  | 5  | 0 | 342   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 5          |
| 17:45       | 42   | 324  | 7  | 0 | 373   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 1          |
| SUBTOTAL    | 229  | 2375 | 44 | 0 | 2648  | 1      | 11 | 2 | 0 | 14    | 0        | 0 | 0 | 0 | 0     | 10         |
| GRAND TOTAL | 307  | 3095 | 75 | 0 | 3477  | 10     | 42 | 9 | 0 | 61    | 0        | 0 | 0 | 0 | 0     | 11         |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### East Approach - Ellwood Dr E

| Start Time      | Cars |    |     |   |       | Trucks |   |    |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|----|-----|---|-------|--------|---|----|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑  | →   | ↺ | Total | ←      | ↑ | →  | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 5    | 3  | 5   | 0 | 13    | 0      | 0 | 0  | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 5    | 0  | 8   | 0 | 13    | 0      | 1 | 0  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 6    | 3  | 13  | 0 | 22    | 2      | 0 | 3  | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 1          |
| 07:45           | 9    | 2  | 15  | 0 | 26    | 2      | 0 | 2  | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 6    | 3  | 12  | 0 | 21    | 0      | 0 | 1  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 5    | 3  | 11  | 0 | 19    | 0      | 0 | 1  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 12   | 7  | 17  | 0 | 36    | 2      | 0 | 1  | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 3          |
| 08:45           | 23   | 14 | 20  | 0 | 57    | 2      | 1 | 2  | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 4          |
| <b>SUBTOTAL</b> | 71   | 35 | 101 | 0 | 207   | 8      | 2 | 10 | 0 | 20    | 0        | 0 | 0 | 0 | 0     | 8          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### East Approach - Ellwood Dr E

| Start Time  | Cars |     |     |   |       | Trucks |   |    |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|-----|-----|---|-------|--------|---|----|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑   | →   | ↻ | Total | ←      | ↑ | →  | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00       | 5    | 8   | 26  | 0 | 39    | 1      | 0 | 0  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 3          |
| 16:15       | 6    | 17  | 33  | 0 | 56    | 0      | 0 | 0  | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 1          |
| 16:30       | 10   | 11  | 14  | 0 | 35    | 0      | 0 | 1  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| 16:45       | 14   | 11  | 28  | 0 | 53    | 0      | 0 | 0  | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 2          |
| 17:00       | 8    | 17  | 16  | 0 | 41    | 0      | 0 | 1  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 3          |
| 17:15       | 8    | 7   | 20  | 0 | 35    | 0      | 0 | 0  | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 1          |
| 17:30       | 11   | 9   | 13  | 0 | 33    | 0      | 0 | 0  | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 3          |
| 17:45       | 6    | 5   | 19  | 0 | 30    | 0      | 1 | 0  | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 68   | 85  | 169 | 0 | 322   | 1      | 1 | 2  | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 15         |
| GRAND TOTAL | 139  | 120 | 270 | 0 | 529   | 9      | 3 | 12 | 0 | 24    | 0        | 0 | 0 | 0 | 0     | 23         |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Ellwood Dr W

| Start Time      | Cars |    |     |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|----|-----|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑  | →   | ↺ | Total | ←      | ↑ | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 1    | 1  | 13  | 0 | 15    | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 2    | 3  | 20  | 0 | 25    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 5    | 4  | 14  | 0 | 23    | 1      | 0 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 3    | 4  | 14  | 0 | 21    | 1      | 0 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 4    | 3  | 16  | 0 | 23    | 1      | 0 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| 08:15           | 7    | 9  | 22  | 0 | 38    | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 1          |
| 08:30           | 3    | 29 | 16  | 0 | 48    | 0      | 2 | 1 | 0 | 3     | 0        | 1 | 0 | 0 | 1     | 7          |
| 08:45           | 3    | 15 | 22  | 0 | 40    | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| <b>SUBTOTAL</b> | 28   | 68 | 137 | 0 | 233   | 3      | 4 | 2 | 0 | 9     | 0        | 1 | 0 | 0 | 1     | 12         |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Ellwood Dr W

| Start Time         | Cars |     |     |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|--------------------|------|-----|-----|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|                    | ←    | ↑   | →   | ↺ | Total | ←      | ↑ | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 16:00              | 10   | 10  | 30  | 0 | 50    | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15              | 18   | 5   | 26  | 0 | 49    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30              | 10   | 18  | 26  | 0 | 54    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45              | 12   | 14  | 16  | 0 | 42    | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 1          |
| 17:00              | 21   | 10  | 19  | 0 | 50    | 0      | 1 | 1 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 1          |
| 17:15              | 9    | 13  | 25  | 0 | 47    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 4          |
| 17:30              | 16   | 9   | 27  | 0 | 52    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 3          |
| 17:45              | 5    | 6   | 18  | 0 | 29    | 1      | 0 | 1 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 2          |
| <b>SUBTOTAL</b>    | 101  | 85  | 187 | 0 | 373   | 1      | 1 | 4 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 11         |
| <b>GRAND TOTAL</b> | 129  | 153 | 324 | 0 | 606   | 4      | 5 | 6 | 0 | 15    | 0        | 1 | 0 | 0 | 1     | 23         |

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00

**Intersection:** Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
**Site Code:** 2424800004  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Hwy 50 (Queen St S) runs N/S

### North Approach

|                                                                                   | Out        | In         | Total       |
|-----------------------------------------------------------------------------------|------------|------------|-------------|
|  | 874        | 481        | 1355        |
|  | 27         | 18         | 45          |
|  | 0          | 0          | 0           |
| <b>Totals</b>                                                                     | <b>901</b> | <b>499</b> | <b>1400</b> |

### Hwy 50 (Queen St S)

|                                                                                   |           |            |           |          |
|-----------------------------------------------------------------------------------|-----------|------------|-----------|----------|
|  | 0         | 0          | 0         | 0        |
|  | 0         | 23         | 4         | 0        |
|  | 22        | 760        | 92        | 0        |
| <b>Totals</b>                                                                     | <b>22</b> | <b>783</b> | <b>96</b> | <b>0</b> |






### East Approach

|                                                                                     | Out        | In         | Total      |
|-------------------------------------------------------------------------------------|------------|------------|------------|
|  | 133        | 169        | 302        |
|  | 10         | 11         | 21         |
|  | 0          | 1          | 1          |
| <b>Totals</b>                                                                       | <b>143</b> | <b>181</b> | <b>324</b> |

### Ellwood Dr W

|  |  |  |  | Totals    |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | <b>0</b>  |
|  | 0                                                                                   | 1                                                                                   | 17                                                                                  | <b>18</b> |
|  | 1                                                                                   | 3                                                                                   | 56                                                                                  | <b>60</b> |
|  | 0                                                                                   | 2                                                                                   | 76                                                                                  | <b>78</b> |






**Peds: 33**

**Peds: 12**



**Peds: 7**

**Peds: 1**

### Ellwood Dr E

| Totals    |  |  |  |
|-----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>0</b>  | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| <b>65</b> | 60                                                                                    | 5                                                                                     | 0                                                                                     |
| <b>28</b> | 27                                                                                    | 1                                                                                     | 0                                                                                     |
| <b>50</b> | 46                                                                                    | 4                                                                                     | 0                                                                                     |






### West Approach

|                                                                                     | Out        | In         | Total      |
|-------------------------------------------------------------------------------------|------------|------------|------------|
|  | 149        | 94         | 243        |
|  | 6          | 7          | 13         |
|  | 1          | 0          | 1          |
| <b>Totals</b>                                                                       | <b>156</b> | <b>101</b> | <b>257</b> |

|                                                                                     |           |            |           |          |
|-------------------------------------------------------------------------------------|-----------|------------|-----------|----------|
| <b>Totals</b>                                                                       | <b>51</b> | <b>416</b> | <b>25</b> | <b>0</b> |
|  | 45        | 404        | 21        | 0        |
|  | 6         | 12         | 4         | 0        |
|  | 0         | 0          | 0         | 0        |

### Hwy 50 (Queen St S)

### South Approach

|                                                                                       | Out        | In         | Total       |
|---------------------------------------------------------------------------------------|------------|------------|-------------|
|  | 470        | 882        | 1352        |
|  | 22         | 29         | 51          |
|  | 0          | 0          | 0           |
| <b>Totals</b>                                                                         | <b>492</b> | <b>911</b> | <b>1403</b> |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
 Site Code: 2424800004  
 Count Date: Jun 05, 2024  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

| Start Time  | North Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | South Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | East Approach<br>Ellwood Dr E |      |      |   |      |       | West Approach<br>Ellwood Dr W |      |      |   |      |       | Total<br>Vehicles |
|-------------|---------------------------------------|------|------|---|------|-------|---------------------------------------|------|------|---|------|-------|-------------------------------|------|------|---|------|-------|-------------------------------|------|------|---|------|-------|-------------------|
|             | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                             | ↑    | →    | ↻ | Peds | Total | ←                             | ↑    | →    | ↻ | Peds | Total |                   |
| 08:00       | 13                                    | 199  | 5    | 0 | 0    | 217   | 13                                    | 99   | 5    | 0 | 0    | 117   | 6                             | 3    | 13   | 0 | 0    | 22    | 5                             | 3    | 16   | 0 | 2    | 24    | 380               |
| 08:15       | 20                                    | 221  | 3    | 0 | 6    | 244   | 6                                     | 106  | 6    | 0 | 0    | 118   | 5                             | 3    | 12   | 0 | 0    | 20    | 7                             | 10   | 22   | 0 | 1    | 39    | 421               |
| 08:30       | 42                                    | 184  | 6    | 0 | 17   | 232   | 19                                    | 89   | 8    | 0 | 0    | 116   | 14                            | 7    | 18   | 0 | 3    | 39    | 3                             | 32   | 17   | 0 | 7    | 52    | 439               |
| 08:45       | 21                                    | 179  | 8    | 0 | 10   | 208   | 13                                    | 122  | 6    | 0 | 1    | 141   | 25                            | 15   | 22   | 0 | 4    | 62    | 3                             | 15   | 23   | 0 | 2    | 41    | 452               |
| Grand Total | 96                                    | 783  | 22   | 0 | 33   | 901   | 51                                    | 416  | 25   | 0 | 1    | 492   | 50                            | 28   | 65   | 0 | 7    | 143   | 18                            | 60   | 78   | 0 | 12   | 156   | 1692              |
| Approach %  | 10.7                                  | 86.9 | 2.4  | 0 | -    | -     | 10.4                                  | 84.6 | 5.1  | 0 | -    | -     | 35                            | 19.6 | 45.5 | 0 | -    | -     | 11.5                          | 38.5 | 50   | 0 | -    | -     | -                 |
| Totals %    | 5.7                                   | 46.3 | 1.3  | 0 | -    | 53.3  | 3                                     | 24.6 | 1.5  | 0 | -    | 29.1  | 3                             | 1.7  | 3.8  | 0 | -    | 8.5   | 1.1                           | 3.5  | 4.6  | 0 | -    | 9.2   | -                 |
| PHF         | 0.57                                  | 0.89 | 0.69 | 0 | -    | 0.92  | 0.67                                  | 0.85 | 0.78 | 0 | -    | 0.87  | 0.5                           | 0.47 | 0.74 | 0 | -    | 0.58  | 0.64                          | 0.47 | 0.85 | 0 | -    | 0.75  | 0.94              |
| Cars        | 92                                    | 760  | 22   | 0 | -    | 874   | 45                                    | 404  | 21   | 0 | -    | 470   | 46                            | 27   | 60   | 0 | -    | 133   | 17                            | 56   | 76   | 0 | -    | 149   | 1626              |
| % Cars      | 95.8                                  | 97.1 | 100  | 0 | -    | 97    | 88.2                                  | 97.1 | 84   | 0 | -    | 95.5  | 92                            | 96.4 | 92.3 | 0 | -    | 93    | 94.4                          | 93.3 | 97.4 | 0 | -    | 95.5  | 96.1              |
| Trucks      | 4                                     | 23   | 0    | 0 | -    | 27    | 6                                     | 12   | 4    | 0 | -    | 22    | 4                             | 1    | 5    | 0 | -    | 10    | 1                             | 3    | 2    | 0 | -    | 6     | 65                |
| % Trucks    | 4.2                                   | 2.9  | 0    | 0 | -    | 3     | 11.8                                  | 2.9  | 16   | 0 | -    | 4.5   | 8                             | 3.6  | 7.7  | 0 | -    | 7     | 5.6                           | 5    | 2.6  | 0 | -    | 3.8   | 3.8               |
| Bicycles    | 0                                     | 0    | 0    | 0 | -    | 0     | 0                                     | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                             | 1    | 0    | 0 | -    | 1     | 1                 |
| % Bicycles  | 0                                     | 0    | 0    | 0 | -    | 0     | 0                                     | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                             | 1.7  | 0    | 0 | -    | 0.6   | 0.1               |
| Peds        | -                                     | -    | -    | - | 33   | -     | -                                     | -    | -    | - | 1    | -     | -                             | -    | -    | - | 7    | -     | -                             | -    | -    | - | 12   | -     | 53                |
| % Peds      | -                                     | -    | -    | - | 62.3 | -     | -                                     | -    | -    | - | 1.9  | -     | -                             | -    | -    | - | 13.2 | -     | -                             | -    | -    | - | 22.6 | -     | -                 |

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
**Site Code:** 2424800004  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Hwy 50 (Queen St S) runs N/S

### North Approach

|                                                                                   | Out        | In          | Total       |
|-----------------------------------------------------------------------------------|------------|-------------|-------------|
|  | 698        | 1358        | 2056        |
|  | 16         | 9           | 25          |
|  | 0          | 0           | 0           |
| <b>Totals</b>                                                                     | <b>714</b> | <b>1367</b> | <b>2081</b> |

### Hwy 50 (Queen St S)

|                                                                                   |           |            |           |          |
|-----------------------------------------------------------------------------------|-----------|------------|-----------|----------|
|  | 0         | 0          | 0         | 0        |
|  | 0         | 15         | 1         | 0        |
|  | 26        | 606        | 66        | 0        |
| <b>Totals</b>                                                                     | <b>26</b> | <b>621</b> | <b>67</b> | <b>0</b> |






### East Approach

|                                                                                     | Out        | In         | Total      |
|-------------------------------------------------------------------------------------|------------|------------|------------|
|  | 183        | 133        | 316        |
|  | 2          | 3          | 5          |
|  | 0          | 0          | 0          |
| <b>Totals</b>                                                                       | <b>185</b> | <b>136</b> | <b>321</b> |

### Ellwood Dr W

|                                                                                     |  |  |  | Totals     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | <b>0</b>   |
|  | 0                                                                                   | 0                                                                                   | 50                                                                                  | <b>50</b>  |
|  | 0                                                                                   | 0                                                                                   | 47                                                                                  | <b>47</b>  |
|  | 0                                                                                   | 2                                                                                   | 98                                                                                  | <b>100</b> |

Peds: 1



Peds: 8

Peds: 2

Peds: 8

### Ellwood Dr E

| Totals                                                                                |  |  |  |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  | <b>0</b>                                                                              | 0                                                                                     | 0                                                                                     |
|  | <b>102</b>                                                                            | 101                                                                                   | 1                                                                                     |
|  | <b>47</b>                                                                             | 47                                                                                    | 0                                                                                     |
|  | <b>36</b>                                                                             | 35                                                                                    | 1                                                                                     |

### West Approach

|                                                                                     | Out        | In         | Total      |
|-------------------------------------------------------------------------------------|------------|------------|------------|
|  | 195        | 179        | 374        |
|  | 2          | 1          | 3          |
|  | 0          | 0          | 0          |
| <b>Totals</b>                                                                       | <b>197</b> | <b>180</b> | <b>377</b> |

| Totals                                                                              |  |  |  |  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | 106                                                                                 | 1207                                                                                | 20                                                                                  | 0                                                                                   |
|  | 1                                                                                   | 8                                                                                   | 2                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |

### Hwy 50 (Queen St S)

### South Approach

|                                                                                       | Out         | In         | Total       |
|---------------------------------------------------------------------------------------|-------------|------------|-------------|
|  | 1333        | 739        | 2072        |
|  | 11          | 18         | 29          |
|  | 0           | 0          | 0           |
| <b>Totals</b>                                                                         | <b>1344</b> | <b>757</b> | <b>2101</b> |

 - Cars

 - Trucks

 - Bicycles

## Comments

## Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Ellwood Dr E - Ellwood Dr W  
Site Code: 2424800004  
Count Date: Jun 05, 2024  
Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

| Start Time  | North Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | South Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | East Approach<br>Ellwood Dr E |      |      |   |      |       | West Approach<br>Ellwood Dr W |      |      |   |      |       | Total<br>Vehicles |
|-------------|---------------------------------------|------|------|---|------|-------|---------------------------------------|------|------|---|------|-------|-------------------------------|------|------|---|------|-------|-------------------------------|------|------|---|------|-------|-------------------|
|             | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                             | ↑    | →    | ↻ | Peds | Total | ←                             | ↑    | →    | ↻ | Peds | Total |                   |
| 16:00       | 20                                    | 163  | 8    | 0 | 3    | 191   | 29                                    | 287  | 4    | 0 | 0    | 320   | 6                             | 8    | 26   | 0 | 3    | 40    | 10                            | 10   | 31   | 0 | 0    | 51    | 602               |
| 16:15       | 12                                    | 163  | 9    | 0 | 2    | 184   | 26                                    | 297  | 5    | 0 | 2    | 328   | 6                             | 17   | 33   | 0 | 1    | 56    | 18                            | 5    | 26   | 0 | 0    | 49    | 617               |
| 16:30       | 14                                    | 147  | 4    | 0 | 0    | 165   | 25                                    | 334  | 8    | 0 | 0    | 367   | 10                            | 11   | 15   | 0 | 2    | 36    | 10                            | 18   | 26   | 0 | 0    | 54    | 622               |
| 16:45       | 21                                    | 148  | 5    | 0 | 3    | 174   | 27                                    | 297  | 5    | 0 | 0    | 329   | 14                            | 11   | 28   | 0 | 2    | 53    | 12                            | 14   | 17   | 0 | 1    | 43    | 599               |
| Grand Total | 67                                    | 621  | 26   | 0 | 8    | 714   | 107                                   | 1215 | 22   | 0 | 2    | 1344  | 36                            | 47   | 102  | 0 | 8    | 185   | 50                            | 47   | 100  | 0 | 1    | 197   | 2440              |
| Approach %  | 9.4                                   | 87   | 3.6  | 0 | -    | -     | 8                                     | 90.4 | 1.6  | 0 | -    | -     | 19.5                          | 25.4 | 55.1 | 0 | -    | -     | 25.4                          | 23.9 | 50.8 | 0 | -    | -     | -                 |
| Totals %    | 2.7                                   | 25.5 | 1.1  | 0 | -    | 29.3  | 4.4                                   | 49.8 | 0.9  | 0 | -    | 55.1  | 1.5                           | 1.9  | 4.2  | 0 | -    | 7.6   | 2                             | 1.9  | 4.1  | 0 | -    | 8.1   | -                 |
| PHF         | 0.8                                   | 0.95 | 0.72 | 0 | -    | 0.93  | 0.92                                  | 0.91 | 0.69 | 0 | -    | 0.92  | 0.64                          | 0.69 | 0.77 | 0 | -    | 0.83  | 0.69                          | 0.65 | 0.81 | 0 | -    | 0.91  | 0.98              |
| Cars        | 66                                    | 606  | 26   | 0 | -    | 698   | 106                                   | 1207 | 20   | 0 | -    | 1333  | 35                            | 47   | 101  | 0 | -    | 183   | 50                            | 47   | 98   | 0 | -    | 195   | 2409              |
| % Cars      | 98.5                                  | 97.6 | 100  | 0 | -    | 97.8  | 99.1                                  | 99.3 | 90.9 | 0 | -    | 99.2  | 97.2                          | 100  | 99   | 0 | -    | 98.9  | 100                           | 100  | 98   | 0 | -    | 99    | 98.7              |
| Trucks      | 1                                     | 15   | 0    | 0 | -    | 16    | 1                                     | 8    | 2    | 0 | -    | 11    | 1                             | 0    | 1    | 0 | -    | 2     | 0                             | 0    | 2    | 0 | -    | 2     | 31                |
| % Trucks    | 1.5                                   | 2.4  | 0    | 0 | -    | 2.2   | 0.9                                   | 0.7  | 9.1  | 0 | -    | 0.8   | 2.8                           | 0    | 1    | 0 | -    | 1.1   | 0                             | 0    | 2    | 0 | -    | 1     | 1.3               |
| Bicycles    | 0                                     | 0    | 0    | 0 | -    | 0     | 0                                     | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                 |
| % Bicycles  | 0                                     | 0    | 0    | 0 | -    | 0     | 0                                     | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                             | 0    | 0    | 0 | -    | 0     | 0                 |
| Peds        | -                                     | -    | -    | - | 8    | -     | -                                     | -    | -    | - | 2    | -     | -                             | -    | -    | - | 8    | -     | -                             | -    | -    | - | 1    | -     | 19                |
| % Peds      | -                                     | -    | -    | - | 42.1 | -     | -                                     | -    | -    | - | 10.5 | -     | -                             | -    | -    | - | 42.1 | -     | -                             | -    | -    | - | 5.3  | -     | -                 |

# REGIONAL MUNICIPALITY OF PEEL

## Traffic Signal Timing Parameters

|                         |              |  |               |              |
|-------------------------|--------------|--|---------------|--------------|
| Database Date           | May 31, 2024 |  | Prepared Date | June 4, 2024 |
| Database Rev            | iNET         |  | Completed By  | N.R.L        |
| Timing Card / Field rev | 9            |  | Checked By    | J.V          |

|          |                              |  |  |  |  |  |  |  |  |
|----------|------------------------------|--|--|--|--|--|--|--|--|
| Location | Highway 50 and Ellwood Drive |  |  |  |  |  |  |  |  |
|----------|------------------------------|--|--|--|--|--|--|--|--|

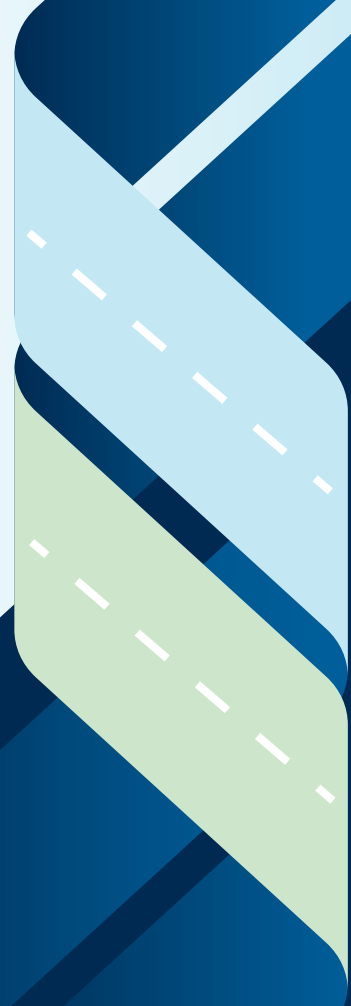
| Phase # | Street Name - Direction       | Vehicle Minimum (s) | Pedestrian Minimum (s) |        | Amber (s) | All Red (s) | TIME PERIOD (s)<br>(Green+Amber+All Red) |            |           |
|---------|-------------------------------|---------------------|------------------------|--------|-----------|-------------|------------------------------------------|------------|-----------|
|         |                               |                     | WALK                   | FDWALK |           |             | AM SPLITS                                | OFF SPLITS | PM SPLITS |
| 1       | Not In Use                    | -                   | -                      | -      | -         | -           | -                                        | -          | -         |
| 2       | Highway 50 - Southbound       | 10                  | 10                     | 16     | 4         | 2.3         | 80                                       | 65         | 102       |
| 3       | Not In Use                    | -                   | -                      | -      | -         | -           | -                                        | -          | -         |
| 4       | Ellwood Drive - Westbound     | 10                  | 10                     | 25     | 4         | 3.6         | 40                                       | 45         | 38        |
| 5       | Highway 50 - SBLT Prot. Perm. | 5                   | 0                      | 0      | 3         | 0           | 9                                        | 9          | 9         |
| 6       | Highway 50 - Northbound       | 10                  | 10                     | 16     | 4         | 2.3         | 71                                       | 56         | 93        |
| 7       | Not In Use                    | -                   | -                      | -      | -         | -           | -                                        | -          | -         |
| 8       | Ellwood Drive - Eastbound     | 10                  | 10                     | 25     | 4         | 3.6         | 40                                       | 45         | 38        |

|                                                                      |                   |             |                         |                   |
|----------------------------------------------------------------------|-------------------|-------------|-------------------------|-------------------|
| <b>System Control</b><br>Yes<br><br><b>Semi-Actuated Mode</b><br>Yes | <b>TIME (M-F)</b> | <b>PEAK</b> | <b>CYCLE LENGTH (s)</b> | <b>OFFSET (s)</b> |
|                                                                      | 06:00 - 09:00     | AM          | 120                     | 55                |
|                                                                      | 09:00 - 14:00     | OFF         | 110                     | 81                |
|                                                                      | 14:00 - 20:00     | PM          | 140                     | 107               |

## Project #24-248 - CGE Transportation Consulting

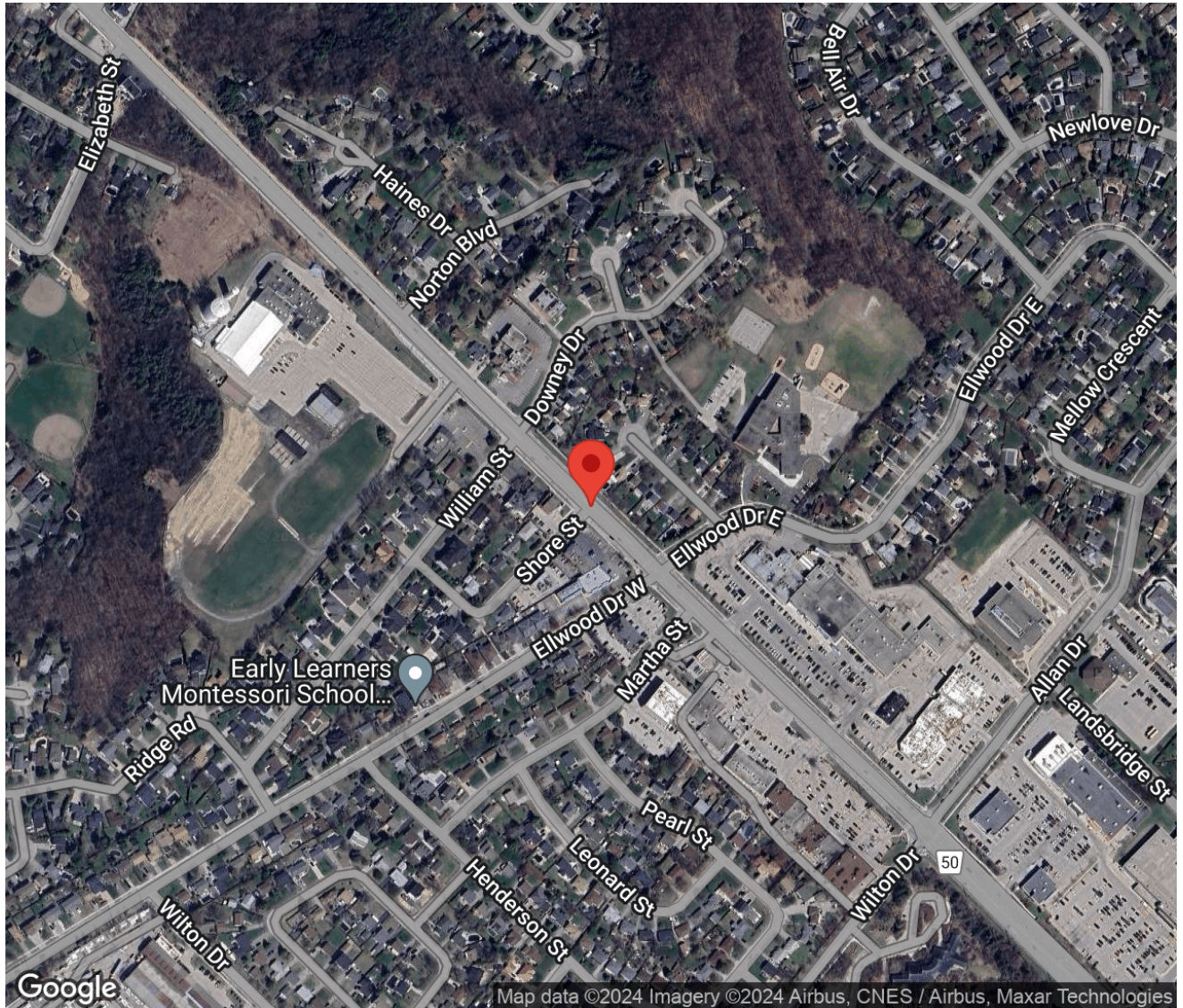
### Intersection Count Report

**Intersection:** Hwy 50 (Queen St S) & Shore St  
**Municipality:** Bolton  
**Count Date:** Wednesday, Jun 05, 2024  
**Site Code:** 2424800001  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**



## Traffic Count Map

|               |                                |
|---------------|--------------------------------|
| Intersection: | Hwy 50 (Queen St S) & Shore St |
| Site Code:    | 2424800001                     |
| Municipality: | Bolton                         |
| Count Date:   | Jun 05, 2024                   |



## Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Shore St  
 Site Code: 2424800001  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### Hwy 50 (Queen St S) - Traffic Summary

| Hour          | North Approach Totals           |      |       |        |       |      | South Approach Totals           |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 897  | 3     | 0      | 900   | 0    | 1                               | 394  | 0     | 0      | 395   | 0    | 1295  |
| 08:00 - 09:00 | 0                               | 900  | 8     | 0      | 908   | 0    | 6                               | 485  | 0     | 0      | 491   | 0    | 1399  |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 0                               | 703  | 11    | 0      | 714   | 0    | 20                              | 1296 | 0     | 0      | 1316  | 0    | 2030  |
| 17:00 - 18:00 | 0                               | 667  | 16    | 0      | 683   | 0    | 10                              | 1218 | 0     | 1      | 1229  | 0    | 1912  |
| GRAND TOTAL   | 0                               | 3167 | 38    | 0      | 3205  | 0    | 37                              | 3393 | 0     | 1      | 3431  | 0    | 6636  |

## Traffic Count Summary

Intersection: Hwy 50 (Queen St S) & Shore St  
 Site Code: 2424800001  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### Shore St - Traffic Summary

| Hour          | East Approach Totals            |      |       |        |       |      | West Approach Totals            |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 4     | 0      | 4     | 2    | 4     |
| 08:00 - 09:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 3                               | 0    | 3     | 0      | 6     | 5    | 6     |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 8                               | 0    | 16    | 0      | 24    | 4    | 24    |
| 17:00 - 18:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 17                              | 0    | 12    | 0      | 29    | 8    | 29    |
| GRAND TOTAL   | 0                               | 0    | 0     | 0      | 0     | 0    | 28                              | 0    | 35    | 0      | 63    | 19   | 63    |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
Site Code: 2424800001  
Municipality: Bolton  
Count Date: Jun 05, 2024

### North Approach - Hwy 50 (Queen St S)

| Start Time      | Cars |      |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|------|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑    | →  | ↺ | Total | ←      | ↑  | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 0    | 203  | 0  | 0 | 203   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 0    | 195  | 0  | 0 | 195   | 0      | 8  | 0 | 0 | 8     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 0    | 234  | 0  | 0 | 234   | 0      | 3  | 0 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 0    | 244  | 3  | 0 | 247   | 0      | 10 | 0 | 0 | 10    | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 0    | 212  | 2  | 0 | 214   | 0      | 5  | 0 | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 0    | 231  | 1  | 0 | 232   | 0      | 7  | 0 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 0    | 225  | 2  | 0 | 227   | 0      | 8  | 1 | 0 | 9     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:45           | 0    | 208  | 2  | 0 | 210   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b> | 0    | 1752 | 10 | 0 | 1762  | 0      | 45 | 1 | 0 | 46    | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
Site Code: 2424800001  
Municipality: Bolton  
Count Date: Jun 05, 2024

### North Approach - Hwy 50 (Queen St S)

| Start Time  | Cars |      |    |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|------|----|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑    | →  | ↻ | Total | ←      | ↑  | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00       | 0    | 183  | 1  | 0 | 184   | 0      | 6  | 1 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 0    | 178  | 1  | 0 | 179   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30       | 0    | 160  | 2  | 0 | 162   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 0    | 166  | 6  | 0 | 172   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00       | 0    | 172  | 6  | 0 | 178   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15       | 0    | 156  | 2  | 0 | 158   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 0    | 180  | 3  | 0 | 183   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45       | 0    | 156  | 5  | 0 | 161   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 0    | 1351 | 26 | 0 | 1377  | 0      | 19 | 1 | 0 | 20    | 0        | 0 | 0 | 0 | 0     | 0          |
| GRAND TOTAL | 0    | 3103 | 36 | 0 | 3139  | 0      | 64 | 2 | 0 | 66    | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
 Site Code: 2424800001  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### South Approach - Hwy 50 (Queen St S)

| Start Time      | Cars |     |   |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|-----|---|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑   | → | ↻ | Total | ←      | ↑  | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 07:00           | 0    | 87  | 0 | 0 | 87    | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 0    | 80  | 0 | 0 | 80    | 0      | 6  | 0 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 0    | 92  | 0 | 0 | 92    | 0      | 7  | 0 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 1    | 109 | 0 | 0 | 110   | 0      | 11 | 0 | 0 | 11    | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 2    | 111 | 0 | 0 | 113   | 0      | 6  | 0 | 0 | 6     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 1    | 117 | 0 | 0 | 118   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 1    | 105 | 0 | 0 | 106   | 0      | 4  | 0 | 0 | 4     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:45           | 2    | 133 | 0 | 0 | 135   | 0      | 7  | 0 | 0 | 7     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b> | 7    | 834 | 0 | 0 | 841   | 0      | 45 | 0 | 0 | 45    | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
Site Code: 2424800001  
Municipality: Bolton  
Count Date: Jun 05, 2024

