To: Jacob Katz, President - Litera Group

From: Alan Xaykongsa and Amar Lad – TYLin

Date: June 21, 2023, revised February 28, 2024

Address: 140 Ann St., Suite 202

London, ON N6A 1R2

Re: The Beaverbrook Community, London, Ontario

323 Oxford Street West, 92 Proudfoot Lane, 825 Proudfoot Lane

Transportation Impact Study (TIS) Addendum Letter

MEMORANDUM

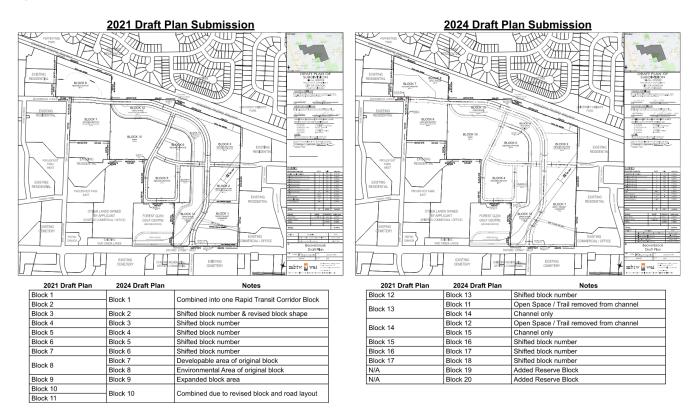
Introduction

TYLin (formerly, the Municipal Infrastructure Group Ltd. (TMIG), a T.Y. Lin International Company) was retained by Sam Katz Holdings Limited to prepare a Transportation Impact Study in support of a Draft Plan of Subdivision for a proposed residential subdivision to be located on 3 parcels of land; 323 Oxford Street West, 92 Proudfoot Lane, & 825 Proudfoot Lane, owned by Sam Katz Holdings Limited and situated north of Oxford Street West, generally opposite Beaverbrook Avenue in the City of London. The proposed development will contain a mix of residential densities, parklands, and open space blocks around the Mud Creek channel. The site is currently a predominantly greenfield area.

The 2023/2024 Beaverbrook Community resubmission comprises a coordinated set of revisions in response to comments received from the City of London and various agencies throughout 2022, as well as multiple working meetings and site walks with City staff and the UTRCA, and some design considerations led by the applicant.

As seen in **Figure 1**, the major changes to the Draft Plan include the road alignment of Street A and Street B, various road dimensions and geometries, revisions to the size and dimensions of the Neighbourhood Park (Block 10), and the separation of the original Block 8 into a developable and environmental block (Block 7 and Block 8, respectively). Revisions to the Draft Plan were also driven by three design considerations. The first design consideration includes combining original Block 1 and 2 into one rapid transit corridor development block. The second includes the separation of the multi-use pathway adjacent to the channel into a dedicated Open Space / Trail Block or within the Park Block. The third includes squaring off the original Block 3 (now Block 2) to add a northern portion to Park Block 9. In addition, the revised Draft Plan includes an increase in the unit count to represent higher density targets which are primarily focused on the rapid transit corridor development (Block 1) and blocks covered by the remnant High Density Overlay. The Draft Plan comparison can be found in further detail in **Attachment 1**.

Figure 1 2021 to 2024 Draft Plan Comparison



2021 to 2024 Draft Plan Comparison

The Beaverbrook Community • London, Ontario

February 2024

The Transportation Impact Study (TIS) Addendum Letter is part of the 2023/2024 Beaverbrook Community resubmission package and provides an addendum to the TIS submitted in July 2021 in response to updates made to the Draft Plan and site statistics. In the July 2021 TIS, the development proposed a total of 3,462 residential units (that included a 25% bonus density for a conservative assessment) – this addendum analyzes the effects of 355 additional dwelling units on the study area road network (totaling 3,817 units). Traffic analysis was done under the future total 2035 conditions which correlates to the full build-out of the residential development. All traffic assumptions made in the July 2021 TIS remain valid. Based on the analysis enclosed in this letter, the trips generated by **the additional 355 units can be accommodated** with negligible impact across the study area traffic network.

Development Context

The latest Draft Plan, found in **Attachment 2**, includes 7 medium and high-density residential blocks (including a rapid transit corridor block and 6 neighbourhood blocks) consisting of 3,817 units, 6.09 hectares of parklands, and 7.80 hectares of open space blocks. **Figure 2** shows the updated proposed Draft Plan showing the proposed residential blocks, neighbouring lands, and future site access.

Figure 2 Updated Draft Plan



Based on the proposed subdivision plan, vehicular access to the area will be provided by the proposed northward extension of Beaverbrook Avenue from Oxford Street West to Proudfoot Lane, a westerly extension of Westfield Drive to Beaverbrook Avenue. The proposed "Street A", "Street B", private condominium streets will act as public and private local roads through the site, connecting residential blocks to the collector road. A pedestrian walkway (to be evaluated further) is proposed to connect residents from Beaverbrook Avenue to Walmer Gardens, north of the Canadian Pacific Railway Line.

Based on pre-consultation with the City of London, a 1.0% annual growth rate was agreed to and applied to Oxford Street West, Beaverbrook Avenue, Proudfoot Lane, and Wonderland Road North to 2030, and 0.5% from 2030-2035. In addition, a 0.5% annual growth rate was agreed upon and applied to Cherryhill Boulevard and Platt's Lane to 2035.

Site Generated Traffic

The updated Draft Plan of subdivision is comprised of 3,817 units across seven blocks for the full build-out condition. This results in a net increase of 355 units from the July 2021 TIS. Site traffic generated by the proposed residential subdivision was estimated by applying the trip rates found under Land Use Code (LUC) 221 & LUC 222 in the ITE Trip Generation Manual, 10th Edition, for weekday a.m. and p.m. peak hours, for mid-rise and high-rise blocks, respectively. This is consistent with the methodology utilized in the July 2021 TIS. It is noted that only the full build-out 2035 horizon was analyzed and therefore, the trip generation was not divided into separate phases. The overall non-automobile modal split of 35% was used for the 2035 planning horizon to stay consistent with the July 2021 TIS.

Table 1 summarizes the estimated total trip generation of the subject site.

Table 1 Passenger Car Peak Hour Trips

| n n | Ŋ | | | | Peak | Hour Tri | p Genera | tion | |
|-----------------------|---|-----------------------|--|---------|------------|----------|----------|-----------|-----------|
| Horizon | Multifamily Fitted Curve Housing (Mid-rise) Equation LUC 221 Trip Distribution | Weekday AM Weekday PM | | | | | | | |
| Ĭ | - | | | In | Out | Total | ln | Out | Total |
| | | , | | Ln(T) = | 0.98 Ln(X |) – 0.98 | Ln(T) = | 0.96 Ln(X | () – 0.63 |
| | | LUC 221 | Trip Distribution | 26% | 74% | 100% | 61% | 39% | 100% |
| (35) | | 1,090 | Fitted Curve Equation Trip Distribution Net Trips Fitted Curve Equation Trip Distribution Net Trips Total Site Trips | 65 | 188 | 253 | 190 | 121 | 311 |
| Full Build-Out (2035) | | Housing (High- | | T = 0 |).28 X + 1 | 2.86 | T = | 0.34 X + | 8.56 |
| Buil | 2, | _ | Trip Distribution | 24% | 76% | 100% | 61% | 39% | 100% |
| Full | 1 | 2,727 units | Net Trips | 132 | 417 | 549 | 388 | 249 | 637 |
| | 1-7 | 3,817 units | Total Site Trips | 197 | 605 | 802 | 578 | 370 | 948 |
| | 7 | rips from July 2021 | TIS (3,462 units) | 176 | 542 | 718 | 514 | 329 | 843 |
| In | crease | in Trips from July 2 | 021 TIS (+355 units) | +21 | +63 | +84 | +64 | +41 | +105 |

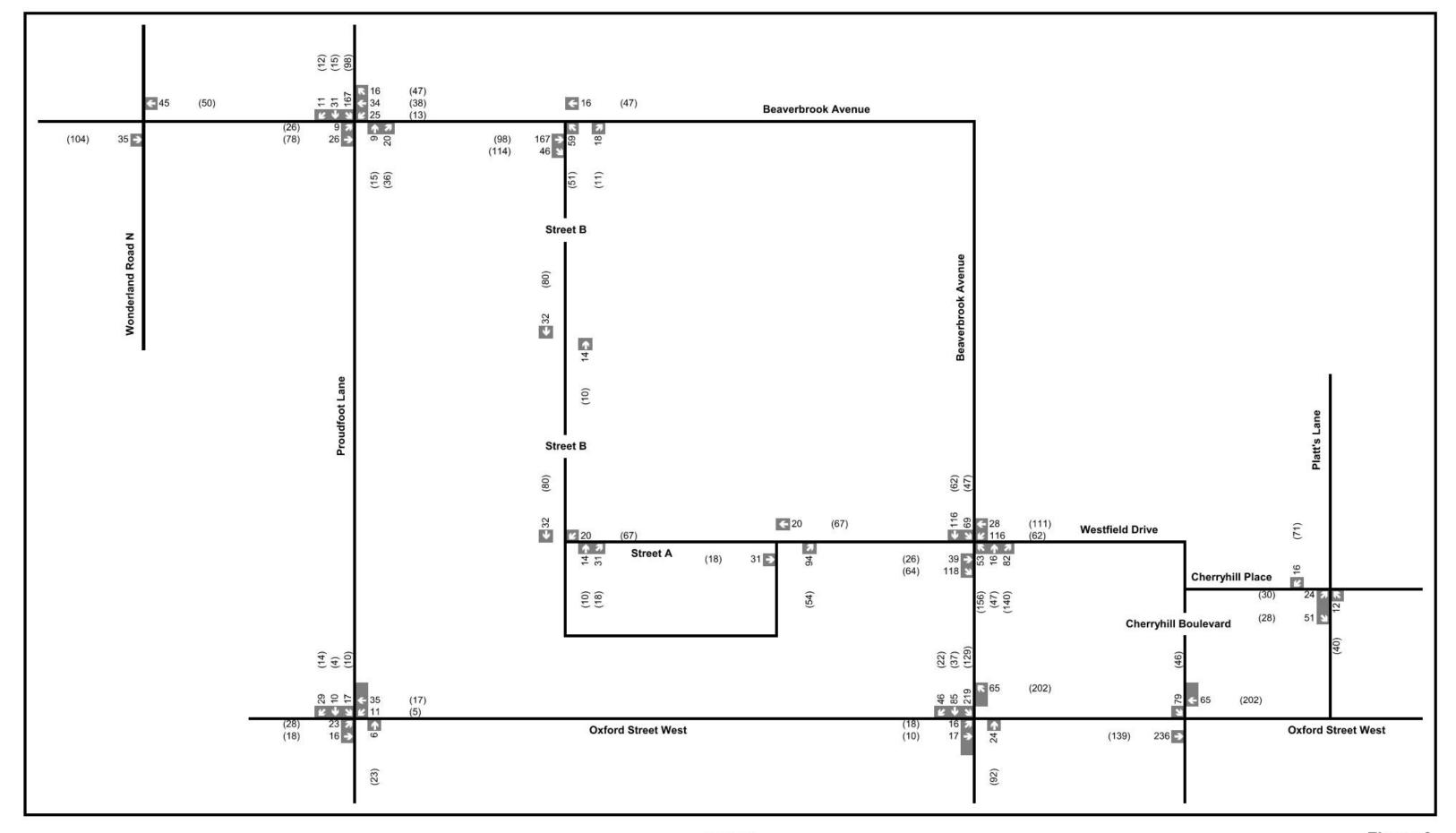
As outlined in **Table 1** during the 2035 planning horizon, the full build-out of the Draft Plan is expected to generate a total of 802 two-way vehicle trips during the a.m. peak hour, consisting of 197 inbound trips and 605 outbound trips. During the p.m. peak hour, it is expected to generate 948 two-way vehicle trips consisting of 578 inbound trips and 370 outbound trips. There is a total a.m. and p.m. increase in trips of 84 and 105 trips, respectively from the July 2021 TIS.