### South Approach - Hwy 50 (Queen St S)

| Start Time         | Cars |      |   |   |       | Trucks |    |   |   |       | Bicycles |   |   |   |       | Total Peds |
|--------------------|------|------|---|---|-------|--------|----|---|---|-------|----------|---|---|---|-------|------------|
|                    | ←    | ↑    | → | ↺ | Total | ←      | ↑  | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 16:00              | 7    | 305  | 0 | 0 | 312   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15              | 7    | 334  | 0 | 0 | 341   | 0      | 5  | 0 | 0 | 5     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30              | 1    | 335  | 0 | 0 | 336   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45              | 5    | 313  | 0 | 0 | 318   | 0      | 1  | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00              | 1    | 289  | 0 | 0 | 290   | 1      | 2  | 0 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15              | 5    | 277  | 0 | 0 | 282   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30              | 2    | 323  | 0 | 0 | 325   | 0      | 0  | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45              | 1    | 325  | 0 | 1 | 327   | 0      | 2  | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b>    | 29   | 2501 | 0 | 1 | 2531  | 1      | 13 | 0 | 0 | 14    | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>GRAND TOTAL</b> | 36   | 3335 | 0 | 1 | 3372  | 1      | 58 | 0 | 0 | 59    | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
 Site Code: 2424800001  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time      | Cars |   |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|---|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑ | → | ↺ | Total | ←      | ↑ | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 07:00           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 0    | 0 | 1 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 0    | 0 | 3 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 2          |
| 08:00           | 1    | 0 | 0 | 0 | 1     | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| 08:15           | 1    | 0 | 1 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 3          |
| 08:45           | 1    | 0 | 1 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b> | 3    | 0 | 6 | 0 | 9     | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 7          |

## Traffic Count Data

Intersection: Hwy 50 (Queen St S) & Shore St  
 Site Code: 2424800001  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time         | Cars |   |    |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|--------------------|------|---|----|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|                    | ←    | ↑ | →  | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00              | 3    | 0 | 3  | 0 | 6     | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15              | 4    | 0 | 3  | 0 | 7     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 3          |
| 16:30              | 0    | 0 | 4  | 0 | 4     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 1          |
| 16:45              | 1    | 0 | 5  | 0 | 6     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00              | 4    | 0 | 6  | 0 | 10    | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15              | 3    | 0 | 3  | 0 | 6     | 0      | 0 | 1 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 2          |
| 17:30              | 3    | 0 | 0  | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 5          |
| 17:45              | 7    | 0 | 2  | 0 | 9     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 1          |
| <b>SUBTOTAL</b>    | 25   | 0 | 26 | 0 | 51    | 0      | 0 | 2 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 12         |
| <b>GRAND TOTAL</b> | 28   | 0 | 32 | 0 | 60    | 0      | 0 | 3 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 19         |

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 07:45:00  
To: 08:45:00

**Intersection:** Hwy 50 (Queen St S) & Shore St  
**Site Code:** 2424800001  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Hwy 50 (Queen St S) runs N/S

### North Approach

|                                                                                   | Out        | In         | Total       |
|-----------------------------------------------------------------------------------|------------|------------|-------------|
|  | 920        | 444        | 1364        |
|  | 31         | 23         | 54          |
|  | 0          | 0          | 0           |
| <b>Totals</b>                                                                     | <b>951</b> | <b>467</b> | <b>1418</b> |

### Hwy 50 (Queen St S)

|                                                                                   |          |            |          |
|-----------------------------------------------------------------------------------|----------|------------|----------|
|  | 0        | 0          | 0        |
|  | 1        | 30         | 0        |
|  | 8        | 912        | 0        |
| <b>Totals</b>                                                                     | <b>9</b> | <b>942</b> | <b>0</b> |

Peds: 0

### Shore St

|  |  |  | Totals |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------|
| 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |  |
| 0                                                                                   | 0                                                                                   | 2                                                                                   | 2      |  |
| 0                                                                                   | 1                                                                                   | 4                                                                                   | 5      |  |

Peds: 7



Peds: 0

Peds: 0

### West Approach

|                                                                                     | Out      | In        | Total     |
|-------------------------------------------------------------------------------------|----------|-----------|-----------|
|  | 6        | 13        | 19        |
|  | 1        | 1         | 2         |
|  | 0        | 0         | 0         |
| <b>Totals</b>                                                                       | <b>7</b> | <b>14</b> | <b>21</b> |

|                                                                                     |          |            |          |
|-------------------------------------------------------------------------------------|----------|------------|----------|
| <b>Totals</b>                                                                       | <b>5</b> | <b>465</b> | <b>0</b> |
|  | 5        | 442        | 0        |
|  | 0        | 23         | 0        |
|  | 0        | 0          | 0        |

### Hwy 50 (Queen St S)

### South Approach

|                                                                                       | Out        | In         | Total       |
|---------------------------------------------------------------------------------------|------------|------------|-------------|
|  | 447        | 916        | 1363        |
|  | 23         | 31         | 54          |
|  | 0          | 0          | 0           |
| <b>Totals</b>                                                                         | <b>470</b> | <b>947</b> | <b>1417</b> |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Shore St  
Site Code: 2424800001  
Count Date: Jun 05, 2024  
Period: 07:00 - 09:00

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

| Start Time  | North Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | South Approach<br>Hwy 50 (Queen St S) |      |   |   |      |       | East Approach |   |   |   |      |       | West Approach<br>Shore St |   |      |   |      |       | Total<br>Vehicles |
|-------------|---------------------------------------|------|------|---|------|-------|---------------------------------------|------|---|---|------|-------|---------------|---|---|---|------|-------|---------------------------|---|------|---|------|-------|-------------------|
|             | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                                     | ↑    | → | ↻ | Peds | Total | ←             | ↑ | → | ↻ | Peds | Total | ←                         | ↑ | →    | ↻ | Peds | Total |                   |
| 07:45       |                                       | 254  | 3    | 0 | 0    | 257   | 1                                     | 120  |   | 0 | 0    | 121   |               |   |   |   | 0    |       | 0                         |   | 3    | 0 | 2    | 3     | 381               |
| 08:00       |                                       | 217  | 2    | 0 | 0    | 219   | 2                                     | 117  |   | 0 | 0    | 119   |               |   |   |   | 0    |       | 1                         |   | 1    | 0 | 2    | 2     | 340               |
| 08:15       |                                       | 238  | 1    | 0 | 0    | 239   | 1                                     | 119  |   | 0 | 0    | 120   |               |   |   |   | 0    |       | 1                         |   | 1    | 0 | 0    | 2     | 361               |
| 08:30       |                                       | 233  | 3    | 0 | 0    | 236   | 1                                     | 109  |   | 0 | 0    | 110   |               |   |   |   | 0    |       | 0                         |   | 0    | 0 | 3    | 0     | 346               |
| Grand Total |                                       | 942  | 9    | 0 | 0    | 951   | 5                                     | 465  |   | 0 | 0    | 470   |               |   |   |   | 0    |       | 2                         |   | 5    | 0 | 7    | 7     | 1428              |
| Approach %  |                                       | 99.1 | 0.9  | 0 | -    | -     | 1.1                                   | 98.9 |   | 0 | -    | -     |               |   |   |   | -    |       | 28.6                      |   | 71.4 | 0 | -    | -     |                   |
| Totals %    |                                       | 66   | 0.6  | 0 | -    | 66.6  | 0.4                                   | 32.6 |   | 0 | -    | 32.9  |               |   |   |   | 0    |       | 0.1                       |   | 0.4  | 0 | -    | 0.5   |                   |
| PHF         |                                       | 0.93 | 0.75 | 0 | -    | 0.93  | 0.63                                  | 0.97 |   | 0 | -    | 0.97  |               |   |   |   | 0    |       | 0.5                       |   | 0.42 | 0 | -    | 0.58  | 0.94              |
| Cars        |                                       | 912  | 8    | 0 | -    | 920   | 5                                     | 442  |   | 0 | -    | 447   |               |   |   |   | 0    |       | 2                         |   | 4    | 0 | -    | 6     | 1373              |
| % Cars      |                                       | 96.8 | 88.9 | 0 | -    | 96.7  | 100                                   | 95.1 |   | 0 | -    | 95.1  |               |   |   |   | 0    |       | 100                       |   | 80   | 0 | -    | 85.7  | 96.1              |
| Trucks      |                                       | 30   | 1    | 0 | -    | 31    | 0                                     | 23   |   | 0 | -    | 23    |               |   |   |   | 0    |       | 0                         |   | 1    | 0 | -    | 1     | 55                |
| % Trucks    |                                       | 3.2  | 11.1 | 0 | -    | 3.3   | 0                                     | 4.9  |   | 0 | -    | 4.9   |               |   |   |   | 0    |       | 0                         |   | 20   | 0 | -    | 14.3  | 3.9               |
| Bicycles    |                                       | 0    | 0    | 0 | -    | 0     | 0                                     | 0    |   | 0 | -    | 0     |               |   |   |   | 0    |       | 0                         |   | 0    | 0 | -    | 0     | 0                 |
| % Bicycles  |                                       | 0    | 0    | 0 | -    | 0     | 0                                     | 0    |   | 0 | -    | 0     |               |   |   |   | 0    |       | 0                         |   | 0    | 0 | -    | 0     | 0                 |
| Peds        |                                       |      |      |   | 0    | -     |                                       |      |   |   | 0    | -     |               |   |   |   | 0    |       |                           |   |      |   | 7    | -     | 7                 |
| % Peds      |                                       |      |      |   | 0    | -     |                                       |      |   |   | 0    | -     |               |   |   |   | 0    |       |                           |   |      |   | 100  | -     |                   |

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Hwy 50 (Queen St S) & Shore St  
**Site Code:** 2424800001  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Hwy 50 (Queen St S) runs N/S

### North Approach

|                                                                                   | Out        | In          | Total       |
|-----------------------------------------------------------------------------------|------------|-------------|-------------|
|  | 697        | 1295        | 1992        |
|  | 17         | 9           | 26          |
|  | 0          | 0           | 0           |
| <b>Totals</b>                                                                     | <b>714</b> | <b>1304</b> | <b>2018</b> |

### Hwy 50 (Queen St S)

|                                                                                   |           |            |          |
|-----------------------------------------------------------------------------------|-----------|------------|----------|
|  | 0         | 0          | 0        |
|  | 1         | 16         | 0        |
|  | 10        | 687        | 0        |
| <b>Totals</b>                                                                     | <b>11</b> | <b>703</b> | <b>0</b> |

Peds: 0

### Shore St

|  |  |  |  | Totals |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 0                                                                                   | 0                                                                                   | 8                                                                                   | 8      |
|  | 0                                                                                   | 1                                                                                   | 15                                                                                  | 16     |

Peds: 4



Peds: 0

Peds: 0

### West Approach

|                                                                                     | Out       | In        | Total     |
|-------------------------------------------------------------------------------------|-----------|-----------|-----------|
|  | 23        | 30        | 53        |
|  | 1         | 1         | 2         |
|  | 0         | 0         | 0         |
| <b>Totals</b>                                                                       | <b>24</b> | <b>31</b> | <b>55</b> |

|                                                                                     |           |             |          |
|-------------------------------------------------------------------------------------|-----------|-------------|----------|
| <b>Totals</b>                                                                       | <b>20</b> | <b>1296</b> | <b>0</b> |
|  | 20        | 1287        | 0        |
|  | 0         | 9           | 0        |
|  | 0         | 0           | 0        |

### Hwy 50 (Queen St S)

### South Approach

|                                                                                       | Out         | In         | Total       |
|---------------------------------------------------------------------------------------|-------------|------------|-------------|
|  | 1307        | 702        | 2009        |
|  | 9           | 17         | 26          |
|  | 0           | 0          | 0           |
| <b>Totals</b>                                                                         | <b>1316</b> | <b>719</b> | <b>2035</b> |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Hwy 50 (Queen St S) & Shore St  
Site Code: 2424800001  
Count Date: Jun 05, 2024  
Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

| Start Time  | North Approach<br>Hwy 50 (Queen St S) |      |      |   |      |       | South Approach<br>Hwy 50 (Queen St S) |      |   |   |      |       | East Approach |   |   |   |      |       | West Approach<br>Shore St |   |      |   |      |       | Total<br>Vehicles |
|-------------|---------------------------------------|------|------|---|------|-------|---------------------------------------|------|---|---|------|-------|---------------|---|---|---|------|-------|---------------------------|---|------|---|------|-------|-------------------|
|             | ←                                     | ↑    | →    | ↻ | Peds | Total | ←                                     | ↑    | → | ↻ | Peds | Total | ←             | ↑ | → | ↻ | Peds | Total | ←                         | ↑ | →    | ↻ | Peds | Total |                   |
| 16:00       |                                       | 189  | 2    | 0 | 0    | 191   | 7                                     | 306  |   | 0 | 0    | 313   |               |   |   |   | 0    |       | 3                         |   | 4    | 0 | 0    | 7     | 511               |
| 16:15       |                                       | 182  | 1    | 0 | 0    | 183   | 7                                     | 339  |   | 0 | 0    | 346   |               |   |   |   | 0    |       | 4                         |   | 3    | 0 | 3    | 7     | 536               |
| 16:30       |                                       | 162  | 2    | 0 | 0    | 164   | 1                                     | 337  |   | 0 | 0    | 338   |               |   |   |   | 0    |       | 0                         |   | 4    | 0 | 1    | 4     | 506               |
| 16:45       |                                       | 170  | 6    | 0 | 0    | 176   | 5                                     | 314  |   | 0 | 0    | 319   |               |   |   |   | 0    |       | 1                         |   | 5    | 0 | 0    | 6     | 501               |
| Grand Total |                                       | 703  | 11   | 0 | 0    | 714   | 20                                    | 1296 |   | 0 | 0    | 1316  |               |   |   |   | 0    | 0     | 8                         |   | 16   | 0 | 4    | 24    | 2054              |
| Approach %  |                                       | 98.5 | 1.5  | 0 |      | -     | 1.5                                   | 98.5 |   | 0 |      | -     |               |   |   |   | -    |       | 33.3                      |   | 66.7 | 0 |      | -     |                   |
| Totals %    |                                       | 34.2 | 0.5  | 0 |      | 34.8  | 1                                     | 63.1 |   | 0 |      | 64.1  |               |   |   |   | 0    |       | 0.4                       |   | 0.8  | 0 |      | 1.2   |                   |
| PHF         |                                       | 0.93 | 0.46 | 0 |      | 0.93  | 0.71                                  | 0.96 |   | 0 |      | 0.95  |               |   |   |   | 0    |       | 0.5                       |   | 0.8  | 0 |      | 0.86  | 0.96              |
| Cars        |                                       | 687  | 10   | 0 |      | 697   | 20                                    | 1287 |   | 0 |      | 1307  |               |   |   |   | 0    |       | 8                         |   | 15   | 0 |      | 23    | 2027              |
| % Cars      |                                       | 97.7 | 90.9 | 0 |      | 97.6  | 100                                   | 99.3 |   | 0 |      | 99.3  |               |   |   |   | 0    |       | 100                       |   | 93.8 | 0 |      | 95.8  | 98.7              |
| Trucks      |                                       | 16   | 1    | 0 |      | 17    | 0                                     | 9    |   | 0 |      | 9     |               |   |   |   | 0    |       | 0                         |   | 1    | 0 |      | 1     | 27                |
| % Trucks    |                                       | 2.3  | 9.1  | 0 |      | 2.4   | 0                                     | 0.7  |   | 0 |      | 0.7   |               |   |   |   | 0    |       | 0                         |   | 6.3  | 0 |      | 4.2   | 1.3               |
| Bicycles    |                                       | 0    | 0    | 0 |      | 0     | 0                                     | 0    |   | 0 |      | 0     |               |   |   |   | 0    |       | 0                         |   | 0    | 0 |      | 0     | 0                 |
| % Bicycles  |                                       | 0    | 0    | 0 |      | 0     | 0                                     | 0    |   | 0 |      | 0     |               |   |   |   | 0    |       | 0                         |   | 0    | 0 |      | 0     | 0                 |
| Peds        |                                       |      |      |   | 0    | -     |                                       |      |   |   | 0    | -     |               |   |   |   | 0    | -     |                           |   |      |   | 4    | -     | 4                 |
| % Peds      |                                       |      |      |   | 0    | -     |                                       |      |   |   | 0    | -     |               |   |   |   | 0    | -     |                           |   |      |   | 100  | -     |                   |

## Project #24-248 - CGE Transportation Consulting

### Intersection Count Report

**Intersection:** Shore St & East Site Access

**Municipality:** Bolton

**Count Date:** Wednesday, Jun 05, 2024

**Site Code:** 2424800003

**Count Categories:** Cars, Trucks, Bicycles, Pedestrians

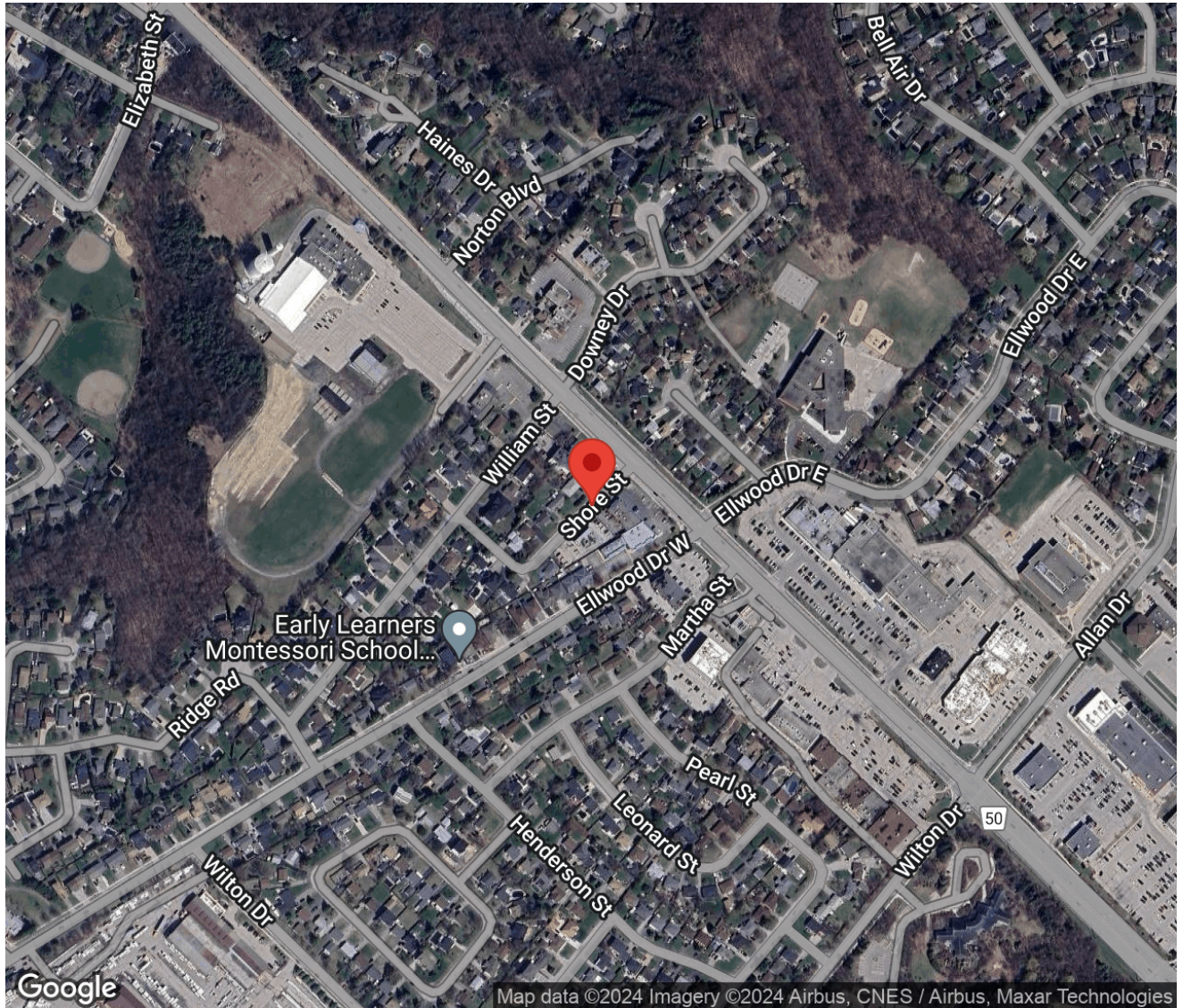
**Count Period:** 07:00-09:00, 16:00-18:00

**Weather:** Clear

**Comments:**

## Traffic Count Map

|               |                             |
|---------------|-----------------------------|
| Intersection: | Shore St & East Site Access |
| Site Code:    | 2424800003                  |
| Municipality: | Bolton                      |
| Count Date:   | Jun 05, 2024                |



## Traffic Count Summary

Intersection: Shore St & East Site Access  
 Site Code: 2424800003  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### East Site Access - Traffic Summary

| Hour          | North Approach Totals           |      |       |        |       |      | South Approach Totals           |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 0     | 0      | 0     | 1    | 0     |
| 08:00 - 09:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 0     | 0      | 0     | 0    | 0     |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 1                               | 0    | 2     | 0      | 3     | 2    | 3     |
| 17:00 - 18:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 0     | 0      | 0     | 1    | 0     |
| GRAND TOTAL   | 0                               | 0    | 0     | 0      | 0     | 0    | 1                               | 0    | 2     | 0      | 3     | 4    | 3     |

## Traffic Count Summary

Intersection: Shore St & East Site Access  
 Site Code: 2424800003  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### Shore St - Traffic Summary

| Hour          | East Approach Totals            |      |       |        |       |      | West Approach Totals            |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 3    | 0     | 0      | 3     | 0    | 0                               | 4    | 0     | 0      | 4     | 0    | 7     |
| 08:00 - 09:00 | 0                               | 6    | 0     | 0      | 6     | 0    | 0                               | 6    | 0     | 0      | 6     | 0    | 12    |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 4                               | 13   | 0     | 0      | 17    | 0    | 0                               | 9    | 1     | 0      | 10    | 0    | 27    |
| 17:00 - 18:00 | 1                               | 8    | 0     | 0      | 9     | 0    | 0                               | 6    | 0     | 0      | 6     | 0    | 15    |
| GRAND TOTAL   | 5                               | 30   | 0     | 0      | 35    | 0    | 0                               | 25   | 1     | 0      | 26    | 0    | 61    |

|            | Cars |   |   |   |       |  | Trucks |   |   |   |       |  | Bicycles |   |   |   |       |            |  |
|------------|------|---|---|---|-------|--|--------|---|---|---|-------|--|----------|---|---|---|-------|------------|--|
| Start Time |      |   |   |   | Total |  |        |   |   |   | Total |  |          |   |   |   | Total | Total Peds |  |
| 07:00      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 07:15      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 07:30      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 1          |  |
| 07:45      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:00      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:15      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:30      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:45      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |
| SUBTOTAL   | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 1          |  |



|            | Cars |   |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       |            |  |
|------------|------|---|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|--|
| Start Time |      |   |   |   | Total |        |   |   |   | Total |          |   |   |   | Total | Total Peds |  |
| 07:00      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 07:15      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 07:30      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 07:45      | 0    | 3 | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:00      | 0    | 1 | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:15      | 0    | 3 | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:30      | 0    | 2 | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| 08:45      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |
| SUBTOTAL   | 0    | 9 | 0 | 0 | 9     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |  |

## Traffic Count Data

Intersection: Shore St & East Site Access  
 Site Code: 2424800003  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### East Approach - Shore St

| Start Time  | Cars |    |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|----|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑  | → | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00       | 3    | 2  | 0 | 0 | 5     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 0    | 6  | 0 | 0 | 6     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30       | 0    | 2  | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 1    | 2  | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00       | 0    | 3  | 0 | 0 | 3     | 1      | 0 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15       | 0    | 4  | 0 | 0 | 4     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45       | 0    | 0  | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 4    | 20 | 0 | 0 | 24    | 1      | 1 | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| GRAND TOTAL | 4    | 29 | 0 | 0 | 33    | 1      | 1 | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Shore St & East Site Access  
 Site Code: 2424800003  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time      | Cars |   |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-----------------|------|---|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|                 | ←    | ↑ | → | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 07:00           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30           | 0    | 1 | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45           | 0    | 3 | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00           | 0    | 1 | 0 | 0 | 1     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30           | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:45           | 0    | 4 | 0 | 0 | 4     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| <b>SUBTOTAL</b> | 0    | 9 | 0 | 0 | 9     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Shore St & East Site Access  
 Site Code: 2424800003  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time  | Cars |    |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|----|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑  | → | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00       | 0    | 3  | 0 | 0 | 3     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 0    | 1  | 1 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 0    | 2  | 0 | 0 | 2     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:00       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15       | 0    | 2  | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45       | 0    | 2  | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 0    | 13 | 1 | 0 | 14    | 0      | 2 | 0 | 0 | 2     | 0        | 0 | 0 | 0 | 0     | 0          |
| GRAND TOTAL | 0    | 22 | 1 | 0 | 23    | 0      | 3 | 0 | 0 | 3     | 0        | 0 | 0 | 0 | 0     | 0          |

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 07:45:00  
To: 08:45:00

**Intersection:** Shore St & East Site Access  
**Site Code:** 2424800003  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Shore St runs E/W

### East Approach

|                                                                                     | Out | In | Total |
|-------------------------------------------------------------------------------------|-----|----|-------|
|  | 9   | 4  | 13    |
|  | 0   | 1  | 1     |
|  | 0   | 0  | 0     |
|                                                                                     | 9   | 5  | 14    |

### Shore St

|  |  |  |  | Totals |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 0                                                                                   | 1                                                                                   | 4                                                                                   | 5      |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |

Peds: 0

Peds: 0



Peds: 0

### Shore St

| Totals |  |  |  |
|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 0      | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| 9      | 9                                                                                     | 0                                                                                     | 0                                                                                     |
| 0      | 0                                                                                     | 0                                                                                     | 0                                                                                     |

### West Approach

|                                                                                     | Out | In | Total |
|-------------------------------------------------------------------------------------|-----|----|-------|
|  | 4   | 9  | 13    |
|  | 1   | 0  | 1     |
|  | 0   | 0  | 0     |
|                                                                                     | 5   | 9  | 14    |

| Totals                                                                              | 0 | 0 | 0 |
|-------------------------------------------------------------------------------------|---|---|---|
|  | 0 | 0 | 0 |
|  | 0 | 0 | 0 |
|  | 0 | 0 | 0 |

East Site Access

### South Approach

|                                                                                       | Out | In | Total |
|---------------------------------------------------------------------------------------|-----|----|-------|
|  | 0   | 0  | 0     |
|  | 0   | 0  | 0     |
|  | 0   | 0  | 0     |
|                                                                                       | 0   | 0  | 0     |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Shore St & East Site Access  
Site Code: 2424800003  
Count Date: Jun 05, 2024  
Period: 07:00 - 09:00

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

|                | North Approach                                                                    |                                                                                   |                                                                                   |                                                                                   |      |       | South Approach<br>East Site Access                                                |                                                                                   |                                                                                   |                                                                                   |      |       | East Approach<br>Shore St                                                           |                                                                                     |                                                                                     |                                                                                     |      |       | West Approach<br>Shore St                                                           |                                                                                     |                                                                                     |                                                                                     |      |       | Total<br>Vehicl<br>es |
|----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|-------|-----------------------|
| Start Time     |  |  |  |  | Peds | Total |  |  |  |  | Peds | Total |  |  |  |  | Peds | Total |  |  |  |  | Peds | Total |                       |
| 07:45          |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    | 0     | 0                                                                                   | 3                                                                                   |                                                                                     | 0                                                                                   | 0    | 3     |                                                                                     | 3                                                                                   | 0                                                                                   | 0                                                                                   | 0    | 3     | 6                     |
| 08:00          |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    | 1     | 0                                                                                   | 0                                                                                   |                                                                                     | 1                                                                                   | 2    | 0     |                                                                                     | 0                                                                                   | 2                                                                                   | 3                                                                                   |      |       |                       |
| 08:15          |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    | 3     | 0                                                                                   | 0                                                                                   |                                                                                     | 3                                                                                   | 0    | 0     |                                                                                     | 0                                                                                   | 0                                                                                   | 3                                                                                   |      |       |                       |
| 08:30          |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    | 2     | 0                                                                                   | 0                                                                                   |                                                                                     | 2                                                                                   | 0    | 0     |                                                                                     | 0                                                                                   | 0                                                                                   | 2                                                                                   |      |       |                       |
| Grand<br>Total |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    | 0     | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    | 0     | 0                                                                                   | 9                                                                                   |                                                                                     | 0                                                                                   | 0    | 9     |                                                                                     | 5                                                                                   | 0                                                                                   | 0                                                                                   | 0    | 5     | 14                    |
| Approach<br>%  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | -    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | -    |       | 0                                                                                   | 100                                                                                 |                                                                                     | 0                                                                                   | -    |       | 100                                                                                 | 0                                                                                   | 0                                                                                   | -                                                                                   |      |       |                       |
| Totals %       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 64.3                                                                                |                                                                                     | 0                                                                                   | 64.3 |       | 35.7                                                                                | 0                                                                                   | 0                                                                                   |                                                                                     | 35.7 |       |                       |
| PHF            |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 0.75                                                                                |                                                                                     | 0                                                                                   | 0.75 |       | 0.42                                                                                | 0                                                                                   | 0                                                                                   |                                                                                     | 0.42 | 0.58  |                       |
| Cars           |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 9                                                                                   |                                                                                     | 0                                                                                   | 9    |       | 4                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     | 4    | 13    |                       |
| % Cars         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 100                                                                                 |                                                                                     | 0                                                                                   | 100  |       | 80                                                                                  | 0                                                                                   | 0                                                                                   |                                                                                     | 80   | 92.9  |                       |
| Trucks         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   | 0    |       | 1                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     | 1    | 1     |                       |
| % Trucks       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   | 0    |       | 20                                                                                  | 0                                                                                   | 0                                                                                   |                                                                                     | 20   | 7.1   |                       |
| Bicycles       |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   | 0    |       | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     | 0    | 0     |                       |
| % Bicycles     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    |       | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 | 0    |       | 0                                                                                   | 0                                                                                   |                                                                                     | 0                                                                                   | 0    |       | 0                                                                                   | 0                                                                                   | 0                                                                                   |                                                                                     | 0    | 0     |                       |
| Peds           |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    | -     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    | -     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0    | -     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0    | -     | 0                     |
| % Peds         |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    | -     |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0    | -     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0    | -     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0    | -     |                       |

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Shore St & East Site Access  
**Site Code:** 2424800003  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Shore St runs E/W

### East Approach

|                                                                                     | Out       | In        | Total     |
|-------------------------------------------------------------------------------------|-----------|-----------|-----------|
|  | 16        | 9         | 25        |
|  | 1         | 2         | 3         |
|  | 0         | 0         | 0         |
|                                                                                     | <b>17</b> | <b>11</b> | <b>28</b> |

### Shore St

|  |  |  | Totals   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------|
| 0                                                                                   | 0                                                                                   | 0                                                                                   | <b>0</b> |
| 0                                                                                   | 2                                                                                   | 7                                                                                   | <b>9</b> |
| 0                                                                                   | 0                                                                                   | 1                                                                                   | <b>1</b> |

Peds: 0

Peds: 0



Peds: 0

### Shore St

| Totals    |  |  |  |
|-----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>0</b>  | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| <b>13</b> | 12                                                                                    | 1                                                                                     | 0                                                                                     |
| <b>4</b>  | 4                                                                                     | 0                                                                                     | 0                                                                                     |

Peds: 2

### West Approach

|                                                                                     | Out       | In        | Total     |
|-------------------------------------------------------------------------------------|-----------|-----------|-----------|
|  | 8         | 13        | 21        |
|  | 2         | 1         | 3         |
|  | 0         | 0         | 0         |
|                                                                                     | <b>10</b> | <b>14</b> | <b>24</b> |

| Totals                                                                              |  |  |  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | 1                                                                                   | 2                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   |