The site distribution and assignment were kept consistent with the July 2021 TIS. The distribution of site traffic was derived based on reasonable assumptions for the site's location in the City of London and refined in accordance with patterns observed in existing traffic data and the trip distribution methodology followed in background developments. The site traffic was assigned to the road network, accordingly, broken down by trips generated from each of the eight residential blocks within the subject site. **Table 2** summarizes the proportion of site trips distributed to the study area by direction of approach and departure for both the a.m. and p.m. peak hours.

Table 2 Site Trip Generation

| Tain Orientation (To / Form) | Distribut | ion (%) AM | Distribution (%) PM | | | | |
|------------------------------|-----------|------------|---------------------|----------|--|--|--|
| Trip Orientation (To / From) | Inbound | Outbound | Inbound | Outbound | | | |
| North | 20% | 10% | 30% | 20% | | | |
| East | 30% | 50% | 30% | 50% | | | |
| South | 30% | 35% | 40% | 25% | | | |
| West | 20% | 5% | 0% | 5% | | | |
| Total | 100% | 100% | 100% | 100% | | | |

Figure 3 illustrates the updated estimated passenger vehicle site trips generated by the proposed development that were assigned to the study road network for the ultimate 2035 horizon.





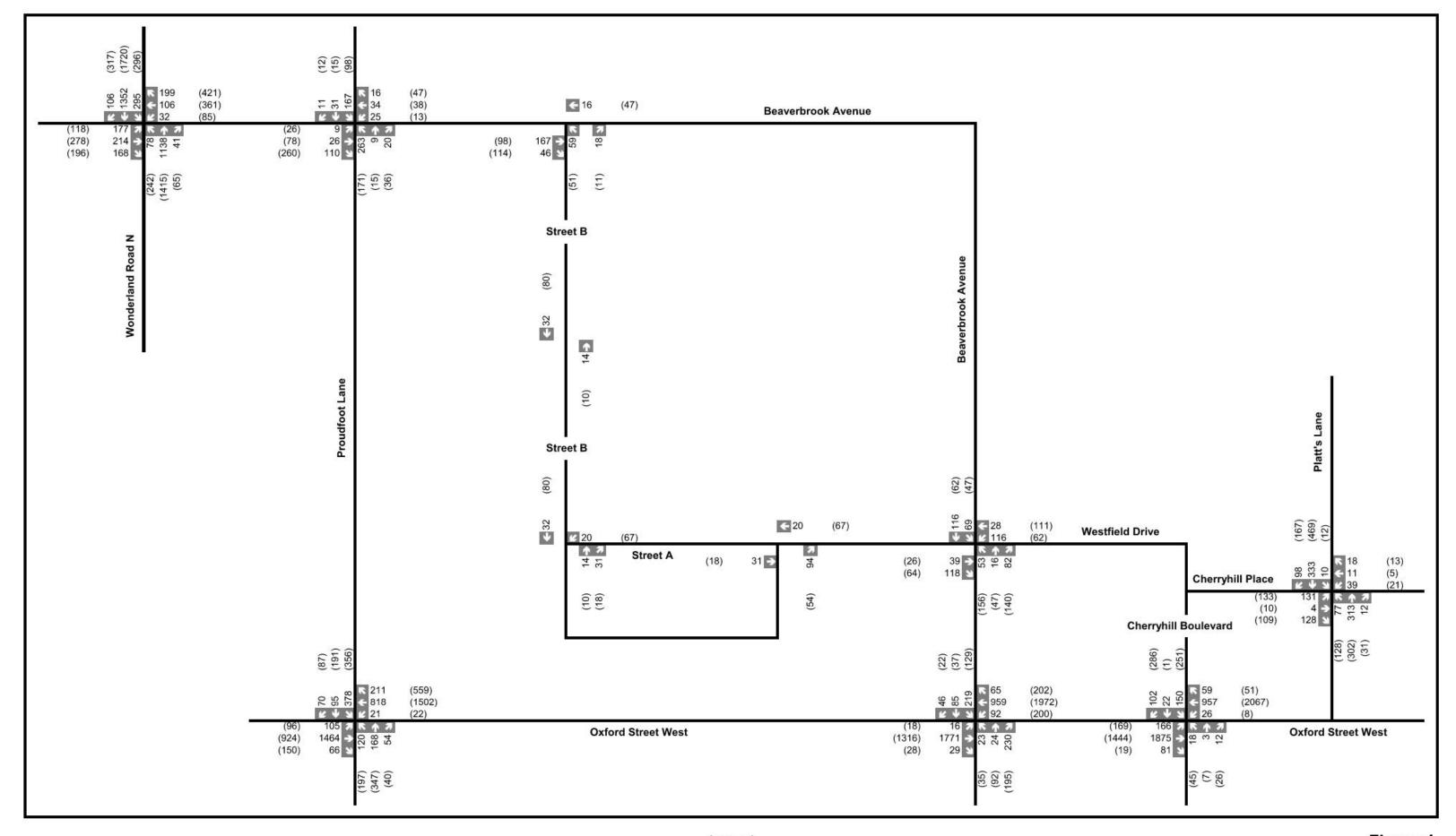
Legend

xx A.M. Peak Hour Traffic (xx) P.M. Peak Hour Traffic

Total Traffic Volumes

The future total traffic volumes were derived by combining the projected future background traffic volumes with the projected site trip assignment.

Figure 4 illustrates the future total traffic volumes for the 2035 planning horizon during the weekday a.m. and weekday p.m. peak hours.





Future Total 2035 Traffic Capacity Analysis

The capacity analysis identifies how well the intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement.

The analysis includes identification of all intersections and for all movements; v/c ratios, and LOS indicators. 'Critical' intersections and movements include:

- Overall intersection operations, through movements or shared through/turning movements with a LOS F or v/c ratio increased to 0.90 or above; and
- V/C ratios for exclusive movements that will exceed 1.00 or LOS F

As per the July 2021 TIS, it is noted that the cycle length for the intersection of Wonderland Road North and Beaverbrook Avenue was increased to 145 seconds in the p.m. peak hour. All other intersection improvements are maintained from Future Background 2035 such as: a protected phase was added for the eastbound left movement and the signal timings were optimized for both peak hours. Additionally, a protected phase was added for the eastbound left and northbound left movements at the intersection of Oxford Street West and Proudfoot Lane under the future background 2035 conditions and was maintained under the future total 2035 conditions, and signal timings were optimized for both peak hours.

Furthermore, the signalization of the intersection of Oxford Street West and Beaverbrook Avenue was maintained from the Future Background 2026 scenario. This is also consistent with the July 2021 TIS.

Table 3 summarizes the Synchro/HCM capacity results for the study intersections during the weekday a.m. and weekday p.m. peak hours under future total 2035 traffic conditions. Detailed Synchro reports can be found in **Attachment 3**.

Table 3 Future Total 2035 Capacity Analysis

| | Movement | Week | day AM Peal | k Hour | Week | Weekday PM Peak Hour | | | | |
|--|-------------|------|-------------|--------|------|----------------------|-----|--|--|--|
| Scenario | of Interest | v/c | Delay (s) | LOS | v/c | Delay (s) | LOS | | | |
| | Overall | 0.87 | 33 | С | 1.03 | 59 | E | | | |
| | EBL | 0.82 | 69 | E | 0.99 | 131 | F | | | |
| | EBT | 0.58 | 47 | D | 0.56 | 46 | D | | | |
| | EBT | 0.24 | 42 | D | 0.13 | 39 | D | | | |
| | WBL | 0.21 | 49 | D | 0.44 | 51 | D | | | |
| w | WBT | 0.42 | 51 | D | 0.91 | 80 | F | | | |
| Wonderland Road at Beaverbrook Avenue | WBR | 0.15 | 48 | D | 0.76 | 64 | E | | | |
| Beaverbrook Avenue | NBL | 0.48 | 20 | В | 1.01 | 110 | F | | | |
| | NBT | 0.78 | 34 | С | 0.89 | 45 | D | | | |
| | NBR | 0.03 | 19 | В | 0.05 | 23 | С | | | |
| | SBL | 0.83 | 48 | D | 0.96 | 90 | F | | | |
| | SBT | 0.71 | 21 | С | 1.00 | 60 | E | | | |
| | SBR | 0.10 | 12 | В | 0.38 | 25 | С | | | |
| | EBLTR | 0.23 | 10 | Α | 0.47 | 12 | В | | | |
| Proudfoot Lane at | WBLTR | 0.13 | 9 | Α | 0.14 | 9 | А | | | |
| Beaverbrook Avenue | NBLTR | 0.45 | 12 | В | 0.33 | 11 | В | | | |
| | SBLTR | 0.33 | 11 | В | 0.19 | 10 | А | | | |
| | Overall | 1.03 | 40 | D | 1.02 | 43 | D | | | |
| | EBL | 0.39 | 16 | В | 0.84 | 70 | Е | | | |
| | EBTR | 0.89 | 31 | С | 0.66 | 26 | С | | | |
| | WBL | 0.47 | 54 | D | 0.15 | 24 | С | | | |
| Proudfoot Lane at | WBT | 0.55 | 28 | С | 0.98 | 46 | D | | | |
| Oxford Street West | WBR | 0.18 | 2 | Α | 0.57 | 4 | Α | | | |
| | NBL | 0.49 | 45 | D | 0.56 | 39 | D | | | |
| | NBT | 0.71 | 62 | E | 0.97 | 91 | F | | | |
| | NBR | 0.04 | 48 | D | 0.03 | 43 | D | | | |
| | SBL | 1.10 | 116 | F | 1.02 | 93 | F | | | |