East Site Access

### South Approach

|                                                                                       | Out      | In       | Total    |
|---------------------------------------------------------------------------------------|----------|----------|----------|
|  | 3        | 5        | 8        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
|                                                                                       | <b>3</b> | <b>5</b> | <b>8</b> |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Shore St & East Site Access  
Site Code: 2424800003  
Count Date: Jun 05, 2024  
Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

|                | North Approach |   |   |   |      |       | South Approach<br>East Site Access |   |      |   |      |       | East Approach<br>Shore St |      |    |   |      |       | West Approach<br>Shore St |      |   |   |      |       | Total<br>Vehicl<br>es |    |   |
|----------------|----------------|---|---|---|------|-------|------------------------------------|---|------|---|------|-------|---------------------------|------|----|---|------|-------|---------------------------|------|---|---|------|-------|-----------------------|----|---|
| Start Time     | ←              | ↑ | → | ↻ | Peds | Total | ←                                  | ↑ | →    | ↻ | Peds | Total | ←                         | ↑    | →  | ↻ | Peds | Total | ←                         | ↑    | → | ↻ | Peds | Total |                       |    |   |
| 16:00          |                |   |   |   |      | 0     |                                    | 1 |      | 1 | 0    | 1     | 2                         | 3    | 3  |   | 0    | 0     | 6                         |      | 4 | 0 | 0    | 0     | 4                     | 12 |   |
| 16:15          |                |   |   |   |      | 0     |                                    | 0 |      | 1 | 0    | 0     | 1                         | 0    | 6  |   | 0    | 0     | 6                         |      | 1 | 1 | 0    | 0     | 2                     | 9  |   |
| 16:30          |                |   |   |   |      | 0     |                                    | 0 |      | 0 | 0    | 1     | 0                         | 0    | 2  |   | 0    | 0     | 2                         |      | 1 | 0 | 0    | 0     | 1                     | 3  |   |
| 16:45          |                |   |   |   |      | 0     |                                    | 0 |      | 0 | 0    | 0     | 0                         | 1    | 2  |   | 0    | 0     | 3                         |      | 3 | 0 | 0    | 0     | 3                     | 6  |   |
| Grand<br>Total |                |   |   |   |      | 0     | 0                                  | 1 |      | 2 | 0    | 2     | 3                         | 4    | 13 |   | 0    | 0     | 17                        |      | 9 | 1 | 0    | 0     | 10                    | 30 |   |
| Approach<br>%  |                |   |   |   |      | -     | 33.3                               |   | 66.7 | 0 |      | -     | 23.5                      | 76.5 |    | 0 |      | -     | 90                        | 10   | 0 |   | -    |       |                       |    |   |
| Totals %       |                |   |   |   |      | 0     | 3.3                                |   | 6.7  | 0 |      | 10    | 13.3                      | 43.3 |    | 0 |      | 56.7  | 30                        | 3.3  | 0 |   | 33.3 |       |                       |    |   |
| PHF            |                |   |   |   |      | 0     | 0.25                               |   | 0.5  | 0 |      | 0.38  | 0.33                      | 0.54 |    | 0 |      | 0.71  | 0.56                      | 0.25 | 0 |   | 0.63 | 0.63  |                       |    |   |
| Cars           |                |   |   |   |      | 0     | 1                                  |   | 2    | 0 |      | 3     | 4                         | 12   |    | 0 |      | 16    | 7                         | 1    | 0 |   | 8    | 27    |                       |    |   |
| % Cars         |                |   |   |   |      | 0     | 100                                |   | 100  | 0 |      | 100   | 100                       | 92.3 |    | 0 |      | 94.1  | 77.8                      | 100  | 0 |   | 80   | 90    |                       |    |   |
| Trucks         |                |   |   |   |      | 0     | 0                                  |   | 0    | 0 |      | 0     | 0                         | 1    |    | 0 |      | 1     | 2                         | 0    | 0 |   | 2    | 3     |                       |    |   |
| % Trucks       |                |   |   |   |      | 0     | 0                                  |   | 0    | 0 |      | 0     | 0                         | 7.7  |    | 0 |      | 5.9   | 22.2                      | 0    | 0 |   | 20   | 10    |                       |    |   |
| Bicycles       |                |   |   |   |      | 0     | 0                                  |   | 0    | 0 |      | 0     | 0                         | 0    |    | 0 |      | 0     | 0                         | 0    | 0 |   | 0    | 0     |                       |    |   |
| % Bicycles     |                |   |   |   |      | 0     | 0                                  |   | 0    | 0 |      | 0     | 0                         | 0    |    | 0 |      | 0     | 0                         | 0    | 0 |   | 0    | 0     |                       |    |   |
| Peds           |                |   |   |   |      | 0     | -                                  |   |      |   |      |       | 2                         | -    |    |   |      |       |                           | 0    | - |   |      |       |                       |    | 2 |
| % Peds         |                |   |   |   |      | 0     | -                                  |   |      |   |      |       | 100                       | -    |    |   |      |       |                           | 0    | - |   |      |       |                       |    |   |

## Project #24-248 - CGE Transportation Consulting

### Intersection Count Report

**Intersection:** Shore St & West Site Access

**Municipality:** Bolton

**Count Date:** Wednesday, Jun 05, 2024

**Site Code:** 2424800002

**Count Categories:** Cars, Trucks, Bicycles, Pedestrians

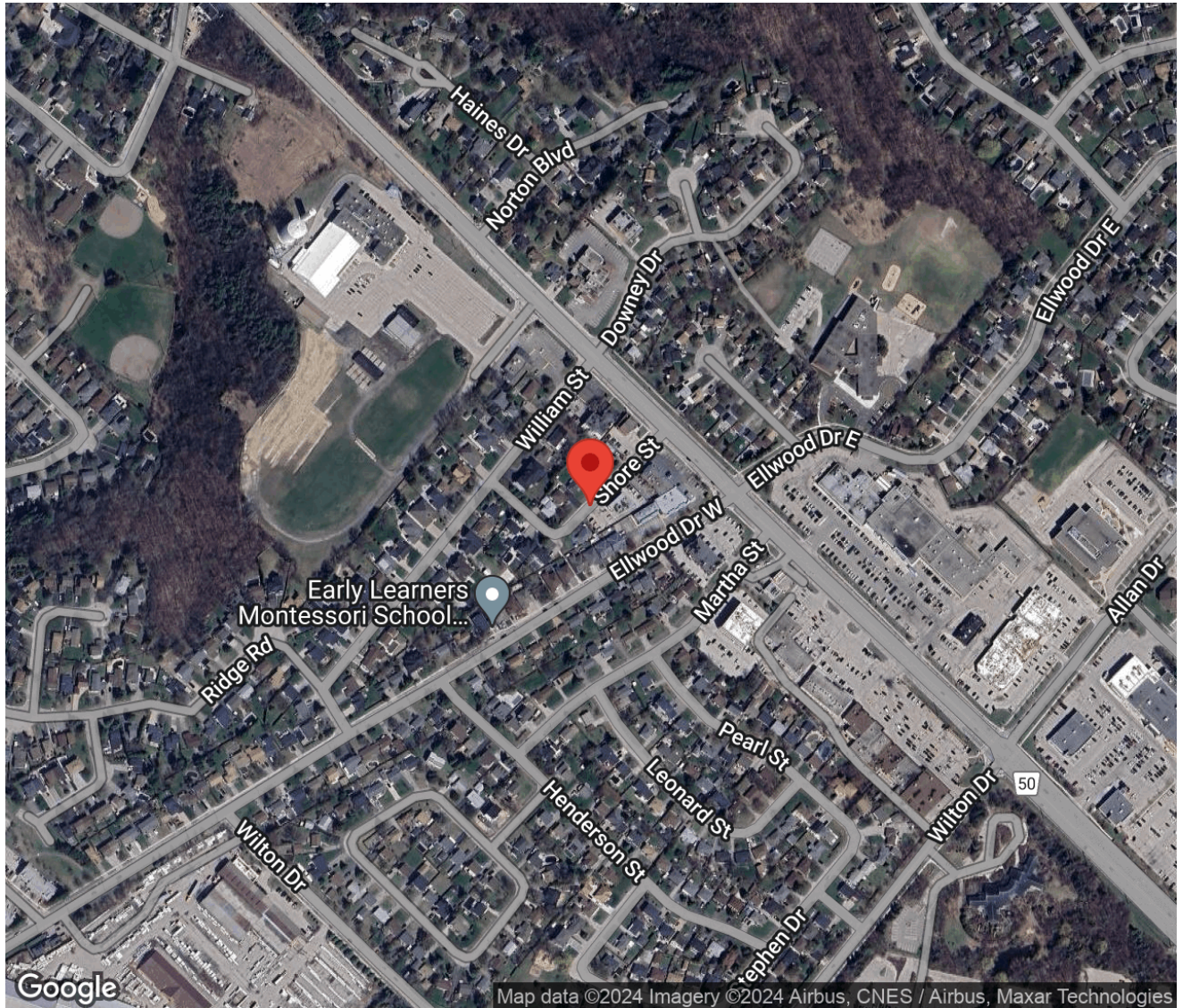
**Count Period:** 07:00-09:00, 16:00-18:00

**Weather:** Clear

**Comments:**

## Traffic Count Map

|               |                             |
|---------------|-----------------------------|
| Intersection: | Shore St & West Site Access |
| Site Code:    | 2424800002                  |
| Municipality: | Bolton                      |
| Count Date:   | Jun 05, 2024                |



## Traffic Count Summary

Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### Commerical Entrance - Traffic Summary

| Hour          | North Approach Totals           |      |       |        |       |      | South Approach Totals           |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 0     | 0      | 0     | 8    | 0     |
| 08:00 - 09:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 0     | 0      | 0     | 9    | 0     |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 0                               | 0    | 4     | 0      | 4     | 2    | 4     |
| 17:00 - 18:00 | 0                               | 0    | 0     | 0      | 0     | 0    | 1                               | 0    | 6     | 0      | 7     | 7    | 7     |
| GRAND TOTAL   | 0                               | 0    | 0     | 0      | 0     | 0    | 1                               | 0    | 10    | 0      | 11    | 26   | 11    |

## Traffic Count Summary

Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### Shore St - Traffic Summary

| Hour          | East Approach Totals            |      |       |        |       |      | West Approach Totals            |      |       |        |       |      | Total |
|---------------|---------------------------------|------|-------|--------|-------|------|---------------------------------|------|-------|--------|-------|------|-------|
|               | Includes Cars, Trucks, Bicycles |      |       |        |       |      | Includes Cars, Trucks, Bicycles |      |       |        |       |      |       |
|               | Left                            | Thru | Right | U-Turn | Total | Peds | Left                            | Thru | Right | U-Turn | Total | Peds |       |
| 07:00 - 08:00 | 0                               | 3    | 0     | 0      | 3     | 0    | 0                               | 3    | 0     | 0      | 3     | 0    | 6     |
| 08:00 - 09:00 | 3                               | 1    | 0     | 0      | 4     | 0    | 0                               | 7    | 0     | 0      | 7     | 0    | 11    |
| BREAK         |                                 |      |       |        |       |      |                                 |      |       |        |       |      |       |
| 16:00 - 17:00 | 4                               | 11   | 0     | 1      | 16    | 0    | 0                               | 6    | 0     | 0      | 6     | 0    | 22    |
| 17:00 - 18:00 | 0                               | 8    | 0     | 0      | 8     | 0    | 0                               | 2    | 1     | 0      | 3     | 0    | 11    |
| GRAND TOTAL   | 7                               | 23   | 0     | 1      | 31    | 0    | 0                               | 18   | 1     | 0      | 19    | 0    | 50    |

|            | Cars                                                                              |                                                                                   |                                                                                   |                                                                                   |       |  | Trucks                                                                            |                                                                                   |                                                                                   |                                                                                   |       |  | Bicycles                                                                           |                                                                                     |                                                                                     |                                                                                     |       |            |   |  |
|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|--|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|--|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------------|---|--|
| Start Time |  |  |  |  | Total |  |  |  |  |  | Total |  |  |  |  |  | Total | Total Peds |   |  |
| 07:00      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 07:15      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 07:30      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 07:45      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 08:00      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 08:15      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 08:30      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| 08:45      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |
| SUBTOTAL   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     |  | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0     | 0          | 0 |  |

[illegible]

|            | Cars                                                                              |                                                                                   |                                                                                   |                                                                                   |       |                                                                                   | Trucks                                                                            |                                                                                   |                                                                                   |       |                                                                                   |                                                                                   | Bicycles                                                                            |                                                                                     |       |            |  |  |  |
|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|------------|--|--|--|
| Start Time |  |  |  |  | Total |  |  |  |  | Total |  |  |  |  | Total | Total Peds |  |  |  |
| 07:00      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 0          |  |  |  |
| 07:15      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 0          |  |  |  |
| 07:30      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 1          |  |  |  |
| 07:45      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 7          |  |  |  |
| 08:00      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 2          |  |  |  |
| 08:15      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 3          |  |  |  |
| 08:30      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 0          |  |  |  |
| 08:45      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 4          |  |  |  |
| SUBTOTAL   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0     | 17         |  |  |  |

[illegible]

|            | Cars |   |   |   |       |  | Trucks |   |   |   |       |  | Bicycles |   |   |   |       |            |  |  |
|------------|------|---|---|---|-------|--|--------|---|---|---|-------|--|----------|---|---|---|-------|------------|--|--|
| Start Time |      |   |   |   | Total |  |        |   |   |   | Total |  |          |   |   |   | Total | Total Peds |  |  |
| 07:00      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 07:15      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 07:30      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 07:45      | 0    | 3 | 0 | 0 | 3     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 08:00      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 08:15      | 3    | 0 | 0 | 0 | 3     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 08:30      | 0    | 1 | 0 | 0 | 1     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| 08:45      | 0    | 0 | 0 | 0 | 0     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |
| SUBTOTAL   | 3    | 4 | 0 | 0 | 7     |  | 0      | 0 | 0 | 0 | 0     |  | 0        | 0 | 0 | 0 | 0     | 0          |  |  |

## Traffic Count Data

Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### East Approach - Shore St

| Start Time  | Cars |    |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|----|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑  | → | ↺ | Total | ←      | ↑ | → | ↺ | Total | ←        | ↑ | → | ↺ | Total |            |
| 16:00       | 1    | 2  | 0 | 0 | 3     | 0      | 0 | 0 | 1 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 1    | 5  | 0 | 0 | 6     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30       | 1    | 0  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 1    | 2  | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 2 | 0 | 0 | 2     | 0          |
| 17:00       | 0    | 3  | 0 | 0 | 3     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15       | 0    | 4  | 0 | 0 | 4     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45       | 0    | 0  | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 4    | 17 | 0 | 0 | 21    | 0      | 0 | 0 | 1 | 1     | 0        | 2 | 0 | 0 | 2     | 0          |
| GRAND TOTAL | 7    | 21 | 0 | 0 | 28    | 0      | 0 | 0 | 1 | 1     | 0        | 2 | 0 | 0 | 2     | 0          |

## Traffic Count Data

Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time | Cars |   |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|------------|------|---|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|            | ←    | ↑ | → | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 07:00      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:15      | 0    | 0 | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:30      | 0    | 0 | 0 | 0 | 0     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 07:45      | 0    | 2 | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:00      | 0    | 1 | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:15      | 0    | 1 | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:30      | 0    | 1 | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 08:45      | 0    | 4 | 0 | 0 | 4     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL   | 0    | 9 | 0 | 0 | 9     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |

## Traffic Count Data

Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Municipality: Bolton  
 Count Date: Jun 05, 2024

### West Approach - Shore St

| Start Time  | Cars |    |   |   |       | Trucks |   |   |   |       | Bicycles |   |   |   |       | Total Peds |
|-------------|------|----|---|---|-------|--------|---|---|---|-------|----------|---|---|---|-------|------------|
|             | ←    | ↑  | → | ↻ | Total | ←      | ↑ | → | ↻ | Total | ←        | ↑ | → | ↻ | Total |            |
| 16:00       | 0    | 0  | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:15       | 0    | 2  | 0 | 0 | 2     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:30       | 0    | 0  | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 16:45       | 0    | 1  | 0 | 0 | 1     | 0      | 1 | 0 | 0 | 1     | 0        | 2 | 0 | 0 | 2     | 0          |
| 17:00       | 0    | 1  | 0 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:15       | 0    | 0  | 0 | 0 | 0     | 0      | 1 | 0 | 0 | 1     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:30       | 0    | 0  | 0 | 0 | 0     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| 17:45       | 0    | 0  | 1 | 0 | 1     | 0      | 0 | 0 | 0 | 0     | 0        | 0 | 0 | 0 | 0     | 0          |
| SUBTOTAL    | 0    | 4  | 1 | 0 | 5     | 0      | 2 | 0 | 0 | 2     | 0        | 2 | 0 | 0 | 2     | 0          |
| GRAND TOTAL | 0    | 13 | 1 | 0 | 14    | 0      | 3 | 0 | 0 | 3     | 0        | 2 | 0 | 0 | 2     | 0          |

## Peak Hour Diagram

### Specified Period

From: 07:00:00

To: 09:00:00

### One Hour Peak

From: 07:45:00

To: 08:45:00

**Intersection:** Shore St & West Site Access

**Site Code:** 2424800002

**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Shore St runs E/W

### North Approach

|                                                                                   | Out      | In       | Total    |
|-----------------------------------------------------------------------------------|----------|----------|----------|
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
| <b>Totals</b>                                                                     | <b>0</b> | <b>0</b> | <b>0</b> |

### Commercial Entrance

|                                                                                   |          |          |          |          |
|-----------------------------------------------------------------------------------|----------|----------|----------|----------|
|  | 0        | 0        | 0        | 0        |
|  | 0        | 0        | 0        | 0        |
|  | 0        | 0        | 0        | 0        |
| <b>Totals</b>                                                                     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |

### East Approach

|                                                                                     | Out      | In       | Total     |
|-------------------------------------------------------------------------------------|----------|----------|-----------|
|  | 7        | 5        | 12        |
|  | 0        | 0        | 0         |
|  | 0        | 0        | 0         |
| <b>Totals</b>                                                                       | <b>7</b> | <b>5</b> | <b>12</b> |

### Shore St

|  |  |  |  | Totals |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 0                                                                                   | 0                                                                                   | 5                                                                                   | 5      |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |

Peds: 0



Peds: 12

### Shore St

| Totals |  |  |  |
|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 0      | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| 0      | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| 4      | 4                                                                                     | 0                                                                                     | 0                                                                                     |
| 3      | 3                                                                                     | 0                                                                                     | 0                                                                                     |

### West Approach

|                                                                                     | Out      | In       | Total    |
|-------------------------------------------------------------------------------------|----------|----------|----------|
|  | 5        | 4        | 9        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
| <b>Totals</b>                                                                       | <b>5</b> | <b>4</b> | <b>9</b> |

| Totals                                                                              |  |  |  |  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |

West Site Access

### South Approach

|                                                                                       | Out      | In       | Total    |
|---------------------------------------------------------------------------------------|----------|----------|----------|
|  | 0        | 3        | 3        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
| <b>Totals</b>                                                                         | <b>0</b> | <b>3</b> | <b>3</b> |

 - Cars

 - Trucks

 - Bicycles

## Comments

## Peak Hour Summary

Intersection: Shore St & West Site Access  
Site Code: 2424800002  
Count Date: Jun 05, 2024  
Period: 07:00 - 09:00

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

| Start Time     | North Approach<br>Commerical Entrance |   |   |   |      |       | South Approach<br>West Site Access |   |   |   |      |       | East Approach<br>Shore St |      |   |   |      |       | West Approach<br>Shore St |      |   |   |      |       | Total<br>Vehicl<br>es |
|----------------|---------------------------------------|---|---|---|------|-------|------------------------------------|---|---|---|------|-------|---------------------------|------|---|---|------|-------|---------------------------|------|---|---|------|-------|-----------------------|
|                | ←                                     | ↑ | → | ↻ | Peds | Total | ←                                  | ↑ | → | ↻ | Peds | Total | ←                         | ↑    | → | ↻ | Peds | Total | ←                         | ↑    | → | ↻ | Peds | Total |                       |
| 07:45          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0 | 0 | 7    | 0     | 0                         | 3    | 0 | 0 | 0    | 3     | 0                         | 2    | 0 | 0 | 0    | 2     | 5                     |
| 08:00          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0 | 0 | 2    | 0     | 0                         | 0    | 0 | 0 | 0    | 0     | 0                         | 1    | 0 | 0 | 0    | 1     | 1                     |
| 08:15          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0 | 0 | 3    | 0     | 3                         | 0    | 0 | 0 | 0    | 3     | 0                         | 1    | 0 | 0 | 0    | 1     | 4                     |
| 08:30          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0 | 0 | 0    | 0     | 0                         | 1    | 0 | 0 | 0    | 1     | 0                         | 1    | 0 | 0 | 0    | 1     | 2                     |
| Grand<br>Total | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0 | 0 | 12   | 0     | 3                         | 4    | 0 | 0 | 0    | 7     | 0                         | 5    | 0 | 0 | 0    | 5     | 12                    |
| Approach<br>%  | 0                                     | 0 | 0 | 0 |      | -     | 0                                  | 0 | 0 | 0 |      | -     | 42.9                      | 57.1 | 0 | 0 |      | -     | 0                         | 100  | 0 | 0 |      | -     |                       |
| Totals %       | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 25                        | 33.3 | 0 | 0 |      | 58.3  | 0                         | 41.7 | 0 | 0 |      | 41.7  |                       |
| PHF            | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 0.25                      | 0.33 | 0 | 0 |      | 0.58  | 0                         | 0.63 | 0 | 0 |      | 0.63  | 0.6                   |
| Cars           | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 3                         | 4    | 0 | 0 |      | 7     | 0                         | 5    | 0 | 0 |      | 5     | 12                    |
| % Cars         | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 100                       | 100  | 0 | 0 |      | 100   | 0                         | 100  | 0 | 0 |      | 100   | 100                   |
| Trucks         | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                     |
| % Trucks       | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                     |
| Bicycles       | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                     |
| % Bicycles     | 0                                     | 0 | 0 | 0 |      | 0     | 0                                  | 0 | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                         | 0    | 0 | 0 |      | 0     | 0                     |
| Peds           |                                       |   |   |   | 0    | -     |                                    |   |   |   | 12   | -     |                           |      |   |   | 0    | -     |                           |      |   |   | 0    | -     | 12                    |
| % Peds         |                                       |   |   |   | 0    | -     |                                    |   |   |   | 100  | -     |                           |      |   |   | 0    | -     |                           |      |   |   | 0    | -     |                       |

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Shore St & West Site Access  
**Site Code:** 2424800002  
**Count Date:** Jun 05, 2024

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Shore St runs E/W

### North Approach

|                                                                                   | Out      | In       | Total    |
|-----------------------------------------------------------------------------------|----------|----------|----------|
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
| <b>Totals</b>                                                                     | <b>0</b> | <b>0</b> | <b>0</b> |

### Commercial Entrance

|                                                                                   |          |          |          |          |
|-----------------------------------------------------------------------------------|----------|----------|----------|----------|
|  | 0        | 0        | 0        | 0        |
|  | 0        | 0        | 0        | 0        |
|  | 0        | 0        | 0        | 0        |
| <b>Totals</b>                                                                     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |






### East Approach

|                                                                                     | Out       | In        | Total     |
|-------------------------------------------------------------------------------------|-----------|-----------|-----------|
|  | 13        | 7         | 20        |
|  | 1         | 2         | 3         |
|  | 2         | 2         | 4         |
| <b>Totals</b>                                                                       | <b>16</b> | <b>11</b> | <b>27</b> |

### Shore St

|  |  |  |  | Totals |
|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------|
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |
|  | 2                                                                                   | 1                                                                                   | 3                                                                                   | 6      |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0      |






Peds: 0

Peds: 0



Peds: 0

Peds: 2

### Shore St

| Totals |  |  |  |
|--------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1      | 0                                                                                     | 1                                                                                     | 0                                                                                     |
| 0      | 0                                                                                     | 0                                                                                     | 0                                                                                     |
| 11     | 9                                                                                     | 0                                                                                     | 2                                                                                     |
| 4      | 4                                                                                     | 0                                                                                     | 0                                                                                     |






### West Approach

|                                                                                     | Out      | In        | Total     |
|-------------------------------------------------------------------------------------|----------|-----------|-----------|
|  | 3        | 9         | 12        |
|  | 1        | 0         | 1         |
|  | 2        | 2         | 4         |
| <b>Totals</b>                                                                       | <b>6</b> | <b>11</b> | <b>17</b> |

| Totals                                                                              |  |  |  |  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  | 0                                                                                   | 0                                                                                   | 4                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
|  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |

West Site Access

### South Approach

|                                                                                       | Out      | In       | Total    |
|---------------------------------------------------------------------------------------|----------|----------|----------|
|  | 4        | 4        | 8        |
|  | 0        | 0        | 0        |
|  | 0        | 0        | 0        |
| <b>Totals</b>                                                                         | <b>4</b> | <b>4</b> | <b>8</b> |

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

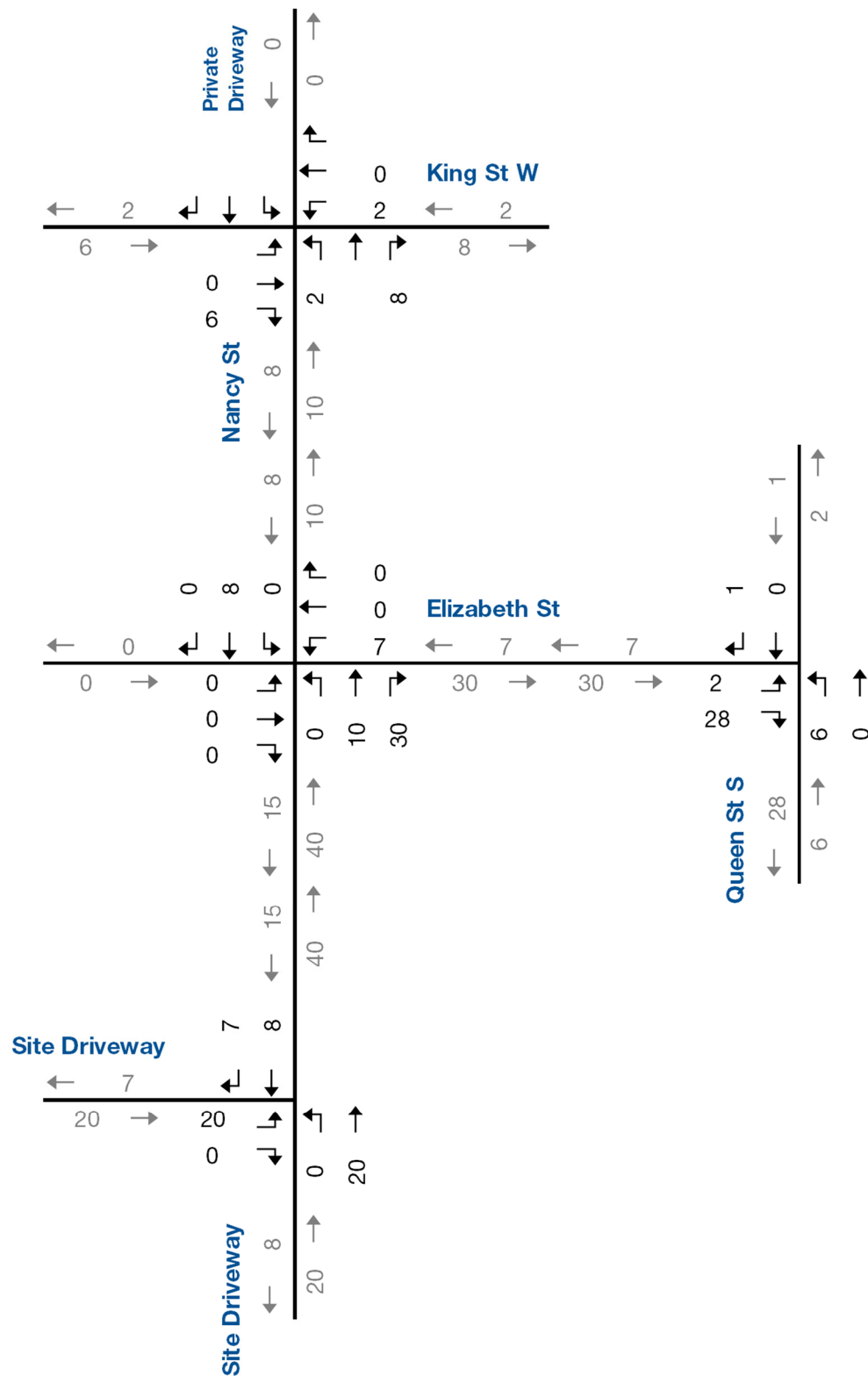
Intersection: Shore St & West Site Access  
 Site Code: 2424800002  
 Count Date: Jun 05, 2024  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

| Start Time     | North Approach<br>Commerical Entrance |   |   |   |      |       | South Approach<br>West Site Access |   |      |   |      |       | East Approach<br>Shore St |      |     |      |      |       | West Approach<br>Shore St |      |   |   |      |       | Total<br>Vehicl<br>es |
|----------------|---------------------------------------|---|---|---|------|-------|------------------------------------|---|------|---|------|-------|---------------------------|------|-----|------|------|-------|---------------------------|------|---|---|------|-------|-----------------------|
|                | ←                                     | ↑ | → | ↻ | Peds | Total | ←                                  | ↑ | →    | ↻ | Peds | Total | ←                         | ↑    | →   | ↻    | Peds | Total | ←                         | ↑    | → | ↻ | Peds | Total |                       |
| 16:00          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 3    | 0 | 1    | 3     | 1                         | 2    | 0   | 1    | 0    | 4     | 0                         | 0    | 0 | 0 | 0    | 0     | 7                     |
| 16:15          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 0    | 0     | 1                         | 5    | 0   | 0    | 0    | 6     | 0                         | 2    | 0 | 0 | 0    | 2     | 8                     |
| 16:30          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 1    | 0     | 1                         | 0    | 0   | 0    | 0    | 1     | 0                         | 0    | 0 | 0 | 0    | 0     | 1                     |
| 16:45          | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 1    | 0 | 0    | 1     | 1                         | 4    | 0   | 0    | 0    | 5     | 0                         | 4    | 0 | 0 | 0    | 4     | 10                    |
| Grand<br>Total | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 4    | 0 | 2    | 4     | 4                         | 11   | 0   | 1    | 0    | 16    | 0                         | 6    | 0 | 0 | 0    | 6     | 26                    |
| Approach<br>%  | 0                                     | 0 | 0 | 0 | -    | -     | 0                                  | 0 | 100  | 0 | -    | -     | 25                        | 68.8 | 0   | 6.3  | -    | -     | 0                         | 100  | 0 | 0 | -    | -     | -                     |
| Totals %       | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 15.4 | 0 | 15.4 | 15.4  | 42.3                      | 0    | 3.8 | 61.5 | 0    | 23.1  | 0                         | 0    | 0 | 0 | 23.1 | 0     | 0                     |
| PHF            | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0.33 | 0 | 0.33 | 0.33  | 1                         | 0.55 | 0   | 0.25 | 0.67 | 0.67  | 0                         | 0.38 | 0 | 0 | 0.38 | 0.38  | 0.65                  |
| Cars           | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 4    | 0 | 4    | 4     | 9                         | 0    | 0   | 13   | 13   | 13    | 0                         | 3    | 0 | 0 | 3    | 3     | 20                    |
| % Cars         | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 100  | 0 | 100  | 100   | 81.8                      | 0    | 0   | 81.3 | 81.3 | 81.3  | 0                         | 50   | 0 | 0 | 50   | 50    | 76.9                  |
| Trucks         | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 0    | 0     | 0                         | 0    | 1   | 1    | 1    | 1     | 0                         | 1    | 0 | 0 | 1    | 1     | 2                     |
| % Trucks       | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 0    | 0     | 0                         | 0    | 100 | 6.3  | 6.3  | 6.3   | 0                         | 16.7 | 0 | 0 | 16.7 | 16.7  | 7.7                   |
| Bicycles       | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 0    | 0     | 0                         | 2    | 0   | 2    | 2    | 2     | 0                         | 2    | 0 | 0 | 2    | 2     | 4                     |
| % Bicycles     | 0                                     | 0 | 0 | 0 | 0    | 0     | 0                                  | 0 | 0    | 0 | 0    | 0     | 0                         | 18.2 | 0   | 0    | 12.5 | 12.5  | 0                         | 33.3 | 0 | 0 | 33.3 | 33.3  | 15.4                  |
| Peds           |                                       |   |   |   | 0    | -     |                                    |   |      |   | 2    | -     |                           |      |     |      | 0    | -     |                           |      |   |   | 0    | -     | 2                     |
| % Peds         |                                       |   |   |   | 0    | -     |                                    |   |      |   | 100  | -     |                           |      |     |      | 0    | -     |                           |      |   |   | 0    | -     | 0                     |

## **Appendix C:**

### **Background Development Study - Site Trips**



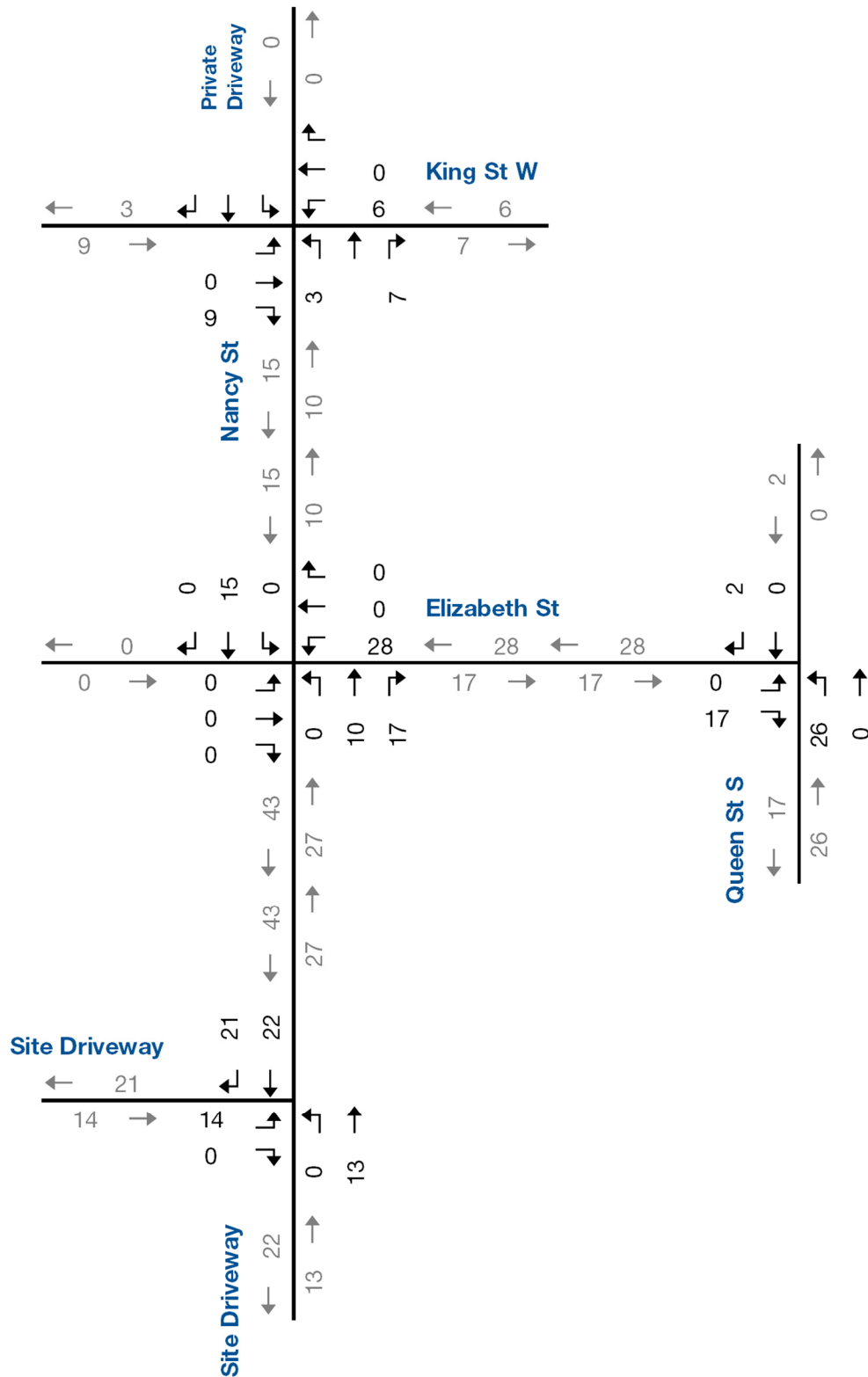
NTS



## Estimated Site Generated Traffic – AM Peak Hour

84 Nancy Street  
190433

Figure 3.2A



NTS



## Estimated Site Generated Traffic – PM Peak Hour

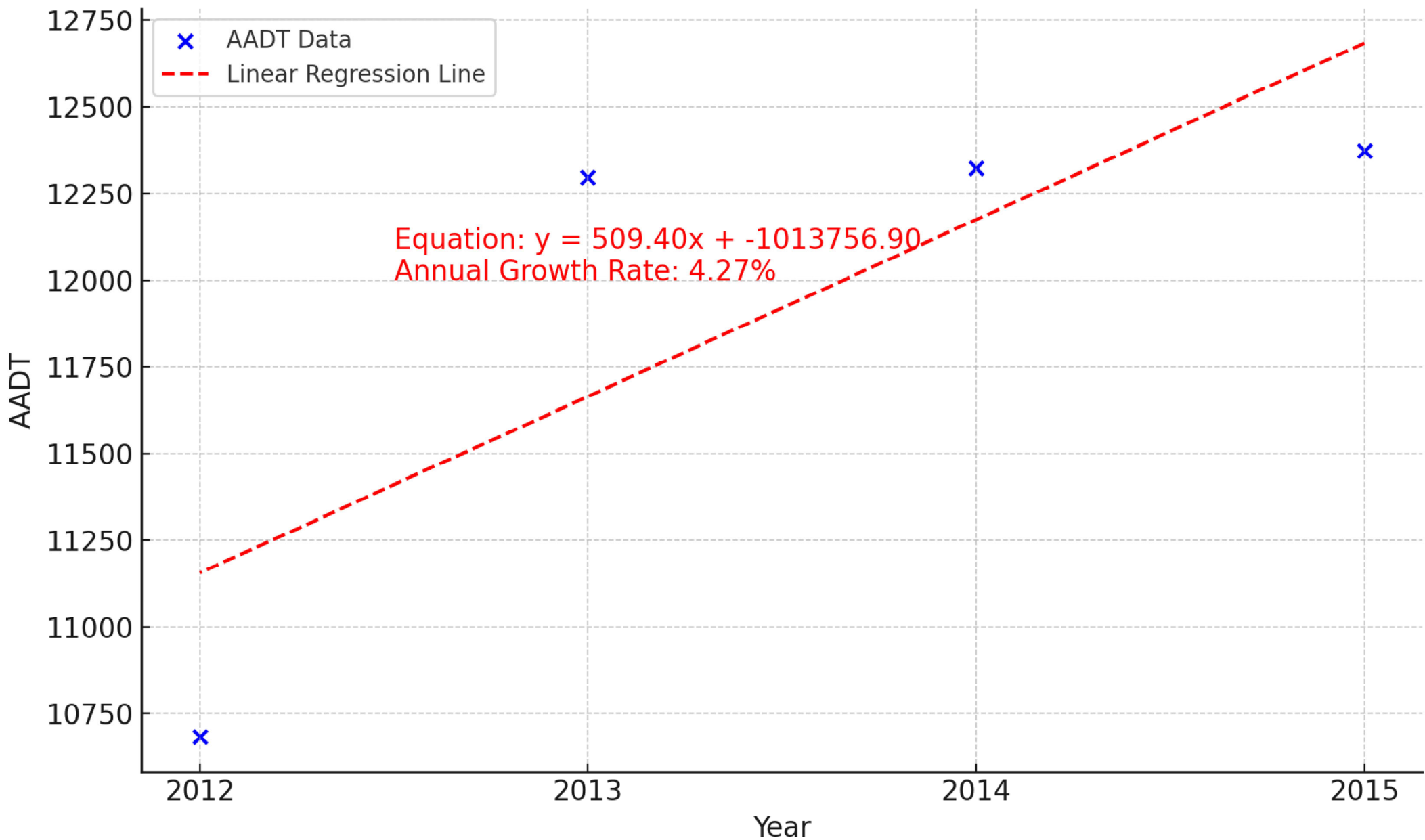
84 Nancy Street  
190433

Figure 3.2B

## **Appendix D:**

### **Background Growth Rate Calculations**

# HIGHWAY 50 - 0.2 KM NORTH OF KING ST. (RR9)



| Year | AADT  |
|------|-------|
| 2015 | 12374 |
| 2014 | 12324 |
| 2013 | 12297 |
| 2012 | 10685 |

## **Appendix E:**

### **Trip Generation Graphs**

Query

Filter

## DATA SOURCE:

Trip Generation Manual, 11th Ed

## SEARCH BY LAND USE CODE:

221



## LAND USE GROUP:

(200-299) Residential

## LAND USE :

221 - Multifamily Housing (Mid-Rise)

## LAND USE SUBCATEGORY:

Not Close to Rail Transit

## SETTING/LOCATION:

General Urban/Suburban

## INDEPENDENT VARIABLE (IV):

Dwelling Units

## TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

## TRIP TYPE:

Vehicle

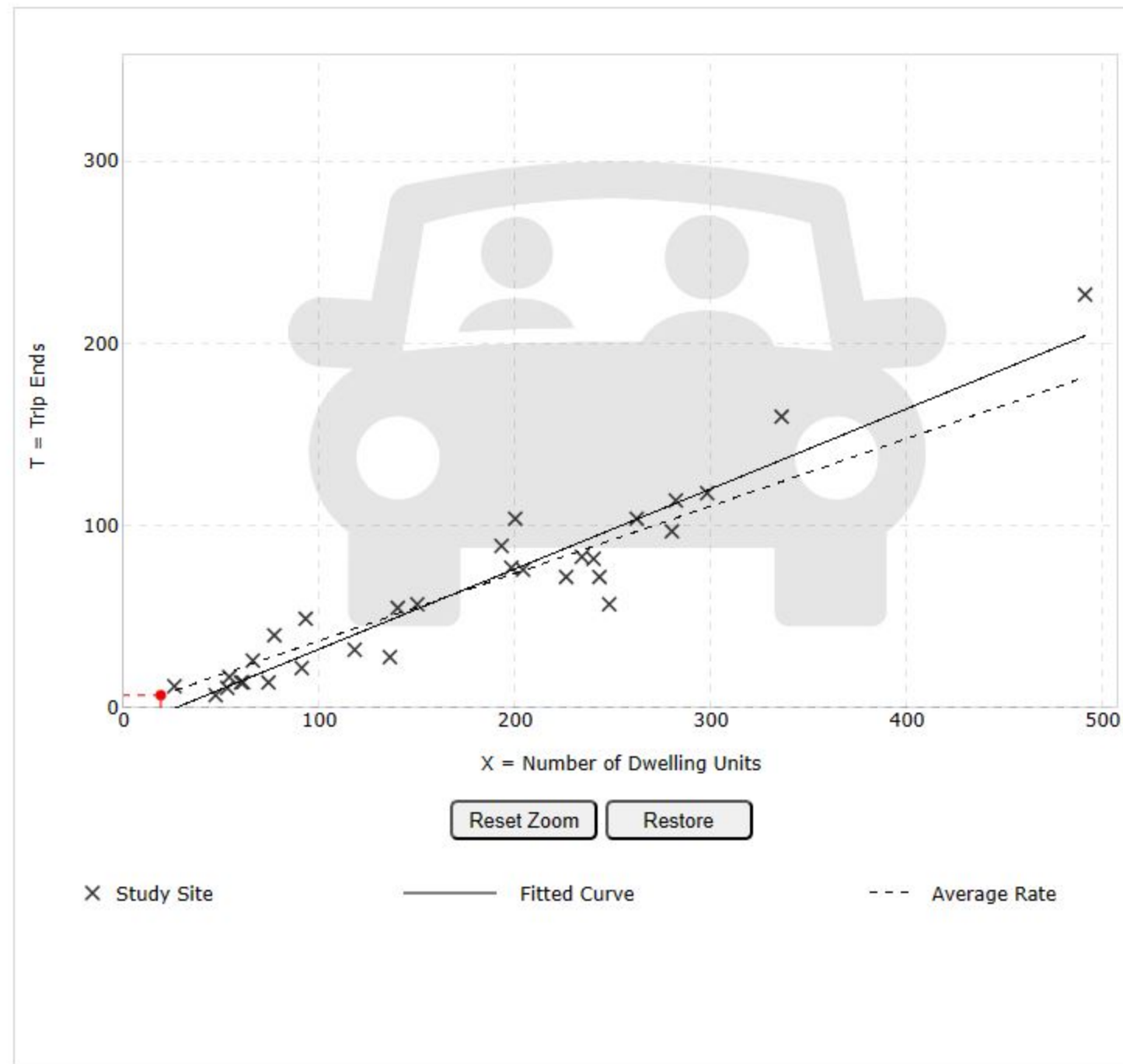
## ENTER IV VALUE TO CALCULATE TRIPS:

19

Calculate

Trip ends are not estimated for some methods as it yields negative values

## Data Plot and Equation



## DATA STATISTICS

## Land Use:

Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) [Click for Description and Data Plots](#)

## Independent Variable:

Dwelling Units

## Time Period:

Weekday

Peak Hour of Adjacent Street Traffic  
One Hour Between 7 and 9 a.m.

## Setting/Location:

General Urban/Suburban

## Trip Type:

Vehicle

## Number of Studies:

30

## Avg. Num. of Dwelling Units:

173

## Average Rate:

0.37

## Range of Rates:

0.15 - 0.53

## Standard Deviation:

0.09

## Fitted Curve Equation:

 $T = 0.44(X) - 11.61$  $R^2$ :

0.91

## Directional Distribution:

23% entering, 77% exiting

## Calculated Trip Ends:

Average Rate: 7 (Total), 2 (Entry), 5 (Exit)

Fitted Curve: Not Available

Query

Filter

## DATA SOURCE:

Trip Generation Manual, 11th Ed

## SEARCH BY LAND USE CODE:

221



## LAND USE GROUP:

(200-299) Residential

## LAND USE :

221 - Multifamily Housing (Mid-Rise)

## LAND USE SUBCATEGORY:

Not Close to Rail Transit

## SETTING/LOCATION:

General Urban/Suburban

## INDEPENDENT VARIABLE (IV):

Dwelling Units

## TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

## TRIP TYPE:

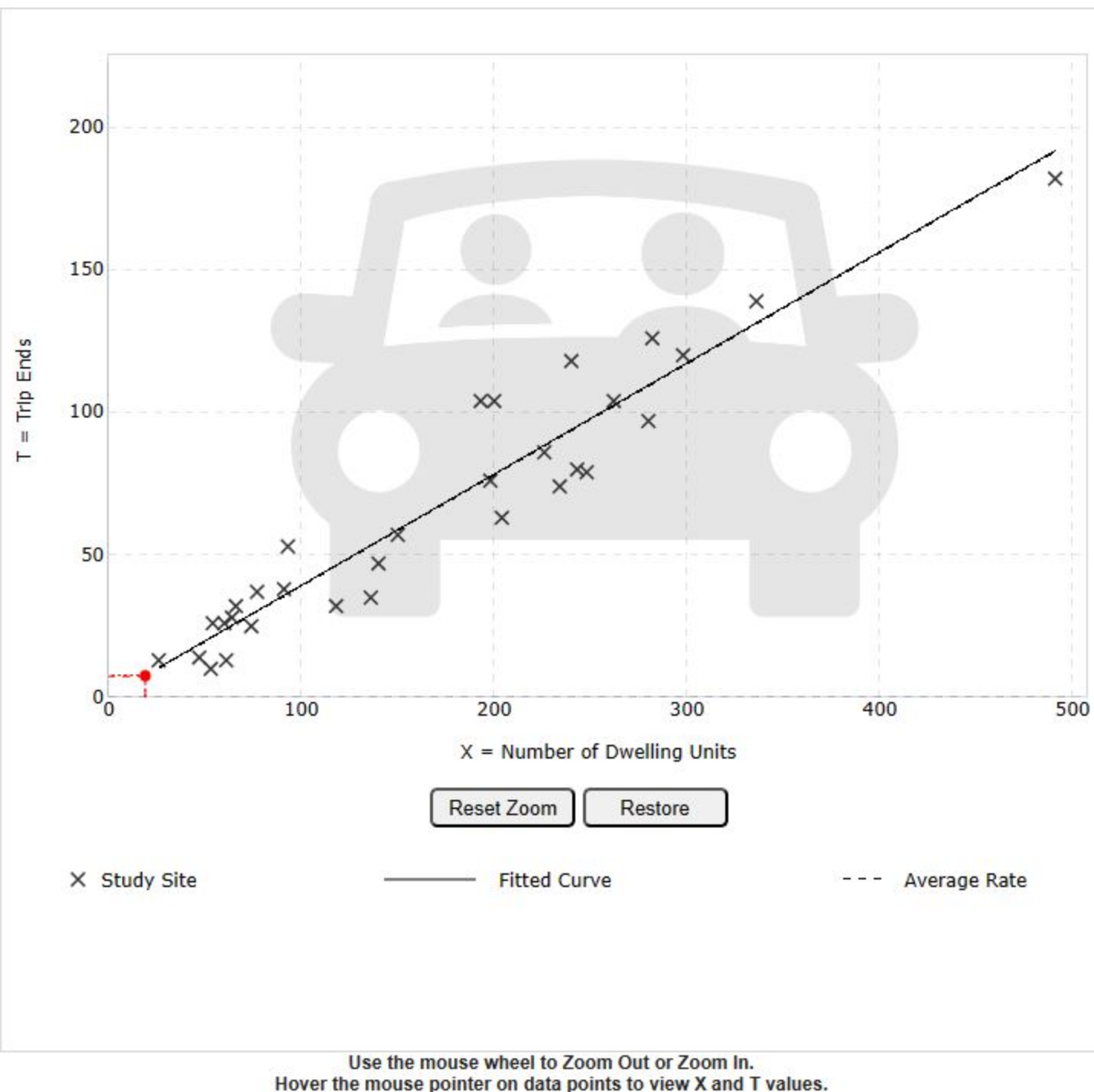
Vehicle

## ENTER IV VALUE TO CALCULATE TRIPS:

19

Calculate

## Data Plot and Equation



## DATA STATISTICS

## Land Use:

Multifamily Housing (Mid-Rise) - Not Close to Rail Transit (221) [Click for Description and Data Plots](#)

## Independent Variable:

Dwelling Units

## Time Period:

Weekday

Peak Hour of Adjacent Street Traffic  
One Hour Between 4 and 6 p.m.

## Setting/Location:

General Urban/Suburban

## Trip Type:

Vehicle

## Number of Studies:

31

## Avg. Num. of Dwelling Units:

169

## Average Rate:

0.39

## Range of Rates:

0.19 - 0.57

## Standard Deviation:

0.08

## Fitted Curve Equation:

 $T = 0.39(X) + 0.34$  $R^2$ :

0.91

## Directional Distribution:

61% entering, 39% exiting

## Calculated Trip Ends:

Average Rate: 7 (Total), 5 (Entry), 2 (Exit)

Fitted Curve: 8 (Total), 5 (Entry), 3 (Exit)

## **Appendix F:**

## **Synchro Analysis Output**

# Lanes, Volumes, Timings

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 18                                                                                | 60                                                                                | 78                                                                                | 50                                                                                | 28                                                                                | 65                                                                                | 51                                                                                  | 416                                                                                 | 25                                                                                  | 96                                                                                  | 783                                                                                 | 22                                                                                  |
| Future Volume (vph)     | 18                                                                                | 60                                                                                | 78                                                                                | 50                                                                                | 28                                                                                | 65                                                                                | 51                                                                                  | 416                                                                                 | 25                                                                                  | 96                                                                                  | 783                                                                                 | 22                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.932                                                                             |                                                                                   |                                                                                   | 0.939                                                                             |                                                                                   |                                                                                     | 0.991                                                                               |                                                                                     |                                                                                     | 0.996                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.994                                                                             |                                                                                   |                                                                                   | 0.983                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1697                                                                              | 0                                                                                 | 0                                                                                 | 1617                                                                              | 0                                                                                 | 1630                                                                                | 3479                                                                                | 0                                                                                   | 1738                                                                                | 3528                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.914                                                                             |                                                                                   |                                                                                   | 0.747                                                                             |                                                                                   | 0.331                                                                               |                                                                                     |                                                                                     | 0.462                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1556                                                                              | 0                                                                                 | 0                                                                                 | 1229                                                                              | 0                                                                                 | 563                                                                                 | 3479                                                                                | 0                                                                                   | 839                                                                                 | 3528                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 41                                                                                |                                                                                   |                                                                                   | 35                                                                                |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)     |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor        | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Heavy Vehicles (%)      | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 19                                                                                | 64                                                                                | 83                                                                                | 53                                                                                | 30                                                                                | 69                                                                                | 54                                                                                  | 443                                                                                 | 27                                                                                  | 102                                                                                 | 833                                                                                 | 23                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 166                                                                               | 0                                                                                 | 0                                                                                 | 152                                                                               | 0                                                                                 | 54                                                                                  | 470                                                                                 | 0                                                                                   | 102                                                                                 | 856                                                                                 | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 39.6                                                                              | 39.6                                                                              |                                                                                   | 39.6                                                                              | 39.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 32.3                                                                                |                                                                                     |
| Total Split (s)         | 40.0                                                                              | 40.0                                                                              |                                                                                   | 40.0                                                                              | 40.0                                                                              |                                                                                   | 71.0                                                                                | 71.0                                                                                |                                                                                     | 9.0                                                                                 | 80.0                                                                                |                                                                                     |
| Total Split (%)         | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 59.2%                                                                               | 59.2%                                                                               |                                                                                     | 7.5%                                                                                | 66.7%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | -2.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 14.5                                                                              |                                                                                   |                                                                                   | 16.5                                                                              |                                                                                   | 64.8                                                                                | 64.8                                                                                |                                                                                     | 77.1                                                                                | 75.8                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   | 0.16                                                                              |                                                                                   | 0.63                                                                                | 0.63                                                                                |                                                                                     | 0.75                                                                                | 0.74                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.65                                                                              |                                                                                   |                                                                                   | 0.67                                                                              |                                                                                   | 0.15                                                                                | 0.21                                                                                |                                                                                     | 0.15                                                                                | 0.33                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   | 45.4                                                                              |                                                                                   | 10.0                                                                                | 8.5                                                                                 |                                                                                     | 4.4                                                                                 | 5.2                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   | 45.4                                                                              |                                                                                   | 10.0                                                                                | 8.5                                                                                 |                                                                                     | 4.4                                                                                 | 5.2                                                                                 |                                                                                     |
| LOS                     |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |

# Lanes, Volumes, Timings

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach Delay         |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   | 45.4                                                                              |                                                                                   |                                                                                    | 8.7                                                                                 |                                                                                     |                                                                                     | 5.2                                                                                 |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (m)  |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   | 21.9                                                                              |                                                                                   | 3.9                                                                                | 18.2                                                                                |                                                                                     | 4.2                                                                                 | 24.7                                                                                |                                                                                     |
| Queue Length 95th (m)  |                                                                                   | 44.4                                                                              |                                                                                   |                                                                                   | 42.8                                                                              |                                                                                   | 11.3                                                                               | 30.7                                                                                |                                                                                     | 10.8                                                                                | 43.2                                                                                |                                                                                     |
| Internal Link Dist (m) |                                                                                   | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    |                                                                                   | 521                                                                               |                                                                                   |                                                                                   | 437                                                                               |                                                                                   | 356                                                                                | 2209                                                                                |                                                                                     | 685                                                                                 | 2617                                                                                |                                                                                     |
| 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                                                                              |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   | 0.15                                                                               | 0.21                                                                                |                                                                                     | 0.15                                                                                | 0.33                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 102.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 13.1

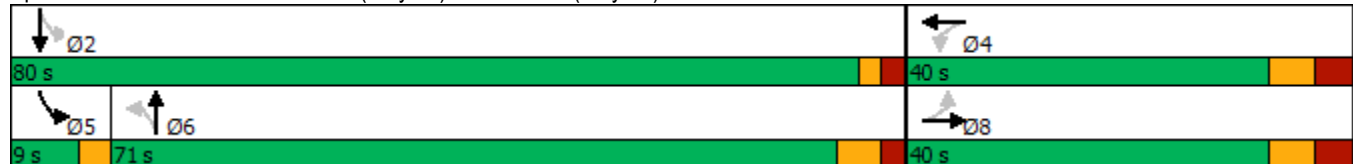
Intersection LOS: B

Intersection Capacity Utilization 68.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



# HCM Signalized Intersection Capacity Analysis

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 18                                                                                | 60                                                                                | 78                                                                                | 50                                                                                | 28                                                                                | 65                                                                                | 51                                                                                  | 416                                                                                 | 25                                                                                  | 96                                                                                  | 783                                                                                 | 22                                                                                  |
| Future Volume (vph)               | 18                                                                                | 60                                                                                | 78                                                                                | 50                                                                                | 28                                                                                | 65                                                                                | 51                                                                                  | 416                                                                                 | 25                                                                                  | 96                                                                                  | 783                                                                                 | 22                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                   | 1.00                                                                                | 0.99                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1694                                                                              |                                                                                   |                                                                                   | 1620                                                                              |                                                                                   | 1618                                                                                | 3481                                                                                |                                                                                     | 1733                                                                                | 3528                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.91                                                                              |                                                                                   |                                                                                   | 0.75                                                                              |                                                                                   | 0.33                                                                                | 1.00                                                                                |                                                                                     | 0.46                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1558                                                                              |                                                                                   |                                                                                   | 1232                                                                              |                                                                                   | 563                                                                                 | 3481                                                                                |                                                                                     | 842                                                                                 | 3528                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Adj. Flow (vph)                   | 19                                                                                | 64                                                                                | 83                                                                                | 53                                                                                | 30                                                                                | 69                                                                                | 54                                                                                  | 443                                                                                 | 27                                                                                  | 102                                                                                 | 833                                                                                 | 23                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 35                                                                                | 0                                                                                 | 0                                                                                 | 29                                                                                | 0                                                                                 | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 131                                                                               | 0                                                                                 | 0                                                                                 | 123                                                                               | 0                                                                                 | 54                                                                                  | 467                                                                                 | 0                                                                                   | 102                                                                                 | 855                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Heavy Vehicles (%)                | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 14.5                                                                              |                                                                                   |                                                                                   | 14.5                                                                              |                                                                                   | 64.8                                                                                | 64.8                                                                                |                                                                                     | 75.8                                                                                | 75.8                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 14.5                                                                              |                                                                                   |                                                                                   | 16.5                                                                              |                                                                                   | 64.8                                                                                | 64.8                                                                                |                                                                                     | 75.8                                                                                | 75.8                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   | 0.16                                                                              |                                                                                   | 0.63                                                                                | 0.63                                                                                |                                                                                     | 0.74                                                                                | 0.74                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 221                                                                               |                                                                                   |                                                                                   | 198                                                                               |                                                                                   | 356                                                                                 | 2207                                                                                |                                                                                     | 676                                                                                 | 2616                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.13                                                                                |                                                                                     | 0.01                                                                                | c0.24                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.08                                                                              |                                                                                   |                                                                                   | c0.10                                                                             |                                                                                   | 0.10                                                                                |                                                                                     |                                                                                     | 0.10                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.59                                                                              |                                                                                   |                                                                                   | 0.62                                                                              |                                                                                   | 0.15                                                                                | 0.21                                                                                |                                                                                     | 0.15                                                                                | 0.33                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 41.1                                                                              |                                                                                   |                                                                                   | 39.9                                                                              |                                                                                   | 7.6                                                                                 | 7.9                                                                                 |                                                                                     | 3.7                                                                                 | 4.5                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 4.2                                                                               |                                                                                   |                                                                                   | 5.7                                                                               |                                                                                   | 0.9                                                                                 | 0.2                                                                                 |                                                                                     | 0.1                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 45.3                                                                              |                                                                                   |                                                                                   | 45.6                                                                              |                                                                                   | 8.5                                                                                 | 8.1                                                                                 |                                                                                     | 3.8                                                                                 | 4.8                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 45.3                                                                              |                                                                                   |                                                                                   | 45.6                                                                              |                                                                                   |                                                                                     | 8.2                                                                                 |                                                                                     |                                                                                     | 4.7                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 12.9                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.41                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 102.2                                                                             |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 16.9                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 68.7%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

Existing Traffic Volumes  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 2                                                                                 | 5                                                                                 | 5                                                                                 | 465                                                                               | 942                                                                               | 9                                                                                 |
| Future Volume (Veh/h)             | 2                                                                                 | 5                                                                                 | 5                                                                                 | 465                                                                               | 942                                                                               | 9                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              |
| Hourly flow rate (vph)            | 2                                                                                 | 5                                                                                 | 5                                                                                 | 495                                                                               | 1002                                                                              | 10                                                                                |
| Pedestrians                       | 7                                                                                 |                                                                                   |                                                                                   |                                                                                   | 7                                                                                 |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   | 3.7                                                                               |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   | 1.1                                                                               |                                                                                   |
| Percent Blockage                  | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLTL                                                                             | TWLTL                                                                             |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.96                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1278                                                                              | 513                                                                               | 1019                                                                              |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 1014                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 264                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1198                                                                              | 513                                                                               | 1019                                                                              |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.3                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.5                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 99                                                                                | 99                                                                                | 99                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 301                                                                               | 458                                                                               | 684                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 7                                                                                 | 5                                                                                 | 248                                                                               | 248                                                                               | 668                                                                               | 344                                                                               |
| Volume Left                       | 2                                                                                 | 5                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 5                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 10                                                                                |
| cSH                               | 399                                                                               | 684                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.02                                                                              | 0.01                                                                              | 0.15                                                                              | 0.15                                                                              | 0.39                                                                              | 0.20                                                                              |
| Queue Length 95th (m)             | 0.4                                                                               | 0.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 14.2                                                                              | 10.3                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 14.2                                                                              | 0.1                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 36.3%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access & Shore Street

Existing Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 5                                                                                 | 0                                                                                 | 0                                                                                 | 9                                                                                 | 0                                                                                 | 0                                                                                 |
| Future Volume (Veh/h)             | 5                                                                                 | 0                                                                                 | 0                                                                                 | 9                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              |
| Hourly flow rate (vph)            | 9                                                                                 | 0                                                                                 | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 9                                                                                 |                                                                                   | 25                                                                                | 9                                                                                 |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 9                                                                                 |                                                                                   | 25                                                                                | 9                                                                                 |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.4                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.5                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 100                                                                               |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 1624                                                                              |                                                                                   | 996                                                                               | 1022                                                                              |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 9                                                                                 | 16                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 1624                                                                              | 1700                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.01                                                                              | 0.00                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (m)             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 6.7%                                                                              | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 4: West Access & Shore Street

Existing Traffic Volumes  
AM Peak Hour

|                                   |      |      |      |                      |      |      |
|-----------------------------------|------|------|------|----------------------|------|------|
|                                   | →    | ↘    | ↙    | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL  | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↱    |      |      | ↱                    | ↘↙   |      |
| Traffic Volume (veh/h)            | 5    | 0    | 3    | 4                    | 0    | 0    |
| Future Volume (Veh/h)             | 5    | 0    | 3    | 4                    | 0    | 0    |
| Sign Control                      | Free |      |      | Free                 | Stop |      |
| Grade                             | 0%   |      |      | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.60 | 0.60 | 0.60 | 0.60                 | 0.60 | 0.60 |
| Hourly flow rate (vph)            | 8    | 0    | 5    | 7                    | 0    | 0    |
| Pedestrians                       |      |      |      |                      |      |      |
| Lane Width (m)                    |      |      |      |                      |      |      |
| Walking Speed (m/s)               |      |      |      |                      |      |      |
| Percent Blockage                  |      |      |      |                      |      |      |
| Right turn flare (veh)            |      |      |      |                      |      |      |
| Median type                       | None |      |      | None                 |      |      |
| Median storage veh                |      |      |      |                      |      |      |
| Upstream signal (m)               |      |      |      |                      |      |      |
| pX, platoon unblocked             |      |      |      |                      |      |      |
| vC, conflicting volume            |      |      | 8    |                      | 25   | 8    |
| vC1, stage 1 conf vol             |      |      |      |                      |      |      |
| vC2, stage 2 conf vol             |      |      |      |                      |      |      |
| vCu, unblocked vol                |      |      | 8    |                      | 25   | 8    |
| tC, single (s)                    |      |      | 4.1  |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |      |      |                      |      |      |
| tF (s)                            |      |      | 2.2  |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100  |                      | 100  | 100  |
| cM capacity (veh/h)               |      |      | 1625 |                      | 993  | 1080 |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1 |                      |      |      |
| Volume Total                      | 8    | 12   | 0    |                      |      |      |
| Volume Left                       | 0    | 5    | 0    |                      |      |      |
| Volume Right                      | 0    | 0    | 0    |                      |      |      |
| cSH                               | 1700 | 1625 | 1700 |                      |      |      |
| Volume to Capacity                | 0.00 | 0.00 | 0.01 |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.1  | 0.0  |                      |      |      |
| Control Delay (s)                 | 0.0  | 3.0  | 0.0  |                      |      |      |
| Lane LOS                          |      | A    | A    |                      |      |      |
| Approach Delay (s)                | 0.0  | 3.0  | 0.0  |                      |      |      |
| Approach LOS                      |      |      | A    |                      |      |      |
| Intersection Summary              |      |      |      |                      |      |      |
| Average Delay                     |      |      | 1.8  |                      |      |      |
| Intersection Capacity Utilization |      |      | 6.7% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15   |                      |      |      |

# Lanes, Volumes, Timings

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 50                                                                                | 47                                                                                | 100                                                                               | 36                                                                                | 47                                                                                | 102                                                                               | 107                                                                                 | 1215                                                                                | 22                                                                                  | 67                                                                                  | 621                                                                                 | 26                                                                                  |
| Future Volume (vph)     | 50                                                                                | 47                                                                                | 100                                                                               | 36                                                                                | 47                                                                                | 102                                                                               | 107                                                                                 | 1215                                                                                | 22                                                                                  | 67                                                                                  | 621                                                                                 | 26                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.931                                                                             |                                                                                   |                                                                                   | 0.926                                                                             |                                                                                   |                                                                                     | 0.997                                                                               |                                                                                     |                                                                                     | 0.994                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.987                                                                             |                                                                                   |                                                                                   | 0.990                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1734                                                                              | 0                                                                                 | 0                                                                                 | 1719                                                                              | 0                                                                                 | 1807                                                                                | 3595                                                                                | 0                                                                                   | 1789                                                                                | 3523                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.734                                                                             |                                                                                   |                                                                                   | 0.812                                                                             |                                                                                   | 0.400                                                                               |                                                                                     |                                                                                     | 0.170                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1288                                                                              | 0                                                                                 | 0                                                                                 | 1410                                                                              | 0                                                                                 | 760                                                                                 | 3595                                                                                | 0                                                                                   | 320                                                                                 | 3523                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 35                                                                                |                                                                                   |                                                                                   | 41                                                                                |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     | 7                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 8                                                                                 |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   | 8                                                                                 | 1                                                                                   |                                                                                     | 8                                                                                   | 8                                                                                   |                                                                                     | 1                                                                                   |
| Peak Hour Factor        | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Heavy Vehicles (%)      | 0%                                                                                | 0%                                                                                | 2%                                                                                | 3%                                                                                | 0%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 10%                                                                                 | 2%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 51                                                                                | 48                                                                                | 102                                                                               | 37                                                                                | 48                                                                                | 104                                                                               | 109                                                                                 | 1240                                                                                | 22                                                                                  | 68                                                                                  | 634                                                                                 | 27                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 201                                                                               | 0                                                                                 | 0                                                                                 | 189                                                                               | 0                                                                                 | 109                                                                                 | 1262                                                                                | 0                                                                                   | 68                                                                                  | 661                                                                                 | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 37.6                                                                              | 37.6                                                                              |                                                                                   | 37.6                                                                              | 37.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 30.3                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 38.0                                                                              |                                                                                   | 38.0                                                                              | 38.0                                                                              |                                                                                   | 93.0                                                                                | 93.0                                                                                |                                                                                     | 9.0                                                                                 | 102.0                                                                               |                                                                                     |
| Total Split (%)         | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 66.4%                                                                               | 66.4%                                                                               |                                                                                     | 6.4%                                                                                | 72.9%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | -3.0                                                                              |                                                                                   |                                                                                   | -3.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 23.6                                                                              |                                                                                   |                                                                                   | 23.6                                                                              |                                                                                   | 88.8                                                                                | 88.8                                                                                |                                                                                     | 99.2                                                                                | 97.9                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.18                                                                              |                                                                                   |                                                                                   | 0.18                                                                              |                                                                                   | 0.68                                                                                | 0.68                                                                                |                                                                                     | 0.76                                                                                | 0.75                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.77                                                                              |                                                                                   |                                                                                   | 0.66                                                                              |                                                                                   | 0.21                                                                                | 0.52                                                                                |                                                                                     | 0.22                                                                                | 0.25                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 61.1                                                                              |                                                                                   |                                                                                   | 49.3                                                                              |                                                                                   | 10.8                                                                                | 12.4                                                                                |                                                                                     | 6.5                                                                                 | 5.7                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 61.1                                                                              |                                                                                   |                                                                                   | 49.3                                                                              |                                                                                   | 10.8                                                                                | 12.4                                                                                |                                                                                     | 6.5                                                                                 | 5.7                                                                                 |                                                                                     |
| LOS                     |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 61.1                                                                              |                                                                                   |                                                                                   | 49.3                                                                              |                                                                                   |                                                                                     | 12.2                                                                                |                                                                                     |                                                                                     | 5.8                                                                                 |                                                                                     |

# Lanes, Volumes, Timings

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach LOS           | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                  |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Queue Length 50th (m)  | 41.3                                                                              |                                                                                   |                                                                                   | 35.7                                                                              |                                                                                   |                                                                                   | 10.1                                                                               | 80.8                                                                                |                                                                                     | 3.8                                                                                 | 23.6                                                                                |                                                                                     |
| Queue Length 95th (m)  | 68.3                                                                              |                                                                                   |                                                                                   | 60.8                                                                              |                                                                                   |                                                                                   | 22.9                                                                               | 120.6                                                                               |                                                                                     | 9.8                                                                                 | 40.5                                                                                |                                                                                     |
| Internal Link Dist (m) | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    | 356                                                                               |                                                                                   |                                                                                   | 392                                                                               |                                                                                   |                                                                                   | 517                                                                                | 2449                                                                                |                                                                                     | 311                                                                                 | 2646                                                                                |                                                                                     |
| 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      | 0.56                                                                              |                                                                                   |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   | 0.21                                                                               | 0.52                                                                                |                                                                                     | 0.22                                                                                | 0.25                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 130.4