| | Movement | Week | day AM Peal | k Hour | Week | day PM Peal | Hour |
|-------------------------------------|-------------|------|-------------|--------|------|-------------|------|
| Scenario | of Interest | v/c | Delay (s) | LOS | v/c | Delay (s) | LOS |
| | Overall | 0.98 | 27 | С | 0.90 | 21 | С |
| | EBL | 0.06 | 10 | Α | 0.32 | 19 | В |
| | EBTR | 0.96 | 21 | С | 0.69 | 14 | В |
| Beaverbrook Avenue | WBL | 0.97 | 155 | F | 0.72 | 31 | С |
| at Oxford Street | WBTR | 0.50 | 7 | А | 0.89 | 16 | В |
| West | NBLT | 0.22 | 48 | D | 0.66 | 63 | E |
| | NBR | 0.71 | 62 | E | 0.13 | 51 | D |
| | SBL | 0.84 | 67 | E | 0.66 | 57 | E |
| | SBT | 0.21 | 41 | D | 0.10 | 44 | D |
| | SBR | 0.03 | 39 | D | 0.01 | 43 | D |
| | Overall | 0.83 | 14 | В | 0.97 | 39 | D |
| | EBL | 0.51 | 8 | А | 0.90 | 104 | F |
| | EBTR | 0.84 | 8 | А | 0.60 | 4 | А |
| Oxford Street West | WBL | 0.44 | 32 | С | 0.04 | 10 | В |
| at Cherryhill | WBTR | 0.52 | 13 | В | 1.02 | 49 | D |
| Boulevard | NBL | 0.45 | 70 | E | 0.66 | 83 | F |
| | NBTR | 0.11 | 63 | E | 0.15 | 62 | E |
| | SBL | 0.58 | 60 | E | 0.69 | 66 | E |
| | SBT | 0.56 | 59 | E | 0.69 | 66 | E |
| | SBR | 0.08 | 46 | D | 0.85 | 72 | E |
| | EBLTR | 1.07 | 115 | F | 1.41 | 263 | F |
| | WBLTR | 0.42 | 40 | E | 0.28 | 41 | E |
| Platt's Lane at Cherryhill Place | NBL | 0.08 | 9 | А | 0.15 | 10 | Α |
| (unsignalized) | NBTR | 0.21 | 0 | А | 0.20 | 0 | Α |
| (aa.g.nanzea) | SBL | 0.01 | 8 | А | 0.01 | 9 | Α |
| | SBTR | 0.28 | 0 | А | 0.37 | 0 | Α |

| G i- | Movement | Week | day AM Peal | k Hour | Weekday PM Peak Hour | | | | | |
|--|-------------|------|-------------|--------|----------------------|-----------|-----|--|--|--|
| Scenario | of Interest | v/c | Delay (s) | LOS | v/c | Delay (s) | LOS | | | |
| Beaverbrook Avenue | EBLTR | 0.24 | 12 | В | 0.14 | 12 | В | | | |
| at Street A/Westfield | WBLTR | 0.48 | 26 | D | 0.51 | 26 | D | | | |
| Drive | WBLTR | 0.04 | 3 | Α | 0.10 | 4 | Α | | | |
| (unsignalized) | SBLTR | 0.05 | 3 | А | 0.03 | 4 | А | | | |
| Street B at | EBTR | 0.14 | 0 | Α | 0.12 | 0 | А | | | |
| Beaverbrook Avenue | WBLT | 0.00 | 0 | Α | 0.00 | 0 | Α | | | |
| (unsignalized) | NBLR | 0.11 | 10 | В | 0.08 | 10 | А | | | |
| | WBLR | 0.02 | 9 | Α | 0.07 | 9 | А | | | |
| Street B at Street A (unsignalized) | NBLR | 0.03 | 0 | Α | 0.02 | 0 | Α | | | |
| (unsignalized) | SBLT | 0.00 | 0 | Α | 0.00 | 0 | Α | | | |

As seen in **Table 3**, the results of the Synchro analysis with the updated site statistics are consistent with that in the July 2021 TIS. Under 2035 future total conditions, most intersections are operating within capacity, with acceptable Levels of Service and reasonable delays for most movements.

The signalized intersection of Wonderland Road North and Beaverbrook Avenue is operating with an overall v/c of 1.03 and LOS 'E' in the p.m. peak hour, due to several movements approaching capacity and operating with LOS of 'E' or 'F'. Notably, the northbound left is operating with a v/c of 1.01 and LOS 'F', the southbound left at a v/c of 0.96 and LOS 'F', and the southbound through at a v/c of 1.00 and LOS 'E'. These movements continue to be limited due to the compounded corridor growth over 15 years and are not impacted by the introduction of site traffic, **as demonstrated in future background conditions** shown in the July 2021 TIS.

The unsignalized four-way intersection of Beaverbrook Avenue and Proudfoot Lane is operating with LOS 'B' or better, minimal delays, and considerable reserve capacity for all movements. Traffic signal and stop-control warrants were conducted, as detailed in **Section 8** of the July 2021 TIS, and an all-way stop control was warranted for this intersection.

The signalized intersection of Proudfoot Lane at Oxford Street West is operating at an overall LOS 'D' during weekday a.m. and p.m. peak hours, due to v/c of 1.03 and 1.02, respectively. In the a.m. peak hour, this is due to the southbound left operating with a v/c of 1.10 and LOS 'F' due to delays of 116 seconds. In the p.m. peak hour, the northbound through and southbound left are operating with v/c of 0.97 and 1.02, respectively, with LOS 'F' and delays of 91 and 93 seconds. These movements continue to be limited due to the compounded corridor growth over 15 years and are not impacted by the introduction of site

traffic, as demonstrated in **future background conditions** (as seen in the July 2021 TIS). All other movements are operating with sufficient reserve capacity and minimal delays.