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.1

Intersection LOS: B

Intersection Capacity Utilization 68.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

|                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |
| Ø2                                                                                  |                                                                                     |                                                                                     | Ø4                                                                                    |                                                                                       |
| 102 s                                                                               |                                                                                     |                                                                                     | 38 s                                                                                  |                                                                                       |
|  |  |  |  |  |
| Ø5                                                                                  | Ø6                                                                                  |                                                                                     | Ø8                                                                                    |                                                                                       |
| 9 s                                                                                 | 93 s                                                                                |                                                                                     | 38 s                                                                                  |                                                                                       |

# HCM Signalized Intersection Capacity Analysis

# Existing Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL   | SBT   | SBR  |
|-----------------------------------|------|-------|-------|------|------|------|------|-------|------|-------|-------|------|
| Lane Configurations               |      | ↔     |       |      | ↔    |      | ↔    | ↔     |      | ↔     | ↔     |      |
| Traffic Volume (vph)              | 50   | 47    | 100   | 36   | 47   | 102  | 107  | 1215  | 22   | 67    | 621   | 26   |
| Future Volume (vph)               | 50   | 47    | 100   | 36   | 47   | 102  | 107  | 1215  | 22   | 67    | 621   | 26   |
| Ideal Flow (vphpl)                | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  | 1900 |
| Total Lost time (s)               |      | 4.6   |       |      | 4.6  |      | 6.3  | 6.3   |      | 3.0   | 4.3   |      |
| Lane Util. Factor                 |      | 1.00  |       |      | 1.00 |      | 1.00 | 0.95  |      | 1.00  | 0.95  |      |
| Frpb, ped/bikes                   |      | 0.99  |       |      | 0.99 |      | 1.00 | 1.00  |      | 1.00  | 1.00  |      |
| Flpb, ped/bikes                   |      | 1.00  |       |      | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 1.00  |      |
| Frt                               |      | 0.93  |       |      | 0.93 |      | 1.00 | 1.00  |      | 1.00  | 0.99  |      |
| Flt Protected                     |      | 0.99  |       |      | 0.99 |      | 0.95 | 1.00  |      | 0.95  | 1.00  |      |
| Satd. Flow (prot)                 |      | 1734  |       |      | 1719 |      | 1805 | 3596  |      | 1789  | 3523  |      |
| Flt Permitted                     |      | 0.73  |       |      | 0.81 |      | 0.40 | 1.00  |      | 0.17  | 1.00  |      |
| Satd. Flow (perm)                 |      | 1289  |       |      | 1410 |      | 761  | 3596  |      | 321   | 3523  |      |
| Peak-hour factor, PHF             | 0.98 | 0.98  | 0.98  | 0.98 | 0.98 | 0.98 | 0.98 | 0.98  | 0.98 | 0.98  | 0.98  | 0.98 |
| Adj. Flow (vph)                   | 51   | 48    | 102   | 37   | 48   | 104  | 109  | 1240  | 22   | 68    | 634   | 27   |
| RTOR Reduction (vph)              | 0    | 29    | 0     | 0    | 34   | 0    | 0    | 1     | 0    | 0     | 2     | 0    |
| Lane Group Flow (vph)             | 0    | 172   | 0     | 0    | 155  | 0    | 109  | 1261  | 0    | 68    | 659   | 0    |
| Confl. Peds. (#/hr)               | 8    |       | 2     | 2    |      | 8    | 1    |       | 8    | 8     |       | 1    |
| Heavy Vehicles (%)                | 0%   | 0%    | 2%    | 3%   | 0%   | 1%   | 1%   | 1%    | 10%  | 2%    | 3%    | 0%   |
| Turn Type                         | Perm | NA    |       | Perm | NA   |      | Perm | NA    |      | pm+pt | NA    |      |
| Protected Phases                  |      | 8     |       |      | 4    |      |      | 6     |      | 5     | 2     |      |
| Permitted Phases                  | 8    |       |       | 4    |      |      | 6    |       |      | 2     |       |      |
| Actuated Green, G (s)             |      | 20.6  |       |      | 20.6 |      | 88.8 | 88.8  |      | 98.5  | 98.5  |      |
| Effective Green, g (s)            |      | 23.6  |       |      | 23.6 |      | 88.8 | 88.8  |      | 98.5  | 98.5  |      |
| Actuated g/C Ratio                |      | 0.18  |       |      | 0.18 |      | 0.68 | 0.68  |      | 0.75  | 0.75  |      |
| Clearance Time (s)                |      | 7.6   |       |      | 7.6  |      | 6.3  | 6.3   |      | 3.0   | 4.3   |      |
| Vehicle Extension (s)             |      | 3.0   |       |      | 3.0  |      | 3.0  | 3.0   |      | 3.0   | 3.0   |      |
| Lane Grp Cap (vph)                |      | 232   |       |      | 254  |      | 515  | 2437  |      | 294   | 2648  |      |
| v/s Ratio Prot                    |      |       |       |      |      |      |      | c0.35 |      | 0.01  | c0.19 |      |
| v/s Ratio Perm                    |      | c0.13 |       |      | 0.11 |      | 0.14 |       |      | 0.17  |       |      |
| v/c Ratio                         |      | 0.74  |       |      | 0.61 |      | 0.21 | 0.52  |      | 0.23  | 0.25  |      |
| Uniform Delay, d1                 |      | 50.8  |       |      | 49.5 |      | 7.9  | 10.5  |      | 6.3   | 5.0   |      |
| Progression Factor                |      | 1.00  |       |      | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 1.00  |      |
| Incremental Delay, d2             |      | 12.1  |       |      | 4.3  |      | 0.9  | 0.8   |      | 0.4   | 0.2   |      |
| Delay (s)                         |      | 62.9  |       |      | 53.8 |      | 8.9  | 11.3  |      | 6.7   | 5.2   |      |
| Level of Service                  |      | E     |       |      | D    |      | A    | B     |      | A     | A     |      |
| Approach Delay (s)                |      | 62.9  |       |      | 53.8 |      |      | 11.1  |      |       | 5.3   |      |
| Approach LOS                      |      | E     |       |      | D    |      |      | B     |      |       | A     |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |      |       |      |       |       |      |
| HCM 2000 Control Delay            |      |       | 16.8  |      |      |      |      |       |      |       |       |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.55  |      |      |      |      |       |      |       |       |      |
| Actuated Cycle Length (s)         |      |       | 131.0 |      |      |      |      |       |      |       |       |      |
| Intersection Capacity Utilization |      |       | 68.3% |      |      |      |      |       |      |       |       |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |      |       |      |       |       |      |
| c Critical Lane Group             |      |       |       |      |      |      |      |       |      |       |       |      |

# HCM Unsignalized Intersection Capacity Analysis 2: Queen St S (Hwy 50) & Shore Street

Existing Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 8                                                                                 | 16                                                                                | 20                                                                                | 1296                                                                              | 703                                                                               | 11                                                                                |
| Future Volume (Veh/h)             | 8                                                                                 | 16                                                                                | 20                                                                                | 1296                                                                              | 703                                                                               | 11                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              |
| Hourly flow rate (vph)            | 8                                                                                 | 17                                                                                | 21                                                                                | 1350                                                                              | 732                                                                               | 11                                                                                |
| Pedestrians                       | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLT                                                                              | TWLT                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.82                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1458                                                                              | 376                                                                               | 747                                                                               |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 742                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 717                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1128                                                                              | 376                                                                               | 747                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.0                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.4                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 98                                                                                | 97                                                                                | 98                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 379                                                                               | 606                                                                               | 867                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 25                                                                                | 21                                                                                | 675                                                                               | 675                                                                               | 488                                                                               | 255                                                                               |
| Volume Left                       | 8                                                                                 | 21                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 17                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 11                                                                                |
| cSH                               | 508                                                                               | 867                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.05                                                                              | 0.02                                                                              | 0.40                                                                              | 0.40                                                                              | 0.29                                                                              | 0.15                                                                              |
| Queue Length 95th (m)             | 1.2                                                                               | 0.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 12.5                                                                              | 9.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 12.5                                                                              | 0.1                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 45.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access & Shore Street

Existing Traffic Volumes  
PM Peak Hour

|                                   |      |      |       |                      |      |      |
|-----------------------------------|------|------|-------|----------------------|------|------|
|                                   | →    | ↘    | ↙     | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↰    |      |       | ↱                    | ↰    | ↱    |
| Traffic Volume (veh/h)            | 9    | 1    | 4     | 13                   | 1    | 2    |
| Future Volume (Veh/h)             | 9    | 1    | 4     | 13                   | 1    | 2    |
| Sign Control                      | Free |      |       | Free                 | Stop |      |
| Grade                             | 0%   |      |       | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.63 | 0.63 | 0.63  | 0.63                 | 0.63 | 0.63 |
| Hourly flow rate (vph)            | 14   | 2    | 6     | 21                   | 2    | 3    |
| Pedestrians                       |      |      |       |                      | 2    |      |
| Lane Width (m)                    |      |      |       |                      | 3.7  |      |
| Walking Speed (m/s)               |      |      |       |                      | 1.1  |      |
| Percent Blockage                  |      |      |       |                      | 0    |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       | None |      |       | None                 |      |      |
| Median storage veh                |      |      |       |                      |      |      |
| Upstream signal (m)               |      |      |       |                      |      |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            |      |      | 18    |                      | 50   | 17   |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                |      |      | 18    |                      | 50   | 17   |
| tC, single (s)                    |      |      | 4.1   |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 100  | 100  |
| cM capacity (veh/h)               |      |      | 1609  |                      | 959  | 1066 |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1  |                      |      |      |
| Volume Total                      | 16   | 27   | 5     |                      |      |      |
| Volume Left                       | 0    | 6    | 2     |                      |      |      |
| Volume Right                      | 2    | 0    | 3     |                      |      |      |
| cSH                               | 1700 | 1609 | 1020  |                      |      |      |
| Volume to Capacity                | 0.01 | 0.00 | 0.00  |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.1  | 0.1   |                      |      |      |
| Control Delay (s)                 | 0.0  | 1.6  | 8.5   |                      |      |      |
| Lane LOS                          |      | A    | A     |                      |      |      |
| Approach Delay (s)                | 0.0  | 1.6  | 8.5   |                      |      |      |
| Approach LOS                      |      |      | A     |                      |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 1.8   |                      |      |      |
| Intersection Capacity Utilization |      |      | 14.2% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15    |                      |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 4: West Access & Shore Street

Existing Traffic Volumes  
PM Peak Hour

|                                   |      |       |      |                      |      |      |
|-----------------------------------|------|-------|------|----------------------|------|------|
|                                   | →    | ↘     | ↙    | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR   | WBL  | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↶    |       |      | ↷                    | ↶    | ↷    |
| Traffic Volume (veh/h)            | 6    | 0     | 4    | 12                   | 0    | 4    |
| Future Volume (Veh/h)             | 6    | 0     | 4    | 12                   | 0    | 4    |
| Sign Control                      | Free |       |      | Free                 | Stop |      |
| Grade                             | 0%   |       |      | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.65 | 0.65  | 0.65 | 0.65                 | 0.65 | 0.65 |
| Hourly flow rate (vph)            | 9    | 0     | 6    | 18                   | 0    | 6    |
| Pedestrians                       |      |       |      |                      | 2    |      |
| Lane Width (m)                    |      |       |      |                      | 3.7  |      |
| Walking Speed (m/s)               |      |       |      |                      | 1.1  |      |
| Percent Blockage                  |      |       |      |                      | 0    |      |
| Right turn flare (veh)            |      |       |      |                      |      |      |
| Median type                       | None |       |      | None                 |      |      |
| Median storage veh                |      |       |      |                      |      |      |
| Upstream signal (m)               |      |       |      |                      |      |      |
| pX, platoon unblocked             |      |       |      |                      |      |      |
| vC, conflicting volume            |      |       | 11   |                      | 41   | 11   |
| vC1, stage 1 conf vol             |      |       |      |                      |      |      |
| vC2, stage 2 conf vol             |      |       |      |                      |      |      |
| vCu, unblocked vol                |      |       | 11   |                      | 41   | 11   |
| tC, single (s)                    |      |       | 4.1  |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |       |      |                      |      |      |
| tF (s)                            |      |       | 2.2  |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |       | 100  |                      | 100  | 99   |
| cM capacity (veh/h)               |      |       | 1618 |                      | 970  | 1074 |
| Direction, Lane #                 | EB 1 | WB 1  | NB 1 |                      |      |      |
| Volume Total                      | 9    | 24    | 6    |                      |      |      |
| Volume Left                       | 0    | 6     | 0    |                      |      |      |
| Volume Right                      | 0    | 0     | 6    |                      |      |      |
| cSH                               | 1700 | 1618  | 1074 |                      |      |      |
| Volume to Capacity                | 0.01 | 0.00  | 0.01 |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.1   | 0.1  |                      |      |      |
| Control Delay (s)                 | 0.0  | 1.8   | 8.4  |                      |      |      |
| Lane LOS                          |      | A     | A    |                      |      |      |
| Approach Delay (s)                | 0.0  | 1.8   | 8.4  |                      |      |      |
| Approach LOS                      |      |       | A    |                      |      |      |
| Intersection Summary              |      |       |      |                      |      |      |
| Average Delay                     |      | 2.4   |      |                      |      |      |
| Intersection Capacity Utilization |      | 14.1% |      | ICU Level of Service |      | A    |
| Analysis Period (min)             |      | 15    |      |                      |      |      |

# Lanes, Volumes, Timings

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 519                                                                                 | 31                                                                                  | 118                                                                                 | 993                                                                                 | 27                                                                                  |
| Future Volume (vph)     | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 519                                                                                 | 31                                                                                  | 118                                                                                 | 993                                                                                 | 27                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.932                                                                             |                                                                                   |                                                                                   | 0.939                                                                             |                                                                                   |                                                                                     | 0.992                                                                               |                                                                                     |                                                                                     | 0.996                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.994                                                                             |                                                                                   |                                                                                   | 0.983                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1698                                                                              | 0                                                                                 | 0                                                                                 | 1617                                                                              | 0                                                                                 | 1630                                                                                | 3484                                                                                | 0                                                                                   | 1738                                                                                | 3528                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.912                                                                             |                                                                                   |                                                                                   | 0.691                                                                             |                                                                                   | 0.261                                                                               |                                                                                     |                                                                                     | 0.400                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1553                                                                              | 0                                                                                 | 0                                                                                 | 1137                                                                              | 0                                                                                 | 445                                                                                 | 3484                                                                                | 0                                                                                   | 727                                                                                 | 3528                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 41                                                                                |                                                                                   |                                                                                   | 35                                                                                |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 4                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)     |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor        | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Heavy Vehicles (%)      | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 23                                                                                | 79                                                                                | 102                                                                               | 66                                                                                | 37                                                                                | 85                                                                                | 67                                                                                  | 552                                                                                 | 33                                                                                  | 126                                                                                 | 1056                                                                                | 29                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 204                                                                               | 0                                                                                 | 0                                                                                 | 188                                                                               | 0                                                                                 | 67                                                                                  | 585                                                                                 | 0                                                                                   | 126                                                                                 | 1085                                                                                | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 39.6                                                                              | 39.6                                                                              |                                                                                   | 39.6                                                                              | 39.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 32.3                                                                                |                                                                                     |
| Total Split (s)         | 40.0                                                                              | 40.0                                                                              |                                                                                   | 40.0                                                                              | 40.0                                                                              |                                                                                   | 71.0                                                                                | 71.0                                                                                |                                                                                     | 9.0                                                                                 | 80.0                                                                                |                                                                                     |
| Total Split (%)         | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 59.2%                                                                               | 59.2%                                                                               |                                                                                     | 7.5%                                                                                | 66.7%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | -2.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   | 19.9                                                                              |                                                                                   | 64.9                                                                                | 64.9                                                                                |                                                                                     | 77.2                                                                                | 75.9                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   | 0.61                                                                                | 0.61                                                                                |                                                                                     | 0.73                                                                                | 0.72                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.69                                                                              |                                                                                   |                                                                                   | 0.78                                                                              |                                                                                   | 0.25                                                                                | 0.27                                                                                |                                                                                     | 0.21                                                                                | 0.43                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 44.7                                                                              |                                                                                   |                                                                                   | 54.2                                                                              |                                                                                   | 14.1                                                                                | 10.5                                                                                |                                                                                     | 6.0                                                                                 | 7.4                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 44.7                                                                              |                                                                                   |                                                                                   | 54.2                                                                              |                                                                                   | 14.1                                                                                | 10.5                                                                                |                                                                                     | 6.0                                                                                 | 7.4                                                                                 |                                                                                     |
| LOS                     |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | B                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |

# Lanes, Volumes, Timings

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach Delay         |                                                                                   | 44.7                                                                              |                                                                                   |                                                                                   | 54.2                                                                              |                                                                                   |                                                                                     | 10.9                                                                                |                                                                                     |                                                                                     | 7.2                                                                                 |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (m)  |                                                                                   | 31.7                                                                              |                                                                                   |                                                                                   | 30.3                                                                              |                                                                                   | 5.8                                                                                 | 26.7                                                                                |                                                                                     | 6.4                                                                                 | 41.1                                                                                |                                                                                     |
| Queue Length 95th (m)  |                                                                                   | 55.2                                                                              |                                                                                   |                                                                                   | 54.9                                                                              |                                                                                   | 16.8                                                                                | 44.6                                                                                |                                                                                     | 15.8                                                                                | 71.3                                                                                |                                                                                     |
| Internal Link Dist (m) |                                                                                   | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                     | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                                |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    |                                                                                   | 505                                                                               |                                                                                   |                                                                                   | 394                                                                               |                                                                                   | 272                                                                                 | 2140                                                                                |                                                                                     | 588                                                                                 | 2533                                                                                |                                                                                     |
| 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      |                                                                                   | 0.40                                                                              |                                                                                   |                                                                                   | 0.48                                                                              |                                                                                   | 0.25                                                                                | 0.27                                                                                |                                                                                     | 0.21                                                                                | 0.43                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 105.8

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 15.6

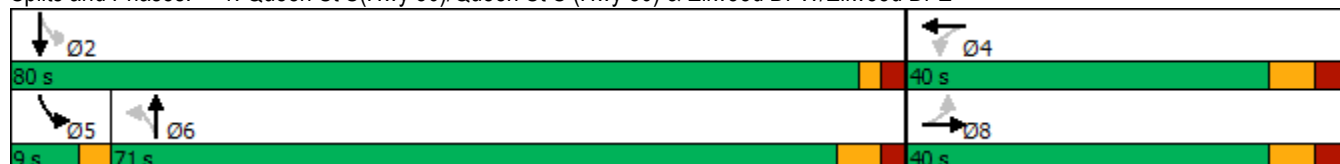
Intersection LOS: B

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



# HCM Signalized Intersection Capacity Analysis

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 519                                                                                 | 31                                                                                  | 118                                                                                 | 993                                                                                 | 27                                                                                  |
| Future Volume (vph)               | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 519                                                                                 | 31                                                                                  | 118                                                                                 | 993                                                                                 | 27                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                   | 1.00                                                                                | 0.99                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1695                                                                              |                                                                                   |                                                                                   | 1619                                                                              |                                                                                   | 1621                                                                                | 3482                                                                                |                                                                                     | 1735                                                                                | 3528                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.91                                                                              |                                                                                   |                                                                                   | 0.69                                                                              |                                                                                   | 0.26                                                                                | 1.00                                                                                |                                                                                     | 0.40                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1555                                                                              |                                                                                   |                                                                                   | 1139                                                                              |                                                                                   | 445                                                                                 | 3482                                                                                |                                                                                     | 730                                                                                 | 3528                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Adj. Flow (vph)                   | 23                                                                                | 79                                                                                | 102                                                                               | 66                                                                                | 37                                                                                | 85                                                                                | 67                                                                                  | 552                                                                                 | 33                                                                                  | 126                                                                                 | 1056                                                                                | 29                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 34                                                                                | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                 | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 170                                                                               | 0                                                                                 | 0                                                                                 | 160                                                                               | 0                                                                                 | 67                                                                                  | 582                                                                                 | 0                                                                                   | 126                                                                                 | 1084                                                                                | 0                                                                                   |
| Confl. Peds. (#/hr)               | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Heavy Vehicles (%)                | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   | 17.9                                                                              |                                                                                   | 64.9                                                                                | 64.9                                                                                |                                                                                     | 75.9                                                                                | 75.9                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   | 19.9                                                                              |                                                                                   | 64.9                                                                                | 64.9                                                                                |                                                                                     | 75.9                                                                                | 75.9                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   | 0.61                                                                                | 0.61                                                                                |                                                                                     | 0.72                                                                                | 0.72                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 263                                                                               |                                                                                   |                                                                                   | 214                                                                               |                                                                                   | 273                                                                                 | 2137                                                                                |                                                                                     | 581                                                                                 | 2533                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.17                                                                                |                                                                                     | 0.01                                                                                | c0.31                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   | c0.14                                                                             |                                                                                   | 0.15                                                                                |                                                                                     |                                                                                     | 0.14                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.65                                                                              |                                                                                   |                                                                                   | 0.75                                                                              |                                                                                   | 0.25                                                                                | 0.27                                                                                |                                                                                     | 0.22                                                                                | 0.43                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                   | 40.5                                                                              |                                                                                   | 9.3                                                                                 | 9.5                                                                                 |                                                                                     | 4.7                                                                                 | 6.1                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 5.4                                                                               |                                                                                   |                                                                                   | 13.2                                                                              |                                                                                   | 2.1                                                                                 | 0.3                                                                                 |                                                                                     | 0.2                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   | 53.7                                                                              |                                                                                   | 11.4                                                                                | 9.8                                                                                 |                                                                                     | 4.9                                                                                 | 6.6                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   | 53.7                                                                              |                                                                                   |                                                                                     | 9.9                                                                                 |                                                                                     |                                                                                     | 6.4                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 15.0                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                     |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.53                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 105.7                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                     |                                                                                     |                                                                                     | 16.9                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 76.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                     |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Lanes, Volumes, Timings  
2: Queen St S (Hwy 50) & Shore Street

FB 2029 Traffic Volumes  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Group                        | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (vph)              | 2                                                                                 | 6                                                                                 | 6                                                                                 | 579                                                                               | 1189                                                                              | 11                                                                                |
| Future Volume (vph)               | 2                                                                                 | 6                                                                                 | 6                                                                                 | 579                                                                               | 1189                                                                              | 11                                                                                |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Lane Util. Factor                 | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              |
| Ped Bike Factor                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Frt                               | 0.899                                                                             |                                                                                   |                                                                                   |                                                                                   | 0.999                                                                             |                                                                                   |
| Flt Protected                     | 0.988                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (prot)                 | 1484                                                                              | 0                                                                                 | 1825                                                                              | 3476                                                                              | 3504                                                                              | 0                                                                                 |
| Flt Permitted                     | 0.988                                                                             |                                                                                   | 0.950                                                                             |                                                                                   |                                                                                   |                                                                                   |
| Satd. Flow (perm)                 | 1484                                                                              | 0                                                                                 | 1825                                                                              | 3476                                                                              | 3504                                                                              | 0                                                                                 |
| Link Speed (k/h)                  | 40                                                                                |                                                                                   |                                                                                   | 50                                                                                | 50                                                                                |                                                                                   |
| Link Distance (m)                 | 61.6                                                                              |                                                                                   |                                                                                   | 86.1                                                                              | 503.6                                                                             |                                                                                   |
| Travel Time (s)                   | 5.5                                                                               |                                                                                   |                                                                                   | 6.2                                                                               | 36.3                                                                              |                                                                                   |
| Confl. Peds. (#/hr)               |                                                                                   |                                                                                   | 7                                                                                 |                                                                                   |                                                                                   | 7                                                                                 |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              |
| Heavy Vehicles (%)                | 0%                                                                                | 20%                                                                               | 0%                                                                                | 5%                                                                                | 4%                                                                                | 12%                                                                               |
| Adj. Flow (vph)                   | 2                                                                                 | 6                                                                                 | 6                                                                                 | 616                                                                               | 1265                                                                              | 12                                                                                |
| Shared Lane Traffic (%)           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Group Flow (vph)             | 8                                                                                 | 0                                                                                 | 6                                                                                 | 616                                                                               | 1277                                                                              | 0                                                                                 |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Area Type:                        | Other                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Type:                     | Unsignalized                                                                      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 43.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service A                                                            |                                                                                   |                                                                                   |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

FB 2029 Traffic Volumes  
AM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 2                                                                                 | 6                                                                                 | 6                                                                                 | 579                                                                               | 1189                                                                              | 11                                                                                |
| Future Volume (Veh/h)             | 2                                                                                 | 6                                                                                 | 6                                                                                 | 579                                                                               | 1189                                                                              | 11                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              |
| Hourly flow rate (vph)            | 2                                                                                 | 6                                                                                 | 6                                                                                 | 616                                                                               | 1265                                                                              | 12                                                                                |
| Pedestrians                       | 7                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLTL                                                                             | TWLTL                                                                             |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.93                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1598                                                                              | 646                                                                               | 1284                                                                              |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 1278                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 320                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1497                                                                              | 646                                                                               | 1284                                                                              |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.3                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.5                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 99                                                                                | 98                                                                                | 99                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 219                                                                               | 371                                                                               | 543                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 8                                                                                 | 6                                                                                 | 308                                                                               | 308                                                                               | 843                                                                               | 434                                                                               |
| Volume Left                       | 2                                                                                 | 6                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 6                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 12                                                                                |
| cSH                               | 317                                                                               | 543                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.03                                                                              | 0.01                                                                              | 0.18                                                                              | 0.18                                                                              | 0.50                                                                              | 0.26                                                                              |
| Queue Length 95th (m)             | 0.6                                                                               | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 16.7                                                                              | 11.7                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | C                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 16.7                                                                              | 0.1                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 43.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access & Shore Street

FB 2029 Traffic Volumes  
AM Peak Hour

|                                   |      |      |      |                      |      |      |
|-----------------------------------|------|------|------|----------------------|------|------|
|                                   | →    | ↘    | ↙    | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL  | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↱    |      |      | ↰                    | ↘↙   |      |
| Traffic Volume (veh/h)            | 6    | 0    | 0    | 11                   | 0    | 0    |
| Future Volume (Veh/h)             | 6    | 0    | 0    | 11                   | 0    | 0    |
| Sign Control                      | Free |      |      | Free                 | Stop |      |
| Grade                             | 0%   |      |      | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.58 | 0.58 | 0.58 | 0.58                 | 0.58 | 0.58 |
| Hourly flow rate (vph)            | 10   | 0    | 0    | 19                   | 0    | 0    |
| Pedestrians                       |      |      |      |                      |      |      |
| Lane Width (m)                    |      |      |      |                      |      |      |
| Walking Speed (m/s)               |      |      |      |                      |      |      |
| Percent Blockage                  |      |      |      |                      |      |      |
| Right turn flare (veh)            |      |      |      |                      |      |      |
| Median type                       | None |      |      | None                 |      |      |
| Median storage veh                |      |      |      |                      |      |      |
| Upstream signal (m)               |      |      |      |                      |      |      |
| pX, platoon unblocked             |      |      |      |                      |      |      |
| vC, conflicting volume            |      |      | 10   |                      | 29   | 10   |
| vC1, stage 1 conf vol             |      |      |      |                      |      |      |
| vC2, stage 2 conf vol             |      |      |      |                      |      |      |
| vCu, unblocked vol                |      |      | 10   |                      | 29   | 10   |
| tC, single (s)                    |      |      | 4.1  |                      | 6.4  | 6.4  |
| tC, 2 stage (s)                   |      |      |      |                      |      |      |
| tF (s)                            |      |      | 2.2  |                      | 3.5  | 3.5  |
| p0 queue free %                   |      |      | 100  |                      | 100  | 100  |
| cM capacity (veh/h)               |      |      | 1623 |                      | 991  | 1021 |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1 |                      |      |      |
| Volume Total                      | 10   | 19   | 0    |                      |      |      |
| Volume Left                       | 0    | 0    | 0    |                      |      |      |
| Volume Right                      | 0    | 0    | 0    |                      |      |      |
| cSH                               | 1700 | 1623 | 1700 |                      |      |      |
| Volume to Capacity                | 0.01 | 0.00 | 0.00 |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.0  | 0.0  |                      |      |      |
| Control Delay (s)                 | 0.0  | 0.0  | 0.0  |                      |      |      |
| Lane LOS                          |      |      | A    |                      |      |      |
| Approach Delay (s)                | 0.0  | 0.0  | 0.0  |                      |      |      |
| Approach LOS                      |      |      | A    |                      |      |      |
| Intersection Summary              |      |      |      |                      |      |      |
| Average Delay                     |      |      | 0.0  |                      |      |      |
| Intersection Capacity Utilization |      |      | 6.7% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15   |                      |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 4: West Access & Shore Street

FB 2029 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | NBL                                                                               | NBR                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 6                                                                                 | 0                                                                                 | 4                                                                                 | 5                                                                                 | 0                                                                                 | 0                                                                                 |
| Future Volume (Veh/h)             | 6                                                                                 | 0                                                                                 | 4                                                                                 | 5                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              |
| Hourly flow rate (vph)            | 10                                                                                | 0                                                                                 | 7                                                                                 | 8                                                                                 | 0                                                                                 | 0                                                                                 |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 10                                                                                |                                                                                   | 32                                                                                | 10                                                                                |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 10                                                                                |                                                                                   | 32                                                                                | 10                                                                                |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 100                                                                               |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 1623                                                                              |                                                                                   | 983                                                                               | 1077                                                                              |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 10                                                                                | 15                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 7                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 1623                                                                              | 1700                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.01                                                                              | 0.00                                                                              | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 3.4                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 3.4                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 7.2%                                                                              | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

# Lanes, Volumes, Timings

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 62                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 126                                                                               | 132                                                                                 | 1523                                                                                | 27                                                                                  | 83                                                                                  | 782                                                                                 | 32                                                                                  |
| Future Volume (vph)     | 62                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 126                                                                               | 132                                                                                 | 1523                                                                                | 27                                                                                  | 83                                                                                  | 782                                                                                 | 32                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.931                                                                             |                                                                                   |                                                                                   | 0.925                                                                             |                                                                                   |                                                                                     | 0.997                                                                               |                                                                                     |                                                                                     | 0.994                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.987                                                                             |                                                                                   |                                                                                   | 0.990                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1734                                                                              | 0                                                                                 | 0                                                                                 | 1717                                                                              | 0                                                                                 | 1807                                                                                | 3595                                                                                | 0                                                                                   | 1789                                                                                | 3523                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.708                                                                             |                                                                                   |                                                                                   | 0.797                                                                             |                                                                                   | 0.339                                                                               |                                                                                     |                                                                                     | 0.093                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1242                                                                              | 0                                                                                 | 0                                                                                 | 1382                                                                              | 0                                                                                 | 644                                                                                 | 3595                                                                                | 0                                                                                   | 175                                                                                 | 3523                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 35                                                                                |                                                                                   |                                                                                   | 42                                                                                |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     | 7                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 8                                                                                 |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   | 8                                                                                 | 1                                                                                   |                                                                                     | 8                                                                                   | 8                                                                                   |                                                                                     | 1                                                                                   |
| Peak Hour Factor        | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Heavy Vehicles (%)      | 0%                                                                                | 0%                                                                                | 2%                                                                                | 3%                                                                                | 0%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 10%                                                                                 | 2%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 63                                                                                | 59                                                                                | 126                                                                               | 45                                                                                | 59                                                                                | 129                                                                               | 135                                                                                 | 1554                                                                                | 28                                                                                  | 85                                                                                  | 798                                                                                 | 33                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 248                                                                               | 0                                                                                 | 0                                                                                 | 233                                                                               | 0                                                                                 | 135                                                                                 | 1582                                                                                | 0                                                                                   | 85                                                                                  | 831                                                                                 | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 37.6                                                                              | 37.6                                                                              |                                                                                   | 37.6                                                                              | 37.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 30.3                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 38.0                                                                              |                                                                                   | 38.0                                                                              | 38.0                                                                              |                                                                                   | 93.0                                                                                | 93.0                                                                                |                                                                                     | 9.0                                                                                 | 102.0                                                                               |                                                                                     |
| Total Split (%)         | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 66.4%                                                                               | 66.4%                                                                               |                                                                                     | 6.4%                                                                                | 72.9%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | -3.0                                                                              |                                                                                   |                                                                                   | -3.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 28.6                                                                              |                                                                                   |                                                                                   | 28.6                                                                              |                                                                                   | 86.9                                                                                | 86.9                                                                                |                                                                                     | 99.2                                                                                | 97.9                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                   | 0.64                                                                                | 0.64                                                                                |                                                                                     | 0.73                                                                                | 0.72                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.86                                                                              |                                                                                   |                                                                                   | 0.72                                                                              |                                                                                   | 0.33                                                                                | 0.69                                                                                |                                                                                     | 0.43                                                                                | 0.33                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.3                                                                              |                                                                                   | 14.7                                                                                | 18.1                                                                                |                                                                                     | 12.5                                                                                | 7.6                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.3                                                                              |                                                                                   | 14.7                                                                                | 18.1                                                                                |                                                                                     | 12.5                                                                                | 7.6                                                                                 |                                                                                     |
| LOS                     |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | B                                                                                   |                                                                                     | B                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.3                                                                              |                                                                                   |                                                                                     | 17.8                                                                                |                                                                                     |                                                                                     | 8.0                                                                                 |                                                                                     |

# Lanes, Volumes, Timings

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach LOS           | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                  |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Queue Length 50th (m)  | 56.0                                                                              |                                                                                   |                                                                                   | 48.2                                                                              |                                                                                   |                                                                                   | 16.4                                                                               | 142.0                                                                               |                                                                                     | 6.2                                                                                 | 41.1                                                                                |                                                                                     |
| Queue Length 95th (m)  | #95.4                                                                             |                                                                                   |                                                                                   | 77.6                                                                              |                                                                                   |                                                                                   | 31.0                                                                               | 173.8                                                                               |                                                                                     | 11.8                                                                                | 53.1                                                                                |                                                                                     |
| Internal Link Dist (m) | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    | 333                                                                               |                                                                                   |                                                                                   | 373                                                                               |                                                                                   |                                                                                   | 413                                                                                | 2308                                                                                |                                                                                     | 199                                                                                 | 2548                                                                                |                                                                                     |
| 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      | 0.74                                                                              |                                                                                   |                                                                                   | 0.62                                                                              |                                                                                   |                                                                                   | 0.33                                                                               | 0.69                                                                                |                                                                                     | 0.43                                                                                | 0.33                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 135.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.8

Intersection LOS: C

Intersection Capacity Utilization 81.2%

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.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  Ø2 |  Ø4 |
| 102 s                                                                                  | 38 s                                                                                     |
|  Ø5 |  Ø8 |
| 9 s                                                                                    | 38 s                                                                                     |
|  Ø6 |                                                                                          |
| 93 s                                                                                   |                                                                                          |

# HCM Signalized Intersection Capacity Analysis

FB 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 62                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 126                                                                               | 132                                                                                 | 1523                                                                                | 27                                                                                  | 83                                                                                  | 782                                                                                 | 32                                                                                  |
| Future Volume (vph)               | 62                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 126                                                                               | 132                                                                                 | 1523                                                                                | 27                                                                                  | 83                                                                                  | 782                                                                                 | 32                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 0.93                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1734                                                                              |                                                                                   |                                                                                   | 1719                                                                              |                                                                                   | 1806                                                                                | 3596                                                                                |                                                                                     | 1789                                                                                | 3524                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.71                                                                              |                                                                                   |                                                                                   | 0.80                                                                              |                                                                                   | 0.34                                                                                | 1.00                                                                                |                                                                                     | 0.09                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1243                                                                              |                                                                                   |                                                                                   | 1384                                                                              |                                                                                   | 644                                                                                 | 3596                                                                                |                                                                                     | 175                                                                                 | 3524                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Adj. Flow (vph)                   | 63                                                                                | 59                                                                                | 126                                                                               | 45                                                                                | 59                                                                                | 129                                                                               | 135                                                                                 | 1554                                                                                | 28                                                                                  | 85                                                                                  | 798                                                                                 | 33                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 28                                                                                | 0                                                                                 | 0                                                                                 | 33                                                                                | 0                                                                                 | 0                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 220                                                                               | 0                                                                                 | 0                                                                                 | 200                                                                               | 0                                                                                 | 135                                                                                 | 1581                                                                                | 0                                                                                   | 85                                                                                  | 829                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 8                                                                                 |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   | 8                                                                                 | 1                                                                                   |                                                                                     | 8                                                                                   | 8                                                                                   |                                                                                     | 1                                                                                   |
| Heavy Vehicles (%)                | 0%                                                                                | 0%                                                                                | 2%                                                                                | 3%                                                                                | 0%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 10%                                                                                 | 2%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 25.6                                                                              |                                                                                   |                                                                                   | 25.6                                                                              |                                                                                   | 86.9                                                                                | 86.9                                                                                |                                                                                     | 97.9                                                                                | 97.9                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 28.6                                                                              |                                                                                   |                                                                                   | 28.6                                                                              |                                                                                   | 86.9                                                                                | 86.9                                                                                |                                                                                     | 97.9                                                                                | 97.9                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                   | 0.64                                                                                | 0.64                                                                                |                                                                                     | 0.72                                                                                | 0.72                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 262                                                                               |                                                                                   |                                                                                   | 292                                                                               |                                                                                   | 413                                                                                 | 2307                                                                                |                                                                                     | 198                                                                                 | 2548                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | c0.44                                                                               |                                                                                     | c0.02                                                                               | 0.24                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | c0.18                                                                             |                                                                                   |                                                                                   | 0.14                                                                              |                                                                                   | 0.21                                                                                |                                                                                     |                                                                                     | 0.29                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.84                                                                              |                                                                                   |                                                                                   | 0.68                                                                              |                                                                                   | 0.33                                                                                | 0.69                                                                                |                                                                                     | 0.43                                                                                | 0.33                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 51.2                                                                              |                                                                                   |                                                                                   | 49.2                                                                              |                                                                                   | 11.0                                                                                | 15.5                                                                                |                                                                                     | 13.1                                                                                | 6.8                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 20.9                                                                              |                                                                                   |                                                                                   | 6.5                                                                               |                                                                                   | 2.1                                                                                 | 1.7                                                                                 |                                                                                     | 1.5                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 72.2                                                                              |                                                                                   |                                                                                   | 55.7                                                                              |                                                                                   | 13.1                                                                                | 17.2                                                                                |                                                                                     | 14.6                                                                                | 7.1                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   | B                                                                                   | B                                                                                   |                                                                                     | B                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 72.2                                                                              |                                                                                   |                                                                                   | 55.7                                                                              |                                                                                   |                                                                                     | 16.9                                                                                |                                                                                     |                                                                                     | 7.8                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 21.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.71                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 135.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 81.2%                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

FB 2029 Traffic Volumes  
PM Peak Hour

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 10                                                                                | 20                                                                                | 25                                                                                | 1623                                                                              | 883                                                                               | 14                                                                                |
| Future Volume (Veh/h)             | 10                                                                                | 20                                                                                | 25                                                                                | 1623                                                                              | 883                                                                               | 14                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              |
| Hourly flow rate (vph)            | 10                                                                                | 21                                                                                | 26                                                                                | 1691                                                                              | 920                                                                               | 15                                                                                |
| Pedestrians                       | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLTL                                                                             | TWLTL                                                                             |                                                                                   |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.71                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1829                                                                              | 472                                                                               | 939                                                                               |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 932                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 898                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1354                                                                              | 472                                                                               | 939                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.0                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.4                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 97                                                                                | 96                                                                                | 96                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 311                                                                               | 523                                                                               | 735                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 31                                                                                | 26                                                                                | 846                                                                               | 846                                                                               | 613                                                                               | 322                                                                               |
| Volume Left                       | 10                                                                                | 26                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 21                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 15                                                                                |
| cSH                               | 429                                                                               | 735                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.07                                                                              | 0.04                                                                              | 0.50                                                                              | 0.50                                                                              | 0.36                                                                              | 0.19                                                                              |
| Queue Length 95th (m)             | 1.8                                                                               | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 14.0                                                                              | 10.1                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 14.0                                                                              | 0.2                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   |                                                                                   | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 54.9%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access & Shore Street

FB 2029 Traffic Volumes  
PM Peak Hour

|                                   |      |      |       |                      |      |      |
|-----------------------------------|------|------|-------|----------------------|------|------|
|                                   | →    | ↘    | ↙     | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↰    |      |       | ↱                    | ↰    | ↱    |
| Traffic Volume (veh/h)            | 11   | 1    | 5     | 16                   | 1    | 2    |
| Future Volume (Veh/h)             | 11   | 1    | 5     | 16                   | 1    | 2    |
| Sign Control                      | Free |      |       | Free                 | Stop |      |
| Grade                             | 0%   |      |       | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.63 | 0.63 | 0.63  | 0.63                 | 0.63 | 0.63 |
| Hourly flow rate (vph)            | 17   | 2    | 8     | 25                   | 2    | 3    |
| Pedestrians                       |      |      |       |                      | 2    |      |
| Lane Width (m)                    |      |      |       |                      | 3.7  |      |
| Walking Speed (m/s)               |      |      |       |                      | 1.1  |      |
| Percent Blockage                  |      |      |       |                      | 0    |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       | None |      | None  |                      |      |      |
| Median storage veh                |      |      |       |                      |      |      |
| Upstream signal (m)               |      |      |       |                      |      |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            |      |      | 21    |                      | 61   | 20   |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                |      |      | 21    |                      | 61   | 20   |
| tC, single (s)                    |      |      | 4.1   |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 100  | 100  |
| cM capacity (veh/h)               |      |      | 1605  |                      | 944  | 1062 |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1  |                      |      |      |
| Volume Total                      | 19   | 33   | 5     |                      |      |      |
| Volume Left                       | 0    | 8    | 2     |                      |      |      |
| Volume Right                      | 2    | 0    | 3     |                      |      |      |
| cSH                               | 1700 | 1605 | 1011  |                      |      |      |
| Volume to Capacity                | 0.01 | 0.00 | 0.00  |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.1  | 0.1   |                      |      |      |
| Control Delay (s)                 | 0.0  | 1.8  | 8.6   |                      |      |      |
| Lane LOS                          |      | A    | A     |                      |      |      |
| Approach Delay (s)                | 0.0  | 1.8  | 8.6   |                      |      |      |
| Approach LOS                      |      |      | A     |                      |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 1.8   |                      |      |      |
| Intersection Capacity Utilization |      |      | 15.2% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15    |                      |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 4: West Access & Shore Street

FB 2029 Traffic Volumes  
PM Peak Hour

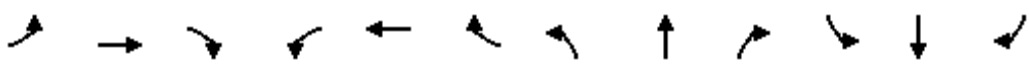
|                                   |      |      |       |                      |      |      |
|-----------------------------------|------|------|-------|----------------------|------|------|
|                                   | →    | ↘    | ↙     | ←                    | ↖    | ↗    |
| Movement                          | EBT  | EBR  | WBL   | WBT                  | NBL  | NBR  |
| Lane Configurations               | ↰    |      |       | ↱                    | ↰    | ↱    |
| Traffic Volume (veh/h)            | 7    | 0    | 5     | 15                   | 0    | 5    |
| Future Volume (Veh/h)             | 7    | 0    | 5     | 15                   | 0    | 5    |
| Sign Control                      | Free |      |       | Free                 | Stop |      |
| Grade                             | 0%   |      |       | 0%                   | 0%   |      |
| Peak Hour Factor                  | 0.65 | 0.65 | 0.65  | 0.65                 | 0.65 | 0.65 |
| Hourly flow rate (vph)            | 11   | 0    | 8     | 23                   | 0    | 8    |
| Pedestrians                       |      |      |       |                      | 2    |      |
| Lane Width (m)                    |      |      |       |                      | 3.7  |      |
| Walking Speed (m/s)               |      |      |       |                      | 1.1  |      |
| Percent Blockage                  |      |      |       |                      | 0    |      |
| Right turn flare (veh)            |      |      |       |                      |      |      |
| Median type                       | None |      | None  |                      |      |      |
| Median storage veh                |      |      |       |                      |      |      |
| Upstream signal (m)               |      |      |       |                      |      |      |
| pX, platoon unblocked             |      |      |       |                      |      |      |
| vC, conflicting volume            |      |      | 13    |                      | 52   | 13   |
| vC1, stage 1 conf vol             |      |      |       |                      |      |      |
| vC2, stage 2 conf vol             |      |      |       |                      |      |      |
| vCu, unblocked vol                |      |      | 13    |                      | 52   | 13   |
| tC, single (s)                    |      |      | 4.1   |                      | 6.4  | 6.2  |
| tC, 2 stage (s)                   |      |      |       |                      |      |      |
| tF (s)                            |      |      | 2.2   |                      | 3.5  | 3.3  |
| p0 queue free %                   |      |      | 100   |                      | 100  | 99   |
| cM capacity (veh/h)               |      |      | 1616  |                      | 955  | 1071 |
| Direction, Lane #                 | EB 1 | WB 1 | NB 1  |                      |      |      |
| Volume Total                      | 11   | 31   | 8     |                      |      |      |
| Volume Left                       | 0    | 8    | 0     |                      |      |      |
| Volume Right                      | 0    | 0    | 8     |                      |      |      |
| cSH                               | 1700 | 1616 | 1071  |                      |      |      |
| Volume to Capacity                | 0.01 | 0.00 | 0.01  |                      |      |      |
| Queue Length 95th (m)             | 0.0  | 0.1  | 0.2   |                      |      |      |
| Control Delay (s)                 | 0.0  | 1.9  | 8.4   |                      |      |      |
| Lane LOS                          |      | A    | A     |                      |      |      |
| Approach Delay (s)                | 0.0  | 1.9  | 8.4   |                      |      |      |
| Approach LOS                      |      |      | A     |                      |      |      |
| Intersection Summary              |      |      |       |                      |      |      |
| Average Delay                     |      |      | 2.5   |                      |      |      |
| Intersection Capacity Utilization |      |      | 15.2% | ICU Level of Service |      | A    |
| Analysis Period (min)             |      |      | 15    |                      |      |      |

# Lanes, Volumes, Timings

# FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                         |  |       |      |       |       |      |       |       |      |       |       |      |
|-------------------------|------------------------------------------------------------------------------------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Group              | EBL                                                                                | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
| Lane Configurations     |                                                                                    | ↕     |      |       | ↕     |      | ↗     | ↕     |      | ↗     | ↕     |      |
| Traffic Volume (vph)    | 22                                                                                 | 74    | 96   | 62    | 35    | 80   | 63    | 520   | 31   | 119   | 996   | 28   |
| Future Volume (vph)     | 22                                                                                 | 74    | 96   | 62    | 35    | 80   | 63    | 520   | 31   | 119   | 996   | 28   |
| Ideal Flow (vphpl)      | 1900                                                                               | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (m)      | 0.0                                                                                |       | 0.0  | 0.0   |       | 0.0  | 45.0  |       | 0.0  | 45.0  |       | 0.0  |
| Storage Lanes           | 0                                                                                  |       | 0    | 0     |       | 0    | 1     |       | 0    | 1     |       | 0    |
| Taper Length (m)        | 2.5                                                                                |       |      | 2.5   |       |      | 2.5   |       |      | 2.5   |       |      |
| Lane Util. Factor       | 1.00                                                                               | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 0.95  | 0.95 | 1.00  | 0.95  | 0.95 |
| Ped Bike Factor         |                                                                                    | 0.99  |      |       | 0.98  |      | 0.99  | 1.00  |      | 0.99  | 1.00  |      |
| Frt                     |                                                                                    | 0.932 |      |       | 0.939 |      |       | 0.992 |      |       | 0.996 |      |
| Flt Protected           |                                                                                    | 0.994 |      |       | 0.983 |      | 0.950 |       |      | 0.950 |       |      |
| Satd. Flow (prot)       | 0                                                                                  | 1698  | 0    | 0     | 1617  | 0    | 1630  | 3484  | 0    | 1738  | 3528  | 0    |
| Flt Permitted           |                                                                                    | 0.912 |      |       | 0.691 |      | 0.259 |       |      | 0.399 |       |      |
| Satd. Flow (perm)       | 0                                                                                  | 1553  | 0    | 0     | 1137  | 0    | 442   | 3484  | 0    | 726   | 3528  | 0    |
| Right Turn on Red       |                                                                                    |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Satd. Flow (RTOR)       |                                                                                    | 41    |      |       | 35    |      |       | 8     |      |       | 4     |      |
| Link Speed (k/h)        |                                                                                    | 40    |      |       | 40    |      |       | 50    |      |       | 50    |      |
| Link Distance (m)       |                                                                                    | 247.4 |      |       | 102.8 |      |       | 658.2 |      |       | 86.1  |      |
| Travel Time (s)         |                                                                                    | 22.3  |      |       | 9.3   |      |       | 47.4  |      |       | 6.2   |      |
| Confl. Peds. (#/hr)     | 33                                                                                 |       | 1    | 1     |       | 33   | 12    |       | 7    | 7     |       | 12   |
| Confl. Bikes (#/hr)     |                                                                                    |       | 1    |       |       | 1    |       |       |      |       |       |      |
| Peak Hour Factor        | 0.94                                                                               | 0.94  | 0.94 | 0.94  | 0.94  | 0.94 | 0.94  | 0.94  | 0.94 | 0.94  | 0.94  | 0.94 |
| Heavy Vehicles (%)      | 6%                                                                                 | 5%    | 3%   | 8%    | 4%    | 8%   | 12%   | 3%    | 16%  | 5%    | 3%    | 0%   |
| Adj. Flow (vph)         | 23                                                                                 | 79    | 102  | 66    | 37    | 85   | 67    | 553   | 33   | 127   | 1060  | 30   |
| Shared Lane Traffic (%) |                                                                                    |       |      |       |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 0                                                                                  | 204   | 0    | 0     | 188   | 0    | 67    | 586   | 0    | 127   | 1090  | 0    |
| Turn Type               | Perm                                                                               | NA    |      | Perm  | NA    |      | Perm  | NA    |      | pm+pt | NA    |      |
| Protected Phases        |                                                                                    | 8     |      |       | 4     |      |       | 6     |      | 5     | 2     |      |
| Permitted Phases        | 8                                                                                  |       |      | 4     |       |      | 6     |       |      | 2     |       |      |
| Detector Phase          | 8                                                                                  | 8     |      | 4     | 4     |      | 6     | 6     |      | 5     | 2     |      |
| Switch Phase            |                                                                                    |       |      |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0                                                                               | 10.0  |      | 10.0  | 10.0  |      | 10.0  | 10.0  |      | 5.0   | 10.0  |      |
| Minimum Split (s)       | 39.6                                                                               | 39.6  |      | 39.6  | 39.6  |      | 32.3  | 32.3  |      | 8.0   | 32.3  |      |
| Total Split (s)         | 40.0                                                                               | 40.0  |      | 40.0  | 40.0  |      | 71.0  | 71.0  |      | 9.0   | 80.0  |      |
| Total Split (%)         | 33.3%                                                                              | 33.3% |      | 33.3% | 33.3% |      | 59.2% | 59.2% |      | 7.5%  | 66.7% |      |
| Yellow Time (s)         | 4.0                                                                                | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 3.0   | 2.0   |      |
| All-Red Time (s)        | 3.6                                                                                | 3.6   |      | 3.6   | 3.6   |      | 2.3   | 2.3   |      | 0.0   | 2.3   |      |
| Lost Time Adjust (s)    |                                                                                    | 0.0   |      |       | -2.0  |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     |                                                                                    | 7.6   |      |       | 5.6   |      | 6.3   | 6.3   |      | 3.0   | 4.3   |      |
| Lead/Lag                |                                                                                    |       |      |       |       |      | Lag   | Lag   |      | Lead  |       |      |
| Lead-Lag Optimize?      |                                                                                    |       |      |       |       |      | Yes   | Yes   |      | Yes   |       |      |
| Recall Mode             | None                                                                               | None  |      | None  | None  |      | Max   | Max   |      | None  | Max   |      |
| Act Effect Green (s)    |                                                                                    | 17.9  |      |       | 19.9  |      | 64.9  | 64.9  |      | 77.2  | 75.9  |      |
| Actuated g/C Ratio      |                                                                                    | 0.17  |      |       | 0.19  |      | 0.61  | 0.61  |      | 0.73  | 0.72  |      |
| v/c Ratio               |                                                                                    | 0.69  |      |       | 0.78  |      | 0.25  | 0.27  |      | 0.22  | 0.43  |      |
| Control Delay           |                                                                                    | 44.7  |      |       | 54.2  |      | 14.1  | 10.5  |      | 6.0   | 7.4   |      |
| Queue Delay             |                                                                                    | 0.0   |      |       | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             |                                                                                    | 44.7  |      |       | 54.2  |      | 14.1  | 10.5  |      | 6.0   | 7.4   |      |
| LOS                     |                                                                                    | D     |      |       | D     |      | B     | B     |      | A     | A     |      |

# Lanes, Volumes, Timings

# FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach Delay         |                                                                                   | 44.7                                                                              |                                                                                   |                                                                                   | 54.2                                                                              |                                                                                   |                                                                                    | 10.9                                                                                |                                                                                     |                                                                                     | 7.2                                                                                 |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Queue Length 50th (m)  |                                                                                   | 31.7                                                                              |                                                                                   |                                                                                   | 30.3                                                                              |                                                                                   | 5.8                                                                                | 26.7                                                                                |                                                                                     | 6.5                                                                                 | 41.3                                                                                |                                                                                     |
| Queue Length 95th (m)  |                                                                                   | 55.2                                                                              |                                                                                   |                                                                                   | 54.9                                                                              |                                                                                   | 16.9                                                                               | 44.7                                                                                |                                                                                     | 16.0                                                                                | 71.8                                                                                |                                                                                     |
| Internal Link Dist (m) |                                                                                   | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    |                                                                                   | 505                                                                               |                                                                                   |                                                                                   | 394                                                                               |                                                                                   | 271                                                                                | 2140                                                                                |                                                                                     | 587                                                                                 | 2533                                                                                |                                                                                     |
| 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      |                                                                                   | 0.40                                                                              |                                                                                   |                                                                                   | 0.48                                                                              |                                                                                   | 0.25                                                                               | 0.27                                                                                |                                                                                     | 0.22                                                                                | 0.43                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 105.8

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 15.6

Intersection LOS: B

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



# HCM Signalized Intersection Capacity Analysis

FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 520                                                                                 | 31                                                                                  | 119                                                                                 | 996                                                                                 | 28                                                                                  |
| Future Volume (vph)               | 22                                                                                | 74                                                                                | 96                                                                                | 62                                                                                | 35                                                                                | 80                                                                                | 63                                                                                  | 520                                                                                 | 31                                                                                  | 119                                                                                 | 996                                                                                 | 28                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                   | 1.00                                                                                | 0.99                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1695                                                                              |                                                                                   |                                                                                   | 1619                                                                              |                                                                                   | 1621                                                                                | 3482                                                                                |                                                                                     | 1735                                                                                | 3528                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.91                                                                              |                                                                                   |                                                                                   | 0.69                                                                              |                                                                                   | 0.26                                                                                | 1.00                                                                                |                                                                                     | 0.40                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1555                                                                              |                                                                                   |                                                                                   | 1139                                                                              |                                                                                   | 443                                                                                 | 3482                                                                                |                                                                                     | 729                                                                                 | 3528                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Adj. Flow (vph)                   | 23                                                                                | 79                                                                                | 102                                                                               | 66                                                                                | 37                                                                                | 85                                                                                | 67                                                                                  | 553                                                                                 | 33                                                                                  | 127                                                                                 | 1060                                                                                | 30                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 34                                                                                | 0                                                                                 | 0                                                                                 | 28                                                                                | 0                                                                                 | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   | 1                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 170                                                                               | 0                                                                                 | 0                                                                                 | 160                                                                               | 0                                                                                 | 67                                                                                  | 583                                                                                 | 0                                                                                   | 127                                                                                 | 1089                                                                                | 0                                                                                   |
| Confl. Peds. (#/hr)               | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Heavy Vehicles (%)                | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   | 17.9                                                                              |                                                                                   | 64.9                                                                                | 64.9                                                                                |                                                                                     | 75.9                                                                                | 75.9                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 17.9                                                                              |                                                                                   |                                                                                   | 19.9                                                                              |                                                                                   | 64.9                                                                                | 64.9                                                                                |                                                                                     | 75.9                                                                                | 75.9                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   | 0.61                                                                                | 0.61                                                                                |                                                                                     | 0.72                                                                                | 0.72                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 263                                                                               |                                                                                   |                                                                                   | 214                                                                               |                                                                                   | 272                                                                                 | 2137                                                                                |                                                                                     | 580                                                                                 | 2533                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.17                                                                                |                                                                                     | 0.01                                                                                | c0.31                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   | c0.14                                                                             |                                                                                   | 0.15                                                                                |                                                                                     |                                                                                     | 0.14                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.65                                                                              |                                                                                   |                                                                                   | 0.75                                                                              |                                                                                   | 0.25                                                                                | 0.27                                                                                |                                                                                     | 0.22                                                                                | 0.43                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                   | 40.5                                                                              |                                                                                   | 9.3                                                                                 | 9.5                                                                                 |                                                                                     | 4.7                                                                                 | 6.1                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 5.4                                                                               |                                                                                   |                                                                                   | 13.2                                                                              |                                                                                   | 2.1                                                                                 | 0.3                                                                                 |                                                                                     | 0.2                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   | 53.7                                                                              |                                                                                   | 11.4                                                                                | 9.8                                                                                 |                                                                                     | 4.9                                                                                 | 6.6                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   | 53.7                                                                              |                                                                                   |                                                                                     | 9.9                                                                                 |                                                                                     |                                                                                     | 6.4                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 15.0                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.53                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 105.7                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                     |                                                                                     |                                                                                     | 16.9                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 76.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                     |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis 2: Queen St S (Hwy 50) & Shore Street

FT 2029 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 2                                                                                 | 11                                                                                | 7                                                                                 | 579                                                                               | 1189                                                                              | 12                                                                                |
| Future Volume (Veh/h)             | 2                                                                                 | 11                                                                                | 7                                                                                 | 579                                                                               | 1189                                                                              | 12                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              |
| Hourly flow rate (vph)            | 2                                                                                 | 12                                                                                | 7                                                                                 | 616                                                                               | 1265                                                                              | 13                                                                                |
| Pedestrians                       | 7                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLT                                                                              | TWLT                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.93                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1600                                                                              | 646                                                                               | 1285                                                                              |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 1278                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 322                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1499                                                                              | 646                                                                               | 1285                                                                              |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.3                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.5                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 99                                                                                | 97                                                                                | 99                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 219                                                                               | 371                                                                               | 543                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 14                                                                                | 7                                                                                 | 308                                                                               | 308                                                                               | 843                                                                               | 435                                                                               |
| Volume Left                       | 2                                                                                 | 7                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 12                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 13                                                                                |
| cSH                               | 338                                                                               | 543                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.04                                                                              | 0.01                                                                              | 0.18                                                                              | 0.18                                                                              | 0.50                                                                              | 0.26                                                                              |
| Queue Length 95th (m)             | 1.0                                                                               | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 16.1                                                                              | 11.7                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | C                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 16.1                                                                              | 0.1                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 43.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access & Shore Street

FT 2029 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 9                                                                                 | 0                                                                                 | 0                                                                                 | 12                                                                                | 1                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 9                                                                                 | 0                                                                                 | 0                                                                                 | 12                                                                                | 1                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 21                                                                                | 2                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 23                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 38                                                                                  | 39                                                                                  | 16                                                                                  | 38                                                                                  | 38                                                                                  | 22                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 23                                                                                |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                   | 38                                                                                  | 39                                                                                  | 16                                                                                  | 38                                                                                  | 38                                                                                  | 22                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                 | 6.5                                                                                 | 6.4                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                 | 4.0                                                                                 | 3.5                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1592                                                                              |                                                                                   |                                                                                   | 1615                                                                              |                                                                                   |                                                                                   | 972                                                                                 | 853                                                                                 | 1013                                                                                | 967                                                                                 | 854                                                                                 | 1055                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 16                                                                                | 23                                                                                | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1592                                                                              | 1615                                                                              | 1700                                                                              | 967                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.00                                                                              | 0.00                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   |                                                                                   | 0.6                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   |                                                                                   | 13.3%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Private Driveway/West Access & Shore Street

FT 2029 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 6                                                                                 | 0                                                                                 | 4                                                                                 | 5                                                                                 | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 6                                                                                 | 0                                                                                 | 4                                                                                 | 5                                                                                 | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                    | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                    | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                               | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 10                                                                                | 0                                                                                 | 7                                                                                 | 8                                                                                 | 2                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 5                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 10                                                                                |                                                                                   |                                                                                   | 10                                                                                |                                                                                   |                                                                                   | 33                                                                                 | 34                                                                                  | 10                                                                                  | 33                                                                                  | 33                                                                                  | 9                                                                                   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 10                                                                                |                                                                                   |                                                                                   | 10                                                                                |                                                                                   |                                                                                   | 33                                                                                 | 34                                                                                  | 10                                                                                  | 33                                                                                  | 33                                                                                  | 9                                                                                   |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 100                                                                                 | 99                                                                                  | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1610                                                                              |                                                                                   |                                                                                   | 1623                                                                              |                                                                                   |                                                                                   | 976                                                                                | 855                                                                                 | 1077                                                                                | 971                                                                                 | 856                                                                                 | 1073                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 10                                                                                | 17                                                                                | 0                                                                                 | 5                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 7                                                                                 | 0                                                                                 | 5                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1610                                                                              | 1623                                                                              | 1700                                                                              | 971                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.00                                                                              | 0.01                                                                              | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 3.0                                                                               | 0.0                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 3.0                                                                               | 0.0                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 13.9%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Lanes, Volumes, Timings

FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 63                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 127                                                                               | 132                                                                                 | 1525                                                                                | 27                                                                                  | 83                                                                                  | 783                                                                                 | 32                                                                                  |
| Future Volume (vph)     | 63                                                                                | 58                                                                                | 123                                                                               | 44                                                                                | 58                                                                                | 127                                                                               | 132                                                                                 | 1525                                                                                | 27                                                                                  | 83                                                                                  | 783                                                                                 | 32                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.932                                                                             |                                                                                   |                                                                                   | 0.925                                                                             |                                                                                   |                                                                                     | 0.997                                                                               |                                                                                     |                                                                                     | 0.994                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.987                                                                             |                                                                                   |                                                                                   | 0.990                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1736                                                                              | 0                                                                                 | 0                                                                                 | 1717                                                                              | 0                                                                                 | 1807                                                                                | 3595                                                                                | 0                                                                                   | 1789                                                                                | 3523                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.705                                                                             |                                                                                   |                                                                                   | 0.800                                                                             |                                                                                   | 0.339                                                                               |                                                                                     |                                                                                     | 0.092                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1238                                                                              | 0                                                                                 | 0                                                                                 | 1387                                                                              | 0                                                                                 | 644                                                                                 | 3595                                                                                | 0                                                                                   | 173                                                                                 | 3523                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 35                                                                                |                                                                                   |                                                                                   | 42                                                                                |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     | 7                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 8                                                                                 |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   | 8                                                                                 | 1                                                                                   |                                                                                     | 8                                                                                   | 8                                                                                   |                                                                                     | 1                                                                                   |
| Peak Hour Factor        | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                              | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                | 0.98                                                                                |
| Heavy Vehicles (%)      | 0%                                                                                | 0%                                                                                | 2%                                                                                | 3%                                                                                | 0%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 10%                                                                                 | 2%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 64                                                                                | 59                                                                                | 126                                                                               | 45                                                                                | 59                                                                                | 130                                                                               | 135                                                                                 | 1556                                                                                | 28                                                                                  | 85                                                                                  | 799                                                                                 | 33                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 249                                                                               | 0                                                                                 | 0                                                                                 | 234                                                                               | 0                                                                                 | 135                                                                                 | 1584                                                                                | 0                                                                                   | 85                                                                                  | 832                                                                                 | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 37.6                                                                              | 37.6                                                                              |                                                                                   | 37.6                                                                              | 37.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 30.3                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 38.0                                                                              |                                                                                   | 38.0                                                                              | 38.0                                                                              |                                                                                   | 93.0                                                                                | 93.0                                                                                |                                                                                     | 9.0                                                                                 | 102.0                                                                               |                                                                                     |
| Total Split (%)         | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 66.4%                                                                               | 66.4%                                                                               |                                                                                     | 6.4%                                                                                | 72.9%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | -3.0                                                                              |                                                                                   |                                                                                   | -3.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 28.8                                                                              |                                                                                   |                                                                                   | 28.8                                                                              |                                                                                   | 86.9                                                                                | 86.9                                                                                |                                                                                     | 99.2                                                                                | 97.9                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                   | 0.64                                                                                | 0.64                                                                                |                                                                                     | 0.73                                                                                | 0.72                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.86                                                                              |                                                                                   |                                                                                   | 0.72                                                                              |                                                                                   | 0.33                                                                                | 0.69                                                                                |                                                                                     | 0.43                                                                                | 0.33                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.1                                                                              |                                                                                   | 14.7                                                                                | 18.2                                                                                |                                                                                     | 12.7                                                                                | 7.6                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.1                                                                              |                                                                                   | 14.7                                                                                | 18.2                                                                                |                                                                                     | 12.7                                                                                | 7.6                                                                                 |                                                                                     |
| LOS                     |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   | B                                                                                   | B                                                                                   |                                                                                     | B                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                   | 53.1                                                                              |                                                                                   |                                                                                     | 18.0                                                                                |                                                                                     |                                                                                     | 8.1                                                                                 |                                                                                     |

# Lanes, Volumes, Timings

FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach LOS           | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | B                                                                                  |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Queue Length 50th (m)  | 56.3                                                                              |                                                                                   |                                                                                   | 48.4                                                                              |                                                                                   |                                                                                   | 16.5                                                                               | 143.5                                                                               |                                                                                     | 6.3                                                                                 | 41.6                                                                                |                                                                                     |
| Queue Length 95th (m)  | #96.9                                                                             |                                                                                   |                                                                                   | 78.2                                                                              |                                                                                   |                                                                                   | 31.0                                                                               | 174.1                                                                               |                                                                                     | 11.8                                                                                | 53.2                                                                                |                                                                                     |
| Internal Link Dist (m) | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    | 332                                                                               |                                                                                   |                                                                                   | 373                                                                               |                                                                                   |                                                                                   | 412                                                                                | 2304                                                                                |                                                                                     | 198                                                                                 | 2544                                                                                |                                                                                     |
| 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      | 0.75                                                                              |                                                                                   |                                                                                   | 0.63                                                                              |                                                                                   |                                                                                   | 0.33                                                                               | 0.69                                                                                |                                                                                     | 0.43                                                                                | 0.33                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 135.6

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 81.5%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

|                                                                                        |                                                                                          |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  Ø2 |  Ø4 |
| 102 s                                                                                  | 38 s                                                                                     |
|  Ø5 |  Ø8 |
| 9 s                                                                                    | 38 s                                                                                     |
|  Ø6 |                                                                                          |
| 93 s                                                                                   |                                                                                          |