The signalized intersection of Beaverbrook Avenue and Oxford Street West is operating at an overall LOS 'C' during weekday a.m. and p.m. peak hours. In the a.m. peak hour, the overall v/c of 0.98 is triggered by the westbound left movement's v/c of 0.97 and LOS 'F' due to delays of 155 seconds. Signal coordination along Oxford Street West, leading to better platooning of vehicles travelling eastbound and westbound, may help manage delays along the corridor and improve the flow of left turning vehicles. Other movements such as the northbound through/left, northbound right and southbound left are operating with LOS 'E' similarly due to challenges crossing with large east-west through **volumes resulting from 15 years of background corridor growth.**

The signalized intersection of Oxford Street West and Cherryhill Boulevard is generally operating with some delay, acceptable LOS, and sufficient reserve capacity during both peak hours. In the p.m. peak hour, the overall v/c of 0.97 and LOS 'D' is triggered by the eastbound left operating with a v/c of 0.90 and LOS 'F' due to turning delays of 104 seconds, and a westbound through/right operating with a v/c of 1.02 and delays of 49 seconds. Northbound and southbound movements are operating with LOS 'E' and 'F' in both peak hours due to existing cycle length limitations and splits geared towards east-west movements to **accommodate background corridor growth.**

The unsignalized intersection of Platt's Lane and Cherryhill Place is generally operating with minimal delay, acceptable LOS, and sufficient reserve capacity during both peak hours. However, the eastbound left/through/right movement is operating with v/c of 1.07 and 1.41 (compared to 1.04 and 1.34 in the July 2021 TIS), with delays of 115 and 263 seconds in the a.m. and p.m. peak hours, respectively, resulting in an LOS 'F', **primarily caused by background corridor growth**. It is understood that growth along this street would be caused by the proposed development, rather than added on top of the same, during the study horizon. The application of compounded growth of 0.5% on Cherryhill Place across the 15-year period of this study, despite the closed geography of the street should be reconsidered by the City.

All unsignalized internal stop-controlled intersections are operating with LOS 'A' or LOS 'B' for all movements, minimal delay, and considerable reserve capacity.

In comparison with the results from the July 2021 TIS, the Synchro analysis shows that the addition of 355 units does not significantly impact the v/c ratios, delays, and LOS across the study area intersections. Overall, all intersections operate within capacity and with minimal delays for most movements under 2035 future total conditions.

Conclusions and Recommendations

Following the traffic analysis completed in this addendum, TYLin provides the following summary and recommendations based on the updated site statistics for the proposed development:

- ▶ As per the latest site plan, there are a total of 3,817 units across seven blocks proposed for the full build-out of the development by the ultimate 2035 horizon year. This is an increase 355 dwelling units from the July 2021 TIS.
- ▶ With the updated site statistics, the development is estimated to generate a total 802 two-way vehicle trips during the a.m. peak hour, consisting of 197 inbound trips and 605 outbound trips. During the p.m. peak hour, it is expected to generate 948 two-way vehicle trips consisting of 578 inbound trips and 370 outbound trips.
- Under future 2035 traffic conditions, the study area intersections are expected to predominantly operate with good operational characteristics and sufficient reserve capacity during both weekday a.m. and p.m. peak hours with no significant issues brought about by the proposed development to report. Any poor LOS or delay for select turning movements under future conditions is a result of poor operations under existing conditions or extensive background corridor growth and not due to the addition of site generated traffic, as detailed within the July 2021 TIS. All internal intersections within the subdivision are also anticipated to operate with good functionality and acceptable levels of service (LOS) and v/c ratios.
- ▶ It is noted that in comparison with the future total results from the July 2021 TIS, the addition of new units in the proposed development does not significantly change the capacity of the study intersections.
- Accordingly, it is TYLin's opinion that traffic from the proposed development can be accommodated by the boundary road network and can accommodate the proposed development traffic demands.
- ▶ All conclusions made in the July 2021 TIS still remain valid.

Attachments

Attachment 1 – 2021 and 2024 Draft Plan Comparison

Attachment 2 – Draft Plan (2024-02-13)

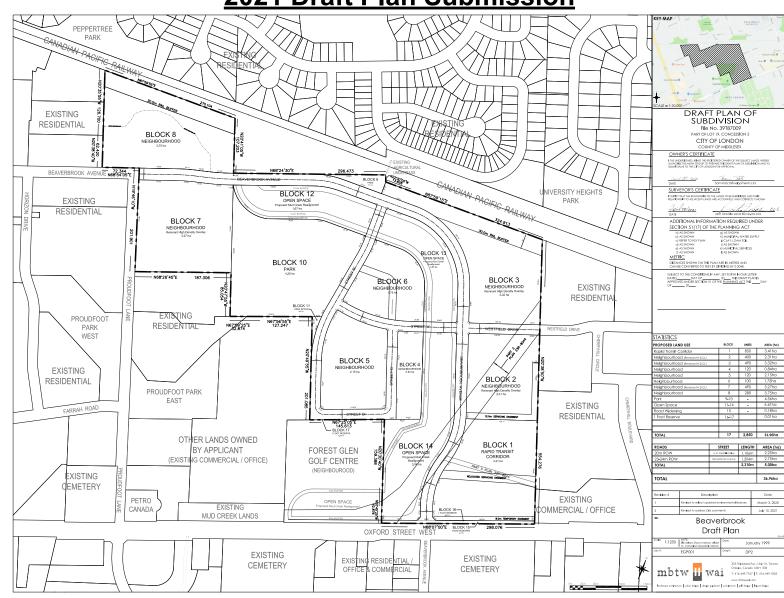
Attachment 3 – Future Total 2035 Synchro Reports