# HCM Signalized Intersection Capacity Analysis

FT 2029 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                                   |  |       |       |      |      |      |                           |       |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|---------------------------|-------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBT   | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↕     |       |      | ↕    |      | ↕                         | ↕     |      | ↕     | ↕    |      |
| Traffic Volume (vph)              | 63                                                                                 | 58    | 123   | 44   | 58   | 127  | 132                       | 1525  | 27   | 83    | 783  | 32   |
| Future Volume (vph)               | 63                                                                                 | 58    | 123   | 44   | 58   | 127  | 132                       | 1525  | 27   | 83    | 783  | 32   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900  | 1900  | 1900 | 1900 | 1900 | 1900                      | 1900  | 1900 | 1900  | 1900 | 1900 |
| Total Lost time (s)               |                                                                                    | 4.6   |       |      | 4.6  |      | 6.3                       | 6.3   |      | 3.0   | 4.3  |      |
| Lane Util. Factor                 |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00                      | 0.95  |      | 1.00  | 0.95 |      |
| Frpb, ped/bikes                   |                                                                                    | 0.99  |       |      | 0.99 |      | 1.00                      | 1.00  |      | 1.00  | 1.00 |      |
| Flpb, ped/bikes                   |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00                      | 1.00  |      | 1.00  | 1.00 |      |
| Frt                               |                                                                                    | 0.93  |       |      | 0.93 |      | 1.00                      | 1.00  |      | 1.00  | 0.99 |      |
| Flt Protected                     |                                                                                    | 0.99  |       |      | 0.99 |      | 0.95                      | 1.00  |      | 0.95  | 1.00 |      |
| Satd. Flow (prot)                 |                                                                                    | 1734  |       |      | 1718 |      | 1806                      | 3596  |      | 1789  | 3524 |      |
| Flt Permitted                     |                                                                                    | 0.70  |       |      | 0.80 |      | 0.34                      | 1.00  |      | 0.09  | 1.00 |      |
| Satd. Flow (perm)                 |                                                                                    | 1237  |       |      | 1387 |      | 643                       | 3596  |      | 174   | 3524 |      |
| Peak-hour factor, PHF             | 0.98                                                                               | 0.98  | 0.98  | 0.98 | 0.98 | 0.98 | 0.98                      | 0.98  | 0.98 | 0.98  | 0.98 | 0.98 |
| Adj. Flow (vph)                   | 64                                                                                 | 59    | 126   | 45   | 59   | 130  | 135                       | 1556  | 28   | 85    | 799  | 33   |
| RTOR Reduction (vph)              | 0                                                                                  | 28    | 0     | 0    | 33   | 0    | 0                         | 1     | 0    | 0     | 2    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 221   | 0     | 0    | 201  | 0    | 135                       | 1583  | 0    | 85    | 830  | 0    |
| Confl. Peds. (#/hr)               | 8                                                                                  |       | 2     | 2    |      | 8    | 1                         |       | 8    | 8     |      | 1    |
| Heavy Vehicles (%)                | 0%                                                                                 | 0%    | 2%    | 3%   | 0%   | 1%   | 1%                        | 1%    | 10%  | 2%    | 3%   | 0%   |
| Turn Type                         | Perm                                                                               | NA    |       | Perm | NA   |      | Perm                      | NA    |      | pm+pt | NA   |      |
| Protected Phases                  |                                                                                    | 8     |       |      | 4    |      |                           | 6     |      | 5     | 2    |      |
| Permitted Phases                  | 8                                                                                  |       |       | 4    |      |      | 6                         |       |      | 2     |      |      |
| Actuated Green, G (s)             |                                                                                    | 25.8  |       |      | 25.8 |      | 86.9                      | 86.9  |      | 97.9  | 97.9 |      |
| Effective Green, g (s)            |                                                                                    | 28.8  |       |      | 28.8 |      | 86.9                      | 86.9  |      | 97.9  | 97.9 |      |
| Actuated g/C Ratio                |                                                                                    | 0.21  |       |      | 0.21 |      | 0.64                      | 0.64  |      | 0.72  | 0.72 |      |
| Clearance Time (s)                |                                                                                    | 7.6   |       |      | 7.6  |      | 6.3                       | 6.3   |      | 3.0   | 4.3  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0   |       |      | 3.0  |      | 3.0                       | 3.0   |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 262   |       |      | 294  |      | 412                       | 2304  |      | 197   | 2544 |      |
| v/s Ratio Prot                    |                                                                                    |       |       |      |      |      |                           | c0.44 |      | c0.02 | 0.24 |      |
| v/s Ratio Perm                    |                                                                                    | c0.18 |       |      | 0.14 |      | 0.21                      |       |      | 0.29  |      |      |
| v/c Ratio                         |                                                                                    | 0.85  |       |      | 0.68 |      | 0.33                      | 0.69  |      | 0.43  | 0.33 |      |
| Uniform Delay, d1                 |                                                                                    | 51.3  |       |      | 49.2 |      | 11.1                      | 15.6  |      | 13.2  | 6.9  |      |
| Progression Factor                |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00                      | 1.00  |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 21.4  |       |      | 6.4  |      | 2.1                       | 1.7   |      | 1.5   | 0.3  |      |
| Delay (s)                         |                                                                                    | 72.6  |       |      | 55.6 |      | 13.2                      | 17.3  |      | 14.7  | 7.2  |      |
| Level of Service                  |                                                                                    | E     |       |      | E    |      | B                         | B     |      | B     | A    |      |
| Approach Delay (s)                |                                                                                    | 72.6  |       |      | 55.6 |      |                           | 17.0  |      |       | 7.9  |      |
| Approach LOS                      |                                                                                    | E     |       |      | E    |      |                           | B     |      |       | A    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |                           |       |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 21.7  |      |      |      | HCM 2000 Level of Service |       |      | C     |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.71  |      |      |      |                           |       |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 135.6 |      |      |      | Sum of lost time (s)      |       |      | 13.9  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 81.5% |      |      |      | ICU Level of Service      |       |      | D     |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |                           |       |      |       |      |      |
| c Critical Lane Group             |                                                                                    |       |       |      |      |      |                           |       |      |       |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

FT 2029 Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 12                                                                                | 21                                                                                | 29                                                                                | 1623                                                                              | 883                                                                               | 15                                                                                |
| Future Volume (Veh/h)             | 12                                                                                | 21                                                                                | 29                                                                                | 1623                                                                              | 883                                                                               | 15                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              |
| Hourly flow rate (vph)            | 12                                                                                | 22                                                                                | 30                                                                                | 1691                                                                              | 920                                                                               | 16                                                                                |
| Pedestrians                       | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLT                                                                              | TWLT                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.71                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1838                                                                              | 472                                                                               | 940                                                                               |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 932                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 906                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1363                                                                              | 472                                                                               | 940                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.0                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.4                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 96                                                                                | 96                                                                                | 96                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 309                                                                               | 523                                                                               | 735                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 34                                                                                | 30                                                                                | 846                                                                               | 846                                                                               | 613                                                                               | 323                                                                               |
| Volume Left                       | 12                                                                                | 30                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 22                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 16                                                                                |
| cSH                               | 421                                                                               | 735                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.08                                                                              | 0.04                                                                              | 0.50                                                                              | 0.50                                                                              | 0.36                                                                              | 0.19                                                                              |
| Queue Length 95th (m)             | 2.0                                                                               | 1.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 14.3                                                                              | 10.1                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 14.3                                                                              | 0.2                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 54.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis3: East Access & Shore Street

FT 2029 Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 13                                                                                | 1                                                                                 | 5                                                                                 | 18                                                                                | 3                                                                                 | 1                                                                                  | 0                                                                                   | 2                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 13                                                                                | 1                                                                                 | 5                                                                                 | 18                                                                                | 3                                                                                 | 1                                                                                  | 0                                                                                   | 2                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                               |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                 |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                               | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 21                                                                                | 2                                                                                 | 8                                                                                 | 29                                                                                | 5                                                                                 | 2                                                                                  | 0                                                                                   | 3                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 34                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 72                                                                                 | 74                                                                                  | 24                                                                                  | 72                                                                                  | 72                                                                                  | 32                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 34                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 72                                                                                 | 74                                                                                  | 24                                                                                  | 72                                                                                  | 72                                                                                  | 32                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1578                                                                              |                                                                                   |                                                                                   | 1599                                                                              |                                                                                   |                                                                                   | 918                                                                                | 811                                                                                 | 1056                                                                                | 911                                                                                 | 812                                                                                 | 1043                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 23                                                                                | 42                                                                                | 5                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 8                                                                                 | 2                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 2                                                                                 | 5                                                                                 | 3                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1578                                                                              | 1599                                                                              | 996                                                                               | 911                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.01                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.1                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 1.4                                                                               | 8.6                                                                               | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 1.4                                                                               | 8.6                                                                               | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 1.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 15.5%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Private Driveway/West Access & Shore Street

FT 2029 Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 7                                                                                 | 0                                                                                 | 5                                                                                 | 15                                                                                | 2                                                                                 | 0                                                                                  | 0                                                                                   | 5                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 7                                                                                 | 0                                                                                 | 5                                                                                 | 15                                                                                | 2                                                                                 | 0                                                                                  | 0                                                                                   | 5                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                               |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                 |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                               | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 11                                                                                | 0                                                                                 | 8                                                                                 | 23                                                                                | 3                                                                                 | 0                                                                                  | 0                                                                                   | 8                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 26                                                                                |                                                                                   |                                                                                   | 13                                                                                |                                                                                   |                                                                                   | 54                                                                                 | 55                                                                                  | 13                                                                                  | 60                                                                                  | 54                                                                                  | 24                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 26                                                                                |                                                                                   |                                                                                   | 13                                                                                |                                                                                   |                                                                                   | 54                                                                                 | 55                                                                                  | 13                                                                                  | 60                                                                                  | 54                                                                                  | 24                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 99                                                                                  | 100                                                                                 | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1588                                                                              |                                                                                   |                                                                                   | 1616                                                                              |                                                                                   |                                                                                   | 943                                                                                | 830                                                                                 | 1071                                                                                | 925                                                                                 | 832                                                                                 | 1052                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 11                                                                                | 34                                                                                | 8                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 8                                                                                 | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 3                                                                                 | 8                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1588                                                                              | 1616                                                                              | 1071                                                                              | 925                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.00                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.2                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 1.7                                                                               | 8.4                                                                               | 8.9                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 1.7                                                                               | 8.4                                                                               | 8.9                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   |                                                                                   | 2.7                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   |                                                                                   | 15.3%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Lanes, Volumes, Timings

# FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 27                                                                                | 91                                                                                | 118                                                                               | 76                                                                                | 43                                                                                | 99                                                                                | 77                                                                                  | 639                                                                                 | 38                                                                                  | 147                                                                                 | 1220                                                                                | 147                                                                                 |
| Future Volume (vph)     | 27                                                                                | 91                                                                                | 118                                                                               | 76                                                                                | 43                                                                                | 99                                                                                | 77                                                                                  | 639                                                                                 | 38                                                                                  | 147                                                                                 | 1220                                                                                | 147                                                                                 |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.932                                                                             |                                                                                   |                                                                                   | 0.939                                                                             |                                                                                   |                                                                                     | 0.992                                                                               |                                                                                     |                                                                                     | 0.984                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.994                                                                             |                                                                                   |                                                                                   | 0.983                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1697                                                                              | 0                                                                                 | 0                                                                                 | 1617                                                                              | 0                                                                                 | 1630                                                                                | 3484                                                                                | 0                                                                                   | 1738                                                                                | 3480                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.910                                                                             |                                                                                   |                                                                                   | 0.652                                                                             |                                                                                   | 0.146                                                                               |                                                                                     |                                                                                     | 0.329                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1550                                                                              | 0                                                                                 | 0                                                                                 | 1072                                                                              | 0                                                                                 | 250                                                                                 | 3484                                                                                | 0                                                                                   | 599                                                                                 | 3480                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 41                                                                                |                                                                                   |                                                                                   | 35                                                                                |                                                                                   |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     | 21                                                                                  |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)     |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor        | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Heavy Vehicles (%)      | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 29                                                                                | 97                                                                                | 126                                                                               | 81                                                                                | 46                                                                                | 105                                                                               | 82                                                                                  | 680                                                                                 | 40                                                                                  | 156                                                                                 | 1298                                                                                | 156                                                                                 |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 252                                                                               | 0                                                                                 | 0                                                                                 | 232                                                                               | 0                                                                                 | 82                                                                                  | 720                                                                                 | 0                                                                                   | 156                                                                                 | 1454                                                                                | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 39.6                                                                              | 39.6                                                                              |                                                                                   | 39.6                                                                              | 39.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 32.3                                                                                |                                                                                     |
| Total Split (s)         | 40.0                                                                              | 40.0                                                                              |                                                                                   | 40.0                                                                              | 40.0                                                                              |                                                                                   | 71.0                                                                                | 71.0                                                                                |                                                                                     | 9.0                                                                                 | 80.0                                                                                |                                                                                     |
| Total Split (%)         | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 33.3%                                                                             | 33.3%                                                                             |                                                                                   | 59.2%                                                                               | 59.2%                                                                               |                                                                                     | 7.5%                                                                                | 66.7%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | -2.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   | 25.5                                                                              |                                                                                   | 65.0                                                                                | 65.0                                                                                |                                                                                     | 77.3                                                                                | 76.0                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   | 0.23                                                                              |                                                                                   | 0.58                                                                                | 0.58                                                                                |                                                                                     | 0.69                                                                                | 0.68                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.70                                                                              |                                                                                   |                                                                                   | 0.85                                                                              |                                                                                   | 0.57                                                                                | 0.35                                                                                |                                                                                     | 0.33                                                                                | 0.61                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 44.5                                                                              |                                                                                   |                                                                                   | 62.3                                                                              |                                                                                   | 36.1                                                                                | 13.5                                                                                |                                                                                     | 8.8                                                                                 | 11.9                                                                                |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 44.5                                                                              |                                                                                   |                                                                                   | 62.3                                                                              |                                                                                   | 36.1                                                                                | 13.5                                                                                |                                                                                     | 8.8                                                                                 | 11.9                                                                                |                                                                                     |
| LOS                     |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   | D                                                                                   | B                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |

# Lanes, Volumes, Timings

FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach Delay         |                                                                                   | 44.5                                                                              |                                                                                   |                                                                                   | 62.3                                                                              |                                                                                   |                                                                                    | 15.8                                                                                |                                                                                     |                                                                                     | 11.6                                                                                |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                    | B                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| Queue Length 50th (m)  |                                                                                   | 42.8                                                                              |                                                                                   |                                                                                   | 41.7                                                                              |                                                                                   | 10.6                                                                               | 41.0                                                                                |                                                                                     | 10.5                                                                                | 82.4                                                                                |                                                                                     |
| Queue Length 95th (m)  |                                                                                   | 69.8                                                                              |                                                                                   |                                                                                   | 71.7                                                                              |                                                                                   | #39.5                                                                              | 62.5                                                                                |                                                                                     | 22.0                                                                                | 126.6                                                                               |                                                                                     |
| Internal Link Dist (m) |                                                                                   | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    |                                                                                   | 481                                                                               |                                                                                   |                                                                                   | 356                                                                               |                                                                                   | 145                                                                                | 2034                                                                                |                                                                                     | 477                                                                                 | 2381                                                                                |                                                                                     |
| 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      |                                                                                   | 0.52                                                                              |                                                                                   |                                                                                   | 0.65                                                                              |                                                                                   | 0.57                                                                               | 0.35                                                                                |                                                                                     | 0.33                                                                                | 0.61                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 111.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 90.2%

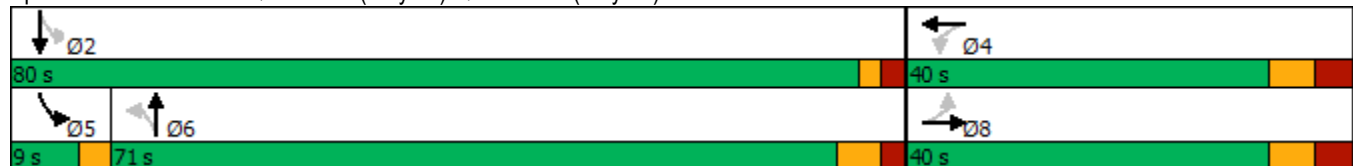
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



# HCM Signalized Intersection Capacity Analysis

FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

AM Peak Hour

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 27                                                                                | 91                                                                                | 118                                                                               | 76                                                                                | 43                                                                                | 99                                                                                | 77                                                                                  | 639                                                                                 | 38                                                                                  | 147                                                                                 | 1220                                                                                | 147                                                                                 |
| Future Volume (vph)               | 27                                                                                | 91                                                                                | 118                                                                               | 76                                                                                | 43                                                                                | 99                                                                                | 77                                                                                  | 639                                                                                 | 38                                                                                  | 147                                                                                 | 1220                                                                                | 147                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 5.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                |                                                                                     | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 0.93                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                   | 1.00                                                                                | 0.99                                                                                |                                                                                     | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.98                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1695                                                                              |                                                                                   |                                                                                   | 1618                                                                              |                                                                                   | 1625                                                                                | 3483                                                                                |                                                                                     | 1736                                                                                | 3481                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.91                                                                              |                                                                                   |                                                                                   | 0.65                                                                              |                                                                                   | 0.15                                                                                | 1.00                                                                                |                                                                                     | 0.33                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1550                                                                              |                                                                                   |                                                                                   | 1074                                                                              |                                                                                   | 249                                                                                 | 3483                                                                                |                                                                                     | 601                                                                                 | 3481                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                | 0.94                                                                                |
| Adj. Flow (vph)                   | 29                                                                                | 97                                                                                | 126                                                                               | 81                                                                                | 46                                                                                | 105                                                                               | 82                                                                                  | 680                                                                                 | 40                                                                                  | 156                                                                                 | 1298                                                                                | 156                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 32                                                                                | 0                                                                                 | 0                                                                                 | 27                                                                                | 0                                                                                 | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 220                                                                               | 0                                                                                 | 0                                                                                 | 205                                                                               | 0                                                                                 | 82                                                                                  | 717                                                                                 | 0                                                                                   | 156                                                                                 | 1447                                                                                | 0                                                                                   |
| Confl. Peds. (#/hr)               | 33                                                                                |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 33                                                                                | 12                                                                                  |                                                                                     | 7                                                                                   | 7                                                                                   |                                                                                     | 12                                                                                  |
| Confl. Bikes (#/hr)               |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Heavy Vehicles (%)                | 6%                                                                                | 5%                                                                                | 3%                                                                                | 8%                                                                                | 4%                                                                                | 8%                                                                                | 12%                                                                                 | 3%                                                                                  | 16%                                                                                 | 5%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   | 23.5                                                                              |                                                                                   | 65.0                                                                                | 65.0                                                                                |                                                                                     | 76.0                                                                                | 76.0                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 23.5                                                                              |                                                                                   |                                                                                   | 25.5                                                                              |                                                                                   | 65.0                                                                                | 65.0                                                                                |                                                                                     | 76.0                                                                                | 76.0                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.21                                                                              |                                                                                   |                                                                                   | 0.23                                                                              |                                                                                   | 0.58                                                                                | 0.58                                                                                |                                                                                     | 0.68                                                                                | 0.68                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 7.6                                                                               |                                                                                   |                                                                                   | 7.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               |                                                                                   |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 326                                                                               |                                                                                   |                                                                                   | 245                                                                               |                                                                                   | 145                                                                                 | 2032                                                                                |                                                                                     | 471                                                                                 | 2374                                                                                |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.21                                                                                |                                                                                     | 0.02                                                                                | c0.42                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.14                                                                              |                                                                                   |                                                                                   | c0.19                                                                             |                                                                                   | 0.33                                                                                |                                                                                     |                                                                                     | 0.21                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.67                                                                              |                                                                                   |                                                                                   | 0.84                                                                              |                                                                                   | 0.57                                                                                | 0.35                                                                                |                                                                                     | 0.33                                                                                | 0.61                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 40.4                                                                              |                                                                                   |                                                                                   | 41.0                                                                              |                                                                                   | 14.4                                                                                | 12.2                                                                                |                                                                                     | 6.7                                                                                 | 9.6                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 5.4                                                                               |                                                                                   |                                                                                   | 21.3                                                                              |                                                                                   | 15.0                                                                                | 0.5                                                                                 |                                                                                     | 0.4                                                                                 | 1.2                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 45.8                                                                              |                                                                                   |                                                                                   | 62.2                                                                              |                                                                                   | 29.4                                                                                | 12.6                                                                                |                                                                                     | 7.1                                                                                 | 10.8                                                                                |                                                                                     |
| Level of Service                  |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   | C                                                                                   | B                                                                                   |                                                                                     | A                                                                                   | B                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 45.8                                                                              |                                                                                   |                                                                                   | 62.2                                                                              |                                                                                   |                                                                                     | 14.4                                                                                |                                                                                     |                                                                                     | 10.4                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 18.8                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.72                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 111.4                                                                             |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 16.9                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 90.2%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

FT 2034 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 3                                                                                 | 13                                                                                | 9                                                                                 | 712                                                                               | 1459                                                                              | 15                                                                                |
| Future Volume (Veh/h)             | 3                                                                                 | 13                                                                                | 9                                                                                 | 712                                                                               | 1459                                                                              | 15                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              | 0.94                                                                              |
| Hourly flow rate (vph)            | 3                                                                                 | 14                                                                                | 10                                                                                | 757                                                                               | 1552                                                                              | 16                                                                                |
| Pedestrians                       | 7                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLT                                                                              | TWLT                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.90                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 1966                                                                              | 791                                                                               | 1575                                                                              |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 1567                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 398                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1851                                                                              | 791                                                                               | 1575                                                                              |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.3                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.5                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 98                                                                                | 95                                                                                | 98                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 154                                                                               | 294                                                                               | 421                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 17                                                                                | 10                                                                                | 378                                                                               | 378                                                                               | 1035                                                                              | 533                                                                               |
| Volume Left                       | 3                                                                                 | 10                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 14                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 16                                                                                |
| cSH                               | 254                                                                               | 421                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.07                                                                              | 0.02                                                                              | 0.22                                                                              | 0.22                                                                              | 0.61                                                                              | 0.31                                                                              |
| Queue Length 95th (m)             | 1.6                                                                               | 0.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 20.2                                                                              | 13.8                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | C                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 20.2                                                                              | 0.2                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |
| Approach LOS                      | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     | 0.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 50.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | A                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access/Private Driveway & Shore Street

FT 2034 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 15                                                                                | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 15                                                                                | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                               |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                 |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                              | 0.58                                                                               | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                | 0.58                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 19                                                                                | 0                                                                                 | 0                                                                                 | 26                                                                                | 2                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 28                                                                                |                                                                                   |                                                                                   | 19                                                                                |                                                                                   |                                                                                   | 46                                                                                 | 47                                                                                  | 19                                                                                  | 46                                                                                  | 46                                                                                  | 27                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 28                                                                                |                                                                                   |                                                                                   | 19                                                                                |                                                                                   |                                                                                   | 46                                                                                 | 47                                                                                  | 19                                                                                  | 46                                                                                  | 46                                                                                  | 27                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.4                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.5                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1585                                                                              |                                                                                   |                                                                                   | 1611                                                                              |                                                                                   |                                                                                   | 961                                                                                | 845                                                                                 | 1009                                                                                | 955                                                                                 | 846                                                                                 | 1048                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 19                                                                                | 28                                                                                | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1585                                                                              | 1611                                                                              | 1700                                                                              | 955                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.00                                                                              | 0.00                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 8.8                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 8.8                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   |                                                                                   | 0.5                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   |                                                                                   | 13.3%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis

## 4: Private Driveway/West Access & Shore Street

FT 2034 Traffic Volumes  
AM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 8                                                                                 | 0                                                                                 | 5                                                                                 | 6                                                                                 | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 8                                                                                 | 0                                                                                 | 5                                                                                 | 6                                                                                 | 1                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                               |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                 |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                              | 0.60                                                                               | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                | 0.60                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 13                                                                                | 0                                                                                 | 8                                                                                 | 10                                                                                | 2                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 5                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage veh                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 12                                                                                |                                                                                   |                                                                                   | 13                                                                                |                                                                                   |                                                                                   | 40                                                                                 | 41                                                                                  | 13                                                                                  | 40                                                                                  | 40                                                                                  | 11                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 12                                                                                |                                                                                   |                                                                                   | 13                                                                                |                                                                                   |                                                                                   | 40                                                                                 | 41                                                                                  | 13                                                                                  | 40                                                                                  | 40                                                                                  | 11                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 100                                                                                 | 99                                                                                  | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1607                                                                              |                                                                                   |                                                                                   | 1619                                                                              |                                                                                   |                                                                                   | 965                                                                                | 847                                                                                 | 1073                                                                                | 960                                                                                 | 848                                                                                 | 1070                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 13                                                                                | 20                                                                                | 0                                                                                 | 5                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 8                                                                                 | 0                                                                                 | 5                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 2                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1607                                                                              | 1619                                                                              | 1700                                                                              | 960                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.00                                                                              | 0.00                                                                              | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 2.9                                                                               | 0.0                                                                               | 8.8                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 2.9                                                                               | 0.0                                                                               | 8.8                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   |                                                                                   | 2.7                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   |                                                                                   | 14.9%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Lanes, Volumes, Timings

# FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                         |  |  |  |  |  |  |   |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations     |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)    | 77                                                                                | 71                                                                                | 152                                                                               | 55                                                                                | 71                                                                                | 156                                                                               | 163                                                                                 | 1874                                                                                | 33                                                                                  | 102                                                                                 | 961                                                                                 | 39                                                                                  |
| Future Volume (vph)     | 77                                                                                | 71                                                                                | 152                                                                               | 55                                                                                | 71                                                                                | 156                                                                               | 163                                                                                 | 1874                                                                                | 33                                                                                  | 102                                                                                 | 961                                                                                 | 39                                                                                  |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Storage Length (m)      | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 45.0                                                                                |                                                                                     | 0.0                                                                                 | 45.0                                                                                |                                                                                     | 0.0                                                                                 |
| Storage Lanes           | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                   |                                                                                     | 0                                                                                   | 1                                                                                   |                                                                                     | 0                                                                                   |
| Taper Length (m)        | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                               |                                                                                   |                                                                                   | 2.5                                                                                 |                                                                                     |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |
| Lane Util. Factor       | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                | 1.00                                                                                | 0.95                                                                                | 0.95                                                                                |
| Ped Bike Factor         |                                                                                   | 0.99                                                                              |                                                                                   |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                     |                                                                                   | 0.932                                                                             |                                                                                   |                                                                                   | 0.925                                                                             |                                                                                   |                                                                                     | 0.997                                                                               |                                                                                     |                                                                                     | 0.994                                                                               |                                                                                     |
| Flt Protected           |                                                                                   | 0.987                                                                             |                                                                                   |                                                                                   | 0.990                                                                             |                                                                                   | 0.950                                                                               |                                                                                     |                                                                                     | 0.950                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (prot)       | 0                                                                                 | 1736                                                                              | 0                                                                                 | 0                                                                                 | 1717                                                                              | 0                                                                                 | 1807                                                                                | 3595                                                                                | 0                                                                                   | 1789                                                                                | 3523                                                                                | 0                                                                                   |
| Flt Permitted           |                                                                                   | 0.677                                                                             |                                                                                   |                                                                                   | 0.775                                                                             |                                                                                   | 0.273                                                                               |                                                                                     |                                                                                     | 0.044                                                                               |                                                                                     |                                                                                     |
| Satd. Flow (perm)       | 0                                                                                 | 1189                                                                              | 0                                                                                 | 0                                                                                 | 1344                                                                              | 0                                                                                 | 519                                                                                 | 3595                                                                                | 0                                                                                   | 83                                                                                  | 3523                                                                                | 0                                                                                   |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |
| Satd. Flow (RTOR)       |                                                                                   | 35                                                                                |                                                                                   |                                                                                   | 42                                                                                |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     | 7                                                                                   |                                                                                     |
| Link Speed (k/h)        |                                                                                   | 40                                                                                |                                                                                   |                                                                                   | 40                                                                                |                                                                                   |                                                                                     | 50                                                                                  |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
| Link Distance (m)       |                                                                                   | 247.4                                                                             |                                                                                   |                                                                                   | 102.8                                                                             |                                                                                   |                                                                                     | 658.2                                                                               |                                                                                     |                                                                                     | 86.1                                                                                |                                                                                     |
| Travel Time (s)         |                                                                                   | 22.3                                                                              |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                     | 47.4                                                                                |                                                                                     |                                                                                     | 6.2                                                                                 |                                                                                     |
| Confl. Peds. (#/hr)     | 8                                                                                 |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   | 8                                                                                 | 1                                                                                   |                                                                                     | 8                                                                                   | 8                                                                                   |                                                                                     | 1                                                                                   |
| Peak Hour 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                                                                                |
| Heavy Vehicles (%)      | 0%                                                                                | 0%                                                                                | 2%                                                                                | 3%                                                                                | 0%                                                                                | 1%                                                                                | 1%                                                                                  | 1%                                                                                  | 10%                                                                                 | 2%                                                                                  | 3%                                                                                  | 0%                                                                                  |
| Adj. Flow (vph)         | 77                                                                                | 71                                                                                | 152                                                                               | 55                                                                                | 71                                                                                | 156                                                                               | 163                                                                                 | 1874                                                                                | 33                                                                                  | 102                                                                                 | 961                                                                                 | 39                                                                                  |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 0                                                                                 | 300                                                                               | 0                                                                                 | 0                                                                                 | 282                                                                               | 0                                                                                 | 163                                                                                 | 1907                                                                                | 0                                                                                   | 102                                                                                 | 1000                                                                                | 0                                                                                   |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases        |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases        | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Detector Phase          | 8                                                                                 | 8                                                                                 |                                                                                   | 4                                                                                 | 4                                                                                 |                                                                                   | 6                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                              | 10.0                                                                              |                                                                                   | 10.0                                                                                | 10.0                                                                                |                                                                                     | 5.0                                                                                 | 10.0                                                                                |                                                                                     |
| Minimum Split (s)       | 37.6                                                                              | 37.6                                                                              |                                                                                   | 37.6                                                                              | 37.6                                                                              |                                                                                   | 32.3                                                                                | 32.3                                                                                |                                                                                     | 8.0                                                                                 | 30.3                                                                                |                                                                                     |
| Total Split (s)         | 38.0                                                                              | 38.0                                                                              |                                                                                   | 38.0                                                                              | 38.0                                                                              |                                                                                   | 93.0                                                                                | 93.0                                                                                |                                                                                     | 9.0                                                                                 | 102.0                                                                               |                                                                                     |
| Total Split (%)         | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 27.1%                                                                             | 27.1%                                                                             |                                                                                   | 66.4%                                                                               | 66.4%                                                                               |                                                                                     | 6.4%                                                                                | 72.9%                                                                               |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 3.0                                                                                 | 2.0                                                                                 |                                                                                     |
| All-Red Time (s)        | 3.6                                                                               | 3.6                                                                               |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 2.3                                                                                 | 2.3                                                                                 |                                                                                     | 0.0                                                                                 | 2.3                                                                                 |                                                                                     |
| Lost Time Adjust (s)    |                                                                                   | -3.0                                                                              |                                                                                   |                                                                                   | -3.0                                                                              |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Lost Time (s)     |                                                                                   | 4.6                                                                               |                                                                                   |                                                                                   | 4.6                                                                               |                                                                                   | 6.3                                                                                 | 6.3                                                                                 |                                                                                     | 3.0                                                                                 | 4.3                                                                                 |                                                                                     |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Lag                                                                                 | Lag                                                                                 |                                                                                     | Lead                                                                                |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | None                                                                              |                                                                                   | Max                                                                                 | Max                                                                                 |                                                                                     | None                                                                                | Max                                                                                 |                                                                                     |
| Act Effect Green (s)    |                                                                                   | 33.4                                                                              |                                                                                   |                                                                                   | 33.4                                                                              |                                                                                   | 86.7                                                                                | 86.7                                                                                |                                                                                     | 99.0                                                                                | 97.7                                                                                |                                                                                     |
| Actuated g/C Ratio      |                                                                                   | 0.24                                                                              |                                                                                   |                                                                                   | 0.24                                                                              |                                                                                   | 0.62                                                                                | 0.62                                                                                |                                                                                     | 0.71                                                                                | 0.70                                                                                |                                                                                     |
| v/c Ratio               |                                                                                   | 0.97                                                                              |                                                                                   |                                                                                   | 0.80                                                                              |                                                                                   | 0.51                                                                                | 0.86                                                                                |                                                                                     | 0.78                                                                                | 0.41                                                                                |                                                                                     |
| Control Delay           |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   | 60.4                                                                              |                                                                                   | 21.7                                                                                | 26.6                                                                                |                                                                                     | 59.4                                                                                | 9.4                                                                                 |                                                                                     |
| Queue Delay             |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   | 0.0                                                                                 | 0.0                                                                                 |                                                                                     | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |
| Total Delay             |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   | 60.4                                                                              |                                                                                   | 21.7                                                                                | 26.6                                                                                |                                                                                     | 59.4                                                                                | 9.4                                                                                 |                                                                                     |
| LOS                     |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   | C                                                                                   | C                                                                                   |                                                                                     | E                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay          |                                                                                   | 90.0                                                                              |                                                                                   |                                                                                   | 60.4                                                                              |                                                                                   |                                                                                     | 26.2                                                                                |                                                                                     |                                                                                     | 14.1                                                                                |                                                                                     |

# Lanes, Volumes, Timings

FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group             | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Approach LOS           | F                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | C                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Queue Length 50th (m)  | 74.7                                                                              |                                                                                   |                                                                                   | 63.8                                                                              |                                                                                   |                                                                                   | 23.8                                                                               | 213.3                                                                               |                                                                                     | 12.0                                                                                | 55.8                                                                                |                                                                                     |
| Queue Length 95th (m)  | #133.5                                                                            |                                                                                   |                                                                                   | #107.8                                                                            |                                                                                   |                                                                                   | 45.3                                                                               | 248.8                                                                               |                                                                                     | #42.1                                                                               | 67.3                                                                                |                                                                                     |
| Internal Link Dist (m) | 223.4                                                                             |                                                                                   |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                   |                                                                                    | 634.2                                                                               |                                                                                     |                                                                                     | 62.1                                                                                |                                                                                     |
| Turn Bay Length (m)    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 45.0                                                                               |                                                                                     |                                                                                     | 45.0                                                                                |                                                                                     |                                                                                     |
| Base Capacity (vph)    | 310                                                                               |                                                                                   |                                                                                   | 352                                                                               |                                                                                   |                                                                                   | 321                                                                                | 2227                                                                                |                                                                                     | 131                                                                                 | 2460                                                                                |                                                                                     |
| 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      | 0.97                                                                              |                                                                                   |                                                                                   | 0.80                                                                              |                                                                                   |                                                                                   | 0.51                                                                               | 0.86                                                                                |                                                                                     | 0.78                                                                                | 0.41                                                                                |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 30.3

Intersection LOS: C

Intersection Capacity Utilization 96.8%

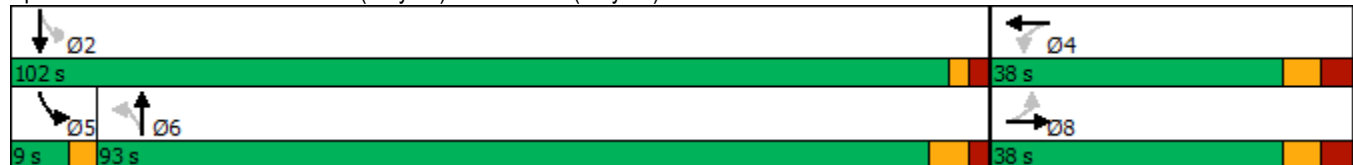
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E



# HCM Signalized Intersection Capacity Analysis

FT 2034 Traffic Volumes

1: Queen St S(Hwy 50)/Queen St S (Hwy 50) & Ellwood Dr W/Ellwood Dr E

PM Peak Hour

|                                   |  |       |       |      |      |      |      |       |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|------|-------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↕     |       |      | ↕    |      | ↙    | ↕     |      | ↙     | ↕    |      |
| Traffic Volume (vph)              | 77                                                                                 | 71    | 152   | 55   | 71   | 156  | 163  | 1874  | 33   | 102   | 961  | 39   |
| Future Volume (vph)               | 77                                                                                 | 71    | 152   | 55   | 71   | 156  | 163  | 1874  | 33   | 102   | 961  | 39   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900  | 1900  | 1900 | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  | 1900 | 1900 |
| Total Lost time (s)               |                                                                                    | 4.6   |       |      | 4.6  |      | 6.3  | 6.3   |      | 3.0   | 4.3  |      |
| Lane Util. Factor                 |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00 | 0.95  |      | 1.00  | 0.95 |      |
| Frpb, ped/bikes                   |                                                                                    | 0.99  |       |      | 0.99 |      | 1.00 | 1.00  |      | 1.00  | 1.00 |      |
| Flpb, ped/bikes                   |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 1.00 |      |
| Frt                               |                                                                                    | 0.93  |       |      | 0.93 |      | 1.00 | 1.00  |      | 1.00  | 0.99 |      |
| Flt Protected                     |                                                                                    | 0.99  |       |      | 0.99 |      | 0.95 | 1.00  |      | 0.95  | 1.00 |      |
| Satd. Flow (prot)                 |                                                                                    | 1734  |       |      | 1718 |      | 1806 | 3596  |      | 1789  | 3524 |      |
| Flt Permitted                     |                                                                                    | 0.68  |       |      | 0.77 |      | 0.27 | 1.00  |      | 0.04  | 1.00 |      |
| Satd. Flow (perm)                 |                                                                                    | 1189  |       |      | 1344 |      | 519  | 3596  |      | 82    | 3524 |      |
| Peak-hour factor, PHF             | 1.00                                                                               | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Adj. Flow (vph)                   | 77                                                                                 | 71    | 152   | 55   | 71   | 156  | 163  | 1874  | 33   | 102   | 961  | 39   |
| RTOR Reduction (vph)              | 0                                                                                  | 27    | 0     | 0    | 32   | 0    | 0    | 1     | 0    | 0     | 2    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 273   | 0     | 0    | 250  | 0    | 163  | 1906  | 0    | 102   | 998  | 0    |
| Confl. Peds. (#/hr)               | 8                                                                                  |       | 2     | 2    |      | 8    | 1    |       | 8    | 8     |      | 1    |
| Heavy Vehicles (%)                | 0%                                                                                 | 0%    | 2%    | 3%   | 0%   | 1%   | 1%   | 1%    | 10%  | 2%    | 3%   | 0%   |
| Turn Type                         | Perm                                                                               | NA    |       | Perm | NA   |      | Perm | NA    |      | pm+pt | NA   |      |
| Protected Phases                  |                                                                                    | 8     |       |      | 4    |      |      | 6     |      | 5     | 2    |      |
| Permitted Phases                  | 8                                                                                  |       |       | 4    |      |      | 6    |       |      | 2     |      |      |
| Actuated Green, G (s)             |                                                                                    | 30.4  |       |      | 30.4 |      | 86.7 | 86.7  |      | 97.7  | 97.7 |      |
| Effective Green, g (s)            |                                                                                    | 33.4  |       |      | 33.4 |      | 86.7 | 86.7  |      | 97.7  | 97.7 |      |
| Actuated g/C Ratio                |                                                                                    | 0.24  |       |      | 0.24 |      | 0.62 | 0.62  |      | 0.70  | 0.70 |      |
| Clearance Time (s)                |                                                                                    | 7.6   |       |      | 7.6  |      | 6.3  | 6.3   |      | 3.0   | 4.3  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0   |       |      | 3.0  |      | 3.0  | 3.0   |      | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 283   |       |      | 320  |      | 321  | 2226  |      | 130   | 2459 |      |
| v/s Ratio Prot                    |                                                                                    |       |       |      |      |      |      | c0.53 |      | c0.03 | 0.28 |      |
| v/s Ratio Perm                    |                                                                                    | c0.23 |       |      | 0.19 |      | 0.31 |       |      | 0.51  |      |      |
| v/c Ratio                         |                                                                                    | 0.97  |       |      | 0.78 |      | 0.51 | 0.86  |      | 0.78  | 0.41 |      |
| Uniform Delay, d1                 |                                                                                    | 52.7  |       |      | 49.9 |      | 14.8 | 21.6  |      | 35.3  | 8.9  |      |
| Progression Factor                |                                                                                    | 1.00  |       |      | 1.00 |      | 1.00 | 1.00  |      | 1.00  | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 43.8  |       |      | 11.7 |      | 5.6  | 4.5   |      | 25.9  | 0.5  |      |
| Delay (s)                         |                                                                                    | 96.5  |       |      | 61.6 |      | 20.4 | 26.1  |      | 61.2  | 9.4  |      |
| Level of Service                  |                                                                                    | F     |       |      | E    |      | C    | C     |      | E     | A    |      |
| Approach Delay (s)                |                                                                                    | 96.5  |       |      | 61.6 |      |      | 25.7  |      |       | 14.2 |      |
| Approach LOS                      |                                                                                    | F     |       |      | E    |      |      | C     |      |       | B    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |      |       |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 30.7  |      |      |      |      |       |      |       |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.88  |      |      |      |      |       |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 140.0 |      |      |      |      |       |      |       |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 96.8% |      |      |      |      |       |      |       |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |      |       |      |       |      |      |
| c Critical Lane Group             |                                                                                    |       |       |      |      |      |      |       |      |       |      |      |

# HCM Unsignalized Intersection Capacity Analysis

## 2: Queen St S (Hwy 50) & Shore Street

FT 2034 Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations               |  |                                                                                   |  |  |  |                                                                                   |
| Traffic Volume (veh/h)            | 14                                                                                | 25                                                                                | 34                                                                                | 1995                                                                              | 1085                                                                              | 18                                                                                |
| Future Volume (Veh/h)             | 14                                                                                | 25                                                                                | 34                                                                                | 1995                                                                              | 1085                                                                              | 18                                                                                |
| Sign Control                      | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              | Free                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              | 0.96                                                                              |
| Hourly flow rate (vph)            | 15                                                                                | 26                                                                                | 35                                                                                | 2078                                                                              | 1130                                                                              | 19                                                                                |
| Pedestrians                       | 4                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (m)                    | 3.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (m/s)               | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       |                                                                                   |                                                                                   |                                                                                   | TWLT                                                                              | TWLT                                                                              |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   | 2                                                                                 | 2                                                                                 |                                                                                   |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   | 86                                                                                |                                                                                   |                                                                                   |
| pX, platoon unblocked             | 0.55                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            | 2252                                                                              | 578                                                                               | 1153                                                                              |                                                                                   |                                                                                   |                                                                                   |
| vC1, stage 1 conf vol             | 1144                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             | 1109                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                | 1636                                                                              | 578                                                                               | 1153                                                                              |                                                                                   |                                                                                   |                                                                                   |
| tC, single (s)                    | 6.8                                                                               | 7.0                                                                               | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   |
| tC, 2 stage (s)                   | 5.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            | 3.5                                                                               | 3.4                                                                               | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   |
| p0 queue free %                   | 94                                                                                | 94                                                                                | 94                                                                                |                                                                                   |                                                                                   |                                                                                   |
| cM capacity (veh/h)               | 236                                                                               | 445                                                                               | 611                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Direction, Lane #                 | EB 1                                                                              | NB 1                                                                              | NB 2                                                                              | NB 3                                                                              | SB 1                                                                              | SB 2                                                                              |
| Volume Total                      | 41                                                                                | 35                                                                                | 1039                                                                              | 1039                                                                              | 753                                                                               | 396                                                                               |
| Volume Left                       | 15                                                                                | 35                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Volume Right                      | 26                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 19                                                                                |
| cSH                               | 336                                                                               | 611                                                                               | 1700                                                                              | 1700                                                                              | 1700                                                                              | 1700                                                                              |
| Volume to Capacity                | 0.12                                                                              | 0.06                                                                              | 0.61                                                                              | 0.61                                                                              | 0.44                                                                              | 0.23                                                                              |
| Queue Length 95th (m)             | 3.1                                                                               | 1.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Control Delay (s)                 | 17.2                                                                              | 11.3                                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |
| Lane LOS                          | C                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 17.2                                                                              | 0.2                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization | 65.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | C                                                                                 |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

# HCM Unsignalized Intersection Capacity Analysis

## 3: East Access/Private Driveway & Shore Street

FT 2034 Traffic Volumes  
PM Peak Hour

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                    |  |                                                                                     |                                                                                     |  |                                                                                     |
| Traffic Volume (veh/h)            | 0                                                                                 | 16                                                                                | 2                                                                                 | 6                                                                                 | 22                                                                                | 3                                                                                 | 2                                                                                  | 0                                                                                   | 3                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   |
| Future Volume (Veh/h)             | 0                                                                                 | 16                                                                                | 2                                                                                 | 6                                                                                 | 22                                                                                | 3                                                                                 | 2                                                                                  | 0                                                                                   | 3                                                                                   | 1                                                                                   | 0                                                                                   | 0                                                                                   |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                               |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                 |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.63                                                                               | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                | 0.63                                                                                |
| Hourly flow rate (vph)            | 0                                                                                 | 25                                                                                | 3                                                                                 | 10                                                                                | 35                                                                                | 5                                                                                 | 3                                                                                  | 0                                                                                   | 5                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 3.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 40                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 86                                                                                 | 88                                                                                  | 28                                                                                  | 89                                                                                  | 88                                                                                  | 38                                                                                  |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 40                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 86                                                                                 | 88                                                                                  | 28                                                                                  | 89                                                                                  | 88                                                                                  | 38                                                                                  |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                   | 7.1                                                                                | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                   | 3.5                                                                                | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 | 100                                                                                 |
| cM capacity (veh/h)               | 1570                                                                              |                                                                                   |                                                                                   | 1593                                                                              |                                                                                   |                                                                                   | 897                                                                                | 795                                                                                 | 1050                                                                                | 886                                                                                 | 796                                                                                 | 1035                                                                                |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 28                                                                                | 50                                                                                | 8                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 0                                                                                 | 10                                                                                | 3                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 3                                                                                 | 5                                                                                 | 5                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 1570                                                                              | 1593                                                                              | 987                                                                               | 886                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.00                                                                              | 0.01                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.2                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 0.0                                                                               | 1.5                                                                               | 8.7                                                                               | 9.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          |                                                                                   | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 0.0                                                                               | 1.5                                                                               | 8.7                                                                               | 9.1                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   |                                                                                   | 1.8                                                                               |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   |                                                                                   | 16.6%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM Unsignalized Intersection Capacity Analysis 4: Private Driveway/West Access & Shore Street

FT 2034 Traffic Volumes  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |     |      |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |     |      |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |                                                                                     |  |                                                                                     |     |      |
| Traffic Volume (veh/h)            | 0                                                                                 | 9                                                                                 | 0                                                                                 | 6                                                                                 | 18                                                                                | 2                                                                                 | 0                                                                                   | 0                                                                                   | 6                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |     |      |
| Future Volume (Veh/h)             | 0                                                                                 | 9                                                                                 | 0                                                                                 | 6                                                                                 | 18                                                                                | 2                                                                                 | 0                                                                                   | 0                                                                                   | 6                                                                                   | 2                                                                                   | 0                                                                                   | 0                                                                                   |     |      |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   | Stop                                                                                |                                                                                     |                                                                                     | Stop                                                                                |                                                                                     |                                                                                     |     |      |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                  |                                                                                     |                                                                                     | 0%                                                                                  |                                                                                     |                                                                                     |     |      |
| Peak Hour Factor                  | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                | 0.65                                                                                |     |      |
| Hourly flow rate (vph)            | 0                                                                                 | 14                                                                                | 0                                                                                 | 9                                                                                 | 28                                                                                | 3                                                                                 | 0                                                                                   | 0                                                                                   | 9                                                                                   | 3                                                                                   | 0                                                                                   | 0                                                                                   |     |      |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Lane Width (m)                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 3.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Walking Speed (m/s)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 1.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Median type                       | None                                                                              |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Upstream signal (m)               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| vC, conflicting volume            | 31                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 64                                                                                  | 65                                                                                  | 16                                                                                  | 70                                                                                  | 64  | 30   |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| vCu, unblocked vol                | 31                                                                                |                                                                                   |                                                                                   |                                                                                   | 16                                                                                |                                                                                   |                                                                                     |                                                                                     | 64                                                                                  | 65                                                                                  | 16                                                                                  | 70                                                                                  | 64  | 30   |
| tC, single (s)                    | 4.1                                                                               |                                                                                   |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   |                                                                                     |                                                                                     | 7.1                                                                                 | 6.5                                                                                 | 6.2                                                                                 | 7.1                                                                                 | 6.5 | 6.2  |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| tF (s)                            | 2.2                                                                               |                                                                                   |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   |                                                                                     |                                                                                     | 3.5                                                                                 | 4.0                                                                                 | 3.3                                                                                 | 3.5                                                                                 | 4.0 | 3.3  |
| p0 queue free %                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   | 99                                                                                |                                                                                   |                                                                                     |                                                                                     | 100                                                                                 | 100                                                                                 | 99                                                                                  | 100                                                                                 | 100 | 100  |
| cM capacity (veh/h)               | 1582                                                                              |                                                                                   |                                                                                   |                                                                                   | 1612                                                                              |                                                                                   |                                                                                     |                                                                                     | 929                                                                                 | 819                                                                                 | 1067                                                                                | 908                                                                                 | 821 | 1045 |
| Direction, Lane #                 | EB 1                                                                              | WB 1                                                                              | NB 1                                                                              | SB 1                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Volume Total                      | 14                                                                                | 40                                                                                | 9                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Volume Left                       | 0                                                                                 | 9                                                                                 | 0                                                                                 | 3                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Volume Right                      | 0                                                                                 | 3                                                                                 | 9                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| cSH                               | 1582                                                                              | 1612                                                                              | 1067                                                                              | 908                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Volume to Capacity                | 0.00                                                                              | 0.01                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Queue Length 95th (m)             | 0.0                                                                               | 0.1                                                                               | 0.2                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Control Delay (s)                 | 0.0                                                                               | 1.7                                                                               | 8.4                                                                               | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Lane LOS                          | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Approach Delay (s)                | 0.0                                                                               | 1.7                                                                               | 8.4                                                                               | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Approach LOS                      | A                                                                                 |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Average Delay                     | 2.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |
| Intersection Capacity Utilization | 16.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |     |      |
| Analysis Period (min)             | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |     |      |

## **Appendix G:**

### **Parking Generation Graphs**

Query

Filter

## DATA SOURCE:

Parking Generation Manual, 5th Ed

New data edition is available. [Click here to upgrade.](#)

## SEARCH BY LAND USE CODE:

220



## LAND USE GROUP:

(200-299) Residential

## LAND USE:

220 - Multifamily Housing (Low-Rise)

## LAND USE SUBCATEGORY:

All Sites

## SETTING/LOCATION:

General Urban/Suburban (no nearby rail transi

## INDEPENDENT VARIABLE (IV):

Occupied Dwelling Units

## TIME PERIOD:

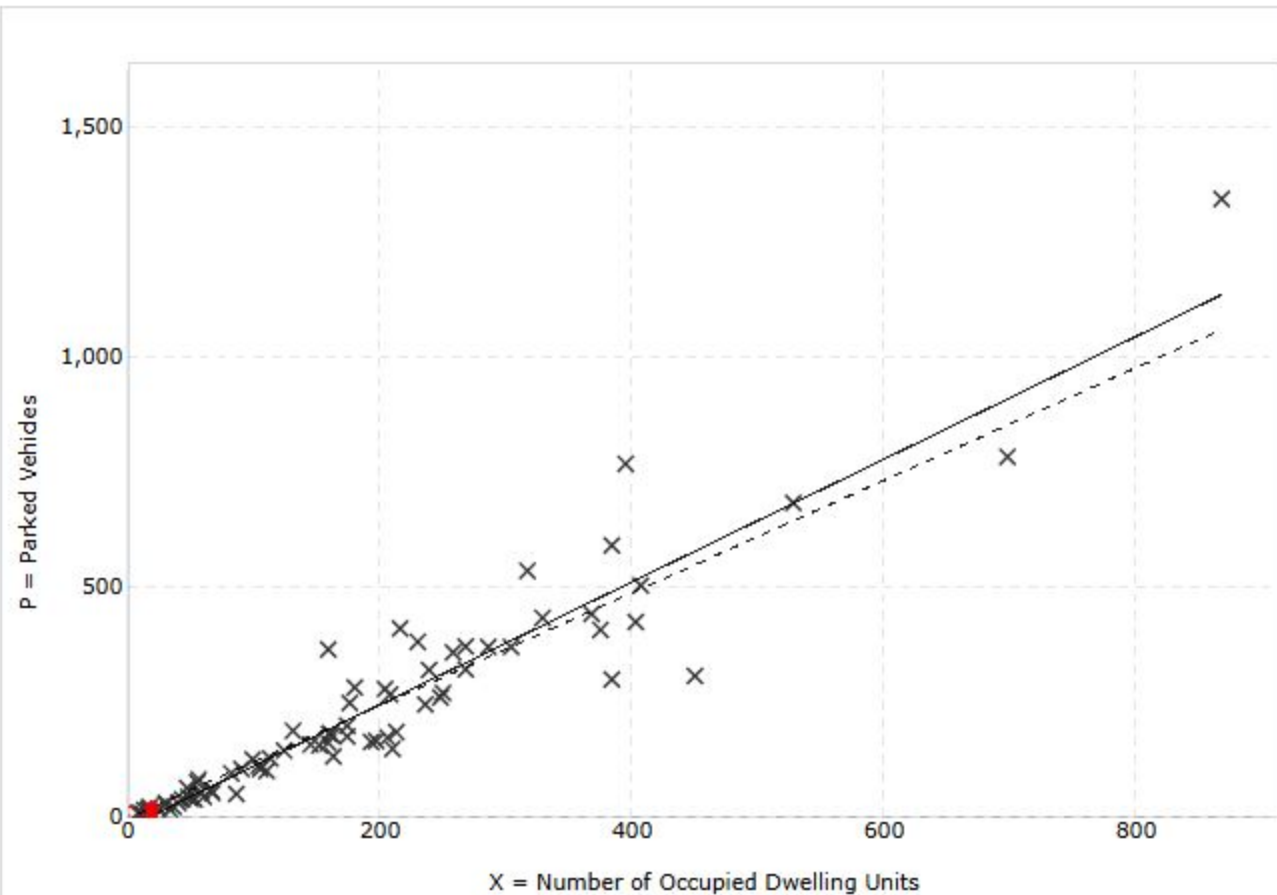
Weekday (Monday - Friday)

## ENTER IV VALUE TO CALCULATE PARKING DEMAND:

19

Calculate

## Data Plot and Equation



x Study Site

— Fitted Curve

- - - Average Rate

## DATA STATISTICS

## Land Use:

Multifamily Housing (Low-Rise) (220)

## Independent Variable:

Occupied Dwelling Units

## Time Period:

Weekday (Monday - Friday)

## Setting/Location:

General Urban/Suburban (no nearby rail transit)

## Number of Studies:

77

## Avg. Num. of Occupied Dwelling Units:

182

## Average Rate:

1.22

## Range of Rates:

0.58 - 2.30

## 33rd / 85th Percentile:

1.02 / 1.41

## 95% Confidence Interval:

1.15 - 1.29

## Standard Deviation:

0.32

## Coefficient of Variation:

26%

## Fitted Curve Equation:

 $P = 1.33(X) - 20.15$  $R^2$ :

0.89

## Calculated Parking Demand:

Weighted Average: 23

Fitted Curve: 5

Query

Filter

## DATA SOURCE:

Parking Generation Manual, 5th Ed

New data edition is available. [Click here to upgrade.](#)

## SEARCH BY LAND USE CODE:

220



## LAND USE GROUP:

(200-299) Residential

## LAND USE:

220 - Multifamily Housing (Low-Rise)

## LAND USE SUBCATEGORY:

All Sites

## SETTING/LOCATION:

General Urban/Suburban (no nearby rail transi

## INDEPENDENT VARIABLE (IV):

Occupied Dwelling Units

## TIME PERIOD:

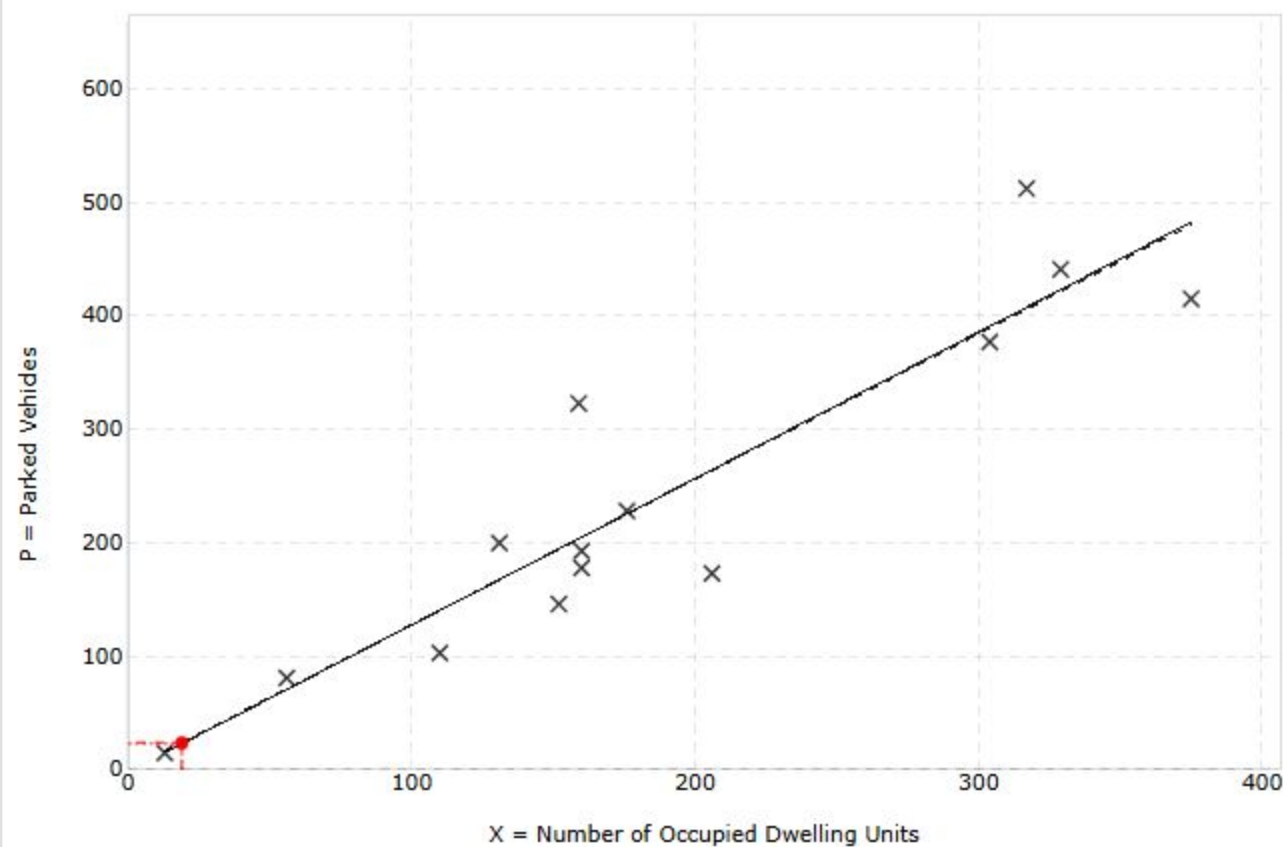
Saturday

## ENTER IV VALUE TO CALCULATE PARKING DEMAND:

19

Calculate

## Data Plot and Equation



## DATA STATISTICS

## Land Use:

Multifamily Housing (Low-Rise) (220)

## Independent Variable:

Occupied Dwelling Units

## Time Period:

Saturday

## Setting/Location:

General Urban/Suburban (no nearby rail transit)

## Number of Studies:

14

## Avg. Num. of Occupied Dwelling Units:

189

## Average Rate:

1.28

## Range of Rates:

0.84 - 2.03

## 33rd / 85th Percentile:

1.11 / 1.59

## 95% Confidence Interval:

\*\*\*

## Standard Deviation:

0.30

## Coefficient of Variation:

23%

## Fitted Curve Equation:

 $P = 1.29(X) - 1.37$  $R^2$ :

0.85

## Calculated Parking Demand:

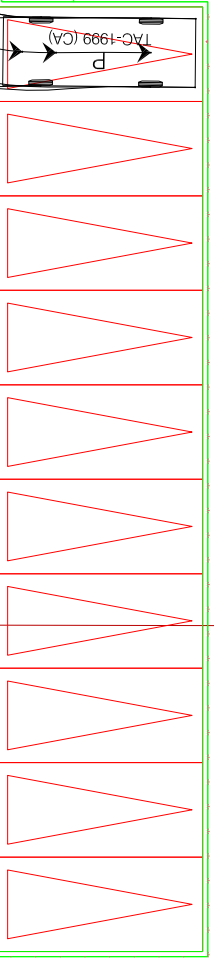
Weighted Average: 24

Fitted Curve: 23

## **Appendix H:**

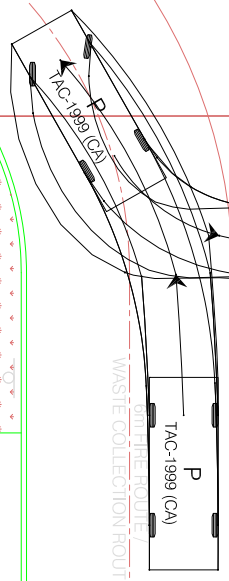
### **Auto-Turn Analysis**

3' CULV. OVERLAP  
3' CULV. OVERLAP  
3' CULV. REINFORCING

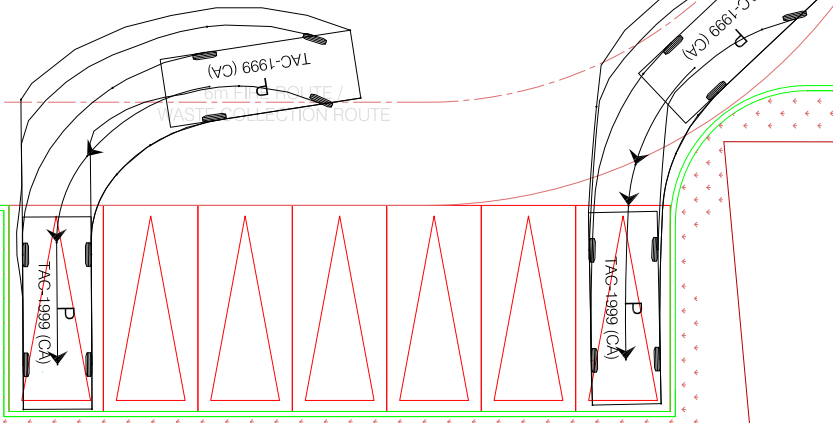
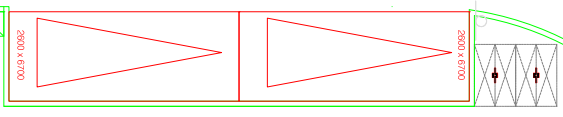
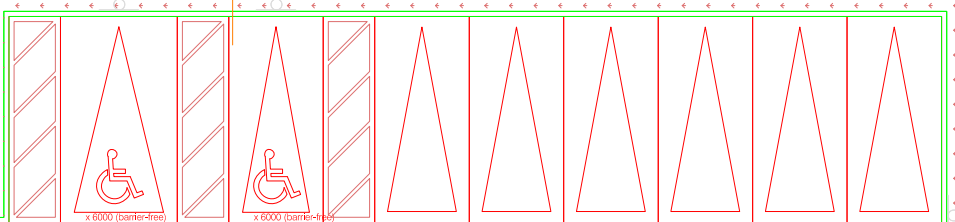


3 STOREY RE

6m FIRE ROUTE /  
WASTE COLLECTION ROUTE



PROPOSED  
4-STORY  
APARTMENT BUILDING  
19 UNITS  
FFE: 254.60



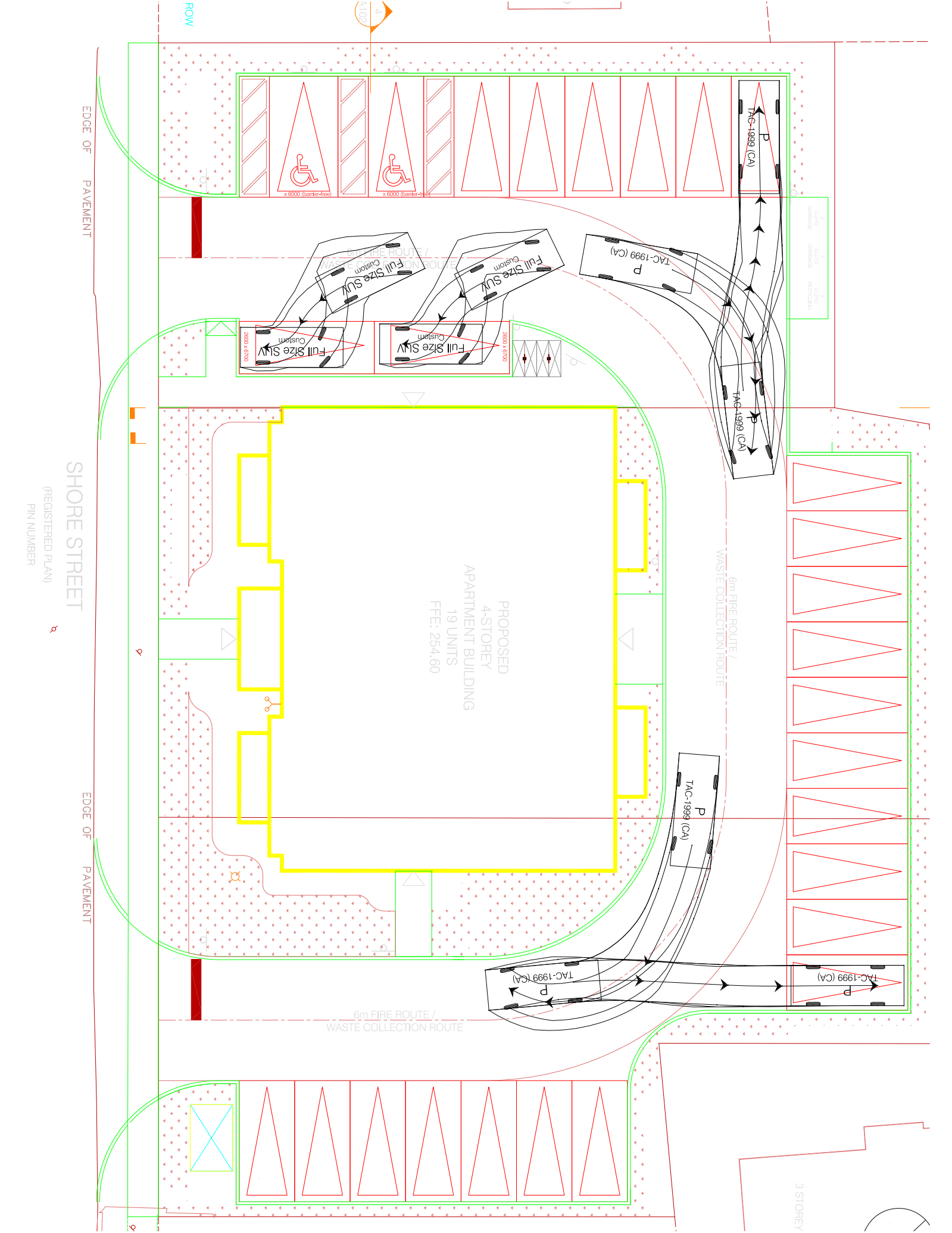
6m FIRE ROUTE /  
WASTE COLLECTION ROUTE

EDGE OF PAVEMENT

EDGE OF PAVEMENT

SHORE STREET  
(REGISTERED PLAN)

PIN NUMBER



3 STOREY

6m FIRE ROUTE /  
WASTE COLLECTION ROUTE

PROPOSED  
4-STOREY  
APARTMENT BUILDING  
19 UNITS  
FFE: 254.60

6m FIRE ROUTE /  
WASTE COLLECTION ROUTE

EDGE OF PAVEMENT

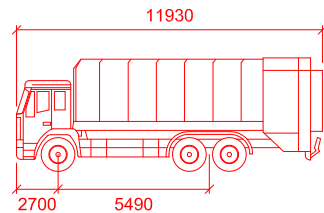
EDGE OF PAVEMENT

SHORE STREET

(REGISTERED PLAN)

PIN NUMBER

ROW



**Peel Refuse Truck**<sub>mm</sub>

|                   |        |
|-------------------|--------|
| Width             | : 2770 |
| Track             | : 2770 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 32.2 |