ATTACHMENT 1

2021 and 2024 Draft Plan Comparison

2021 Draft Plan Submission

2024 Draft Plan Submission



| PEPPETIREE | KEY MAP |
|--|---|
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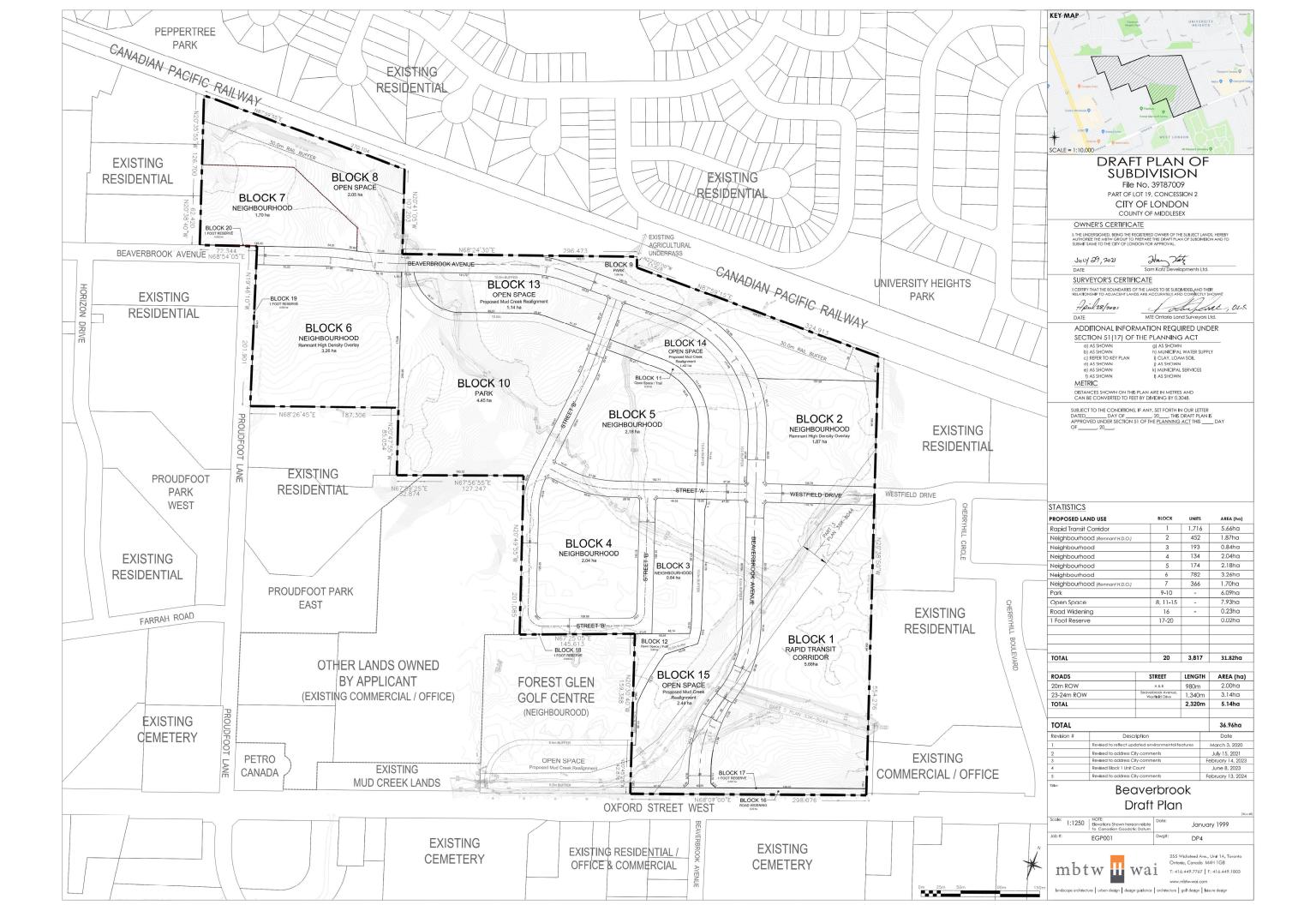
| 2021 Draft Plan | 2024 Draft Plan | Notes |
|-----------------|-----------------|--|
| Block 1 | Block 1 | Combined into one Rapid Transit Corridor Block |
| Block 2 | DIOCK I | Combined into one Rapid Transit Comdor Block |
| Block 3 | Block 2 | Shifted block number & revised block shape |
| Block 4 | Block 3 | Shifted block number |
| Block 5 | Block 4 | Shifted block number |
| Block 6 | Block 5 | Shifted block number |
| Block 7 | Block 6 | Shifted block number |
| Block 8 | Block 7 | Developable area of original block |
| DIOCK O | Block 8 | Environmental Area of original block |
| Block 9 | Block 9 | Expanded block area |
| Block 10 | Block 10 | Combined due to revised block and read leveut |
| Block 11 | DIOUK TO | Combined due to revised block and road layout |

| 2021 Draft Plan | 2024 Draft Plan | Notes |
|-----------------|-----------------|---|
| Block 12 | Block 13 | Shifted block number |
| Plack 12 | Block 11 | Open Space / Trail removed from channel |
| Block 13 | Block 14 | Channel only |
| Block 14 | Block 12 | Open Space / Trail removed from channel |
| DIOCK 14 | Block 15 | Channel only |
| Block 15 | Block 16 | Shifted block number |
| Block 16 | Block 17 | Shifted block number |
| Block 17 | Block 18 | Shifted block number |
| N/A | Block 19 | Added Reserve Block |
| N/A | Block 20 | Added Reserve Block |

2021 to 2024 Draft Plan Comparison

ATTACHMENT 2

Draft Plan (2023-02-28)



ATTACHMENT 3

Future Total 2035 Synchro Reports

Future Total 2035 AM Peak Hour

1: Wonderland Road & Beaverbrook Avenue

| | , | \rightarrow | * | 1 | • | - | 1 | Ť | - | - | + | 4 |
|----------------------------|---------------|---------------|----------|----------|-------|-------|-------|-------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | 7 | 1 | 7 | 7 | 1 | 7 | 7 | ** | 7 | 7 | ^ | 7 |
| Traffic Volume (vph) | 177 | 214 | 168 | 32 | 106 | 199 | 78 | 1138 | 41 | 295 | 1352 | 106 |
| Future Volume (vph) | 177 | 214 | 168 | 32 | 106 | 199 | 78 | 1138 | 41 | 295 | 1352 | 106 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | - 8 | 5 | 2 | 2 | 1 | 6 | 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 |
| Minimum Split (s) | 9.0 | 39.7 | 39.7 | 39.7 | 39.7 | 39.7 | 9.5 | 32.3 | 32.3 | 9.5 | 32.3 | 32.3 |
| Total Split (s) | 9.0 | 48.7 | 48.7 | 39.7 | 39.7 | 39.7 | 11.3 | 55.9 | 55.9 | 25.4 | 70.0 | 70.0 |
| Total Split (%) | 6.9% | 37.5% | 37.5% | 30.5% | 30.5% | 30.5% | 8.7% | 43.0% | 43.0% | 19.5% | 53.8% | 53.8% |
| Yellow Time (s) | 3.0 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.0 | 4.1 | 4.1 | 3.0 | 4.1 | 4.1 |
| All-Red Time (s) | 1.0 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 1.0 | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Lead/Lag | Lead | | 1994 | Lag | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Act Effct Green (s) | 31.7 | 29.0 | 29.0 | 20.0 | 20.0 | 20.0 | 69.0 | 59.6 | 59.6 | 90.3 | 76.9 | 76.9 |
| Actuated g/C Ratio | 0.24 | 0.22 | 0.22 | 0.15 | 0.15 | 0.15 | 0.53 | 0.46 | 0.46 | 0.69 | 0.59 | 0.59 |
| v/c Ratio | 0.76 | 0.58 | 0.42 | 0.21 | 0.42 | 0.54 | 0.47 | 0.79 | 0.06 | 0.82 | 0.71 | 0.14 |
| Control Delay | 61.7 | 49.2 | 14.1 | 46.1 | 51.6 | 10.1 | 20.5 | 35.9 | 0.2 | 47.7 | 23.5 | 4.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 61.7 | 49.2 | 14.1 | 46.1 | 51.6 | 10.1 | 20.5 | 35.9 | 0.2 | 47.7 | 23.5 | 4.9 |
| LOS | E | D | В | D | D | В | C | D | A | D | C | A |
| Approach Delay | | 42.6 | | | 26.5 | | | 33.8 | | | 26.4 | |
| Approach LOS | | D | | | C | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| Cycle Length: 130 | 100 | | | | | | | | | | | |
| Actuated Cycle Length: 13 | 80 | | | | | | | | | | | |
| Offset: 0 (0%), Referenced | d to phase 2: | NBTL an | d 6:SBTL | Start of | Green | | | | | | | |

Natural Cycle: 125 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.82

Intersection Signal Delay: 31.1 Intersection Capacity Utilization 89.7% Analysis Period (min) 15 Intersection LOS: C ICU Level of Service E

Splits and Phases: 1: Wonderland Road & Beaverbrook Avenue



Mudcreek TIS Synchro 11 Report **TYLin** Page 1

HCM Signalized Intersection Capacity Analysis 1: Wonderland Road & Beaverbrook Avenue

Future Total 2035 AM Peak Hour

| | 1 | → | • | 1 | • | • | 1 | 1 | ~ | 1 | ļ | 1 |
|--------------------------------|------------|-----------|-------|------|-----------|------------|---------|-------|------|-------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | * | 4 | 7 | * | † | 7 | * | 44 | 7 | 7 | 44 | 7 |
| Traffic Volume (vph) | 177 | 214 | 168 | 32 | 106 | 199 | 78 | 1138 | 41 | 295 | 1352 | 108 |
| Future Volume (vph) | 177 | 214 | 168 | 32 | 106 | 199 | 78 | 1138 | 41 | 295 | 1352 | 106 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.0 | 3.5 | 3.5 | 3.0 | 3.5 | 3.3 | 3.0 | 3.5 | 3.0 | 3.0 | 3.5 | 3.0 |
| Total Lost time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | 0.98 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1623 | 1807 | 1478 | 1664 | 1773 | 1436 | 1531 | 3433 | 1422 | 1652 | 3500 | 1286 |
| Flt Permitted | 0.55 | 1.00 | 1.00 | 0.61 | 1.00 | 1.00 | 0.13 | 1.00 | 1.00 | 0.09 | 1.00 | 1.00 |
| Satd. Flow (perm) | 933 | 1807 | 1478 | 1075 | 1773 | 1436 | 209 | 3433 | 1422 | 161 | 3500 | 1286 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 192 | 233 | 183 | 35 | 115 | 216 | 85 | 1237 | 45 | 321 | 1470 | 115 |
| RTOR Reduction (vph) | 0 | 0 | 104 | 0 | 0 | 183 | 0 | 0 | 24 | 0 | 0 | 40 |
| Lane Group Flow (vph) | 192 | 233 | 79 | 35 | 115 | 33 | 85 | 1237 | 21 | 321 | 1470 | 75 |
| Confl. Peds. (#/hr) | 35 | 10000 | 14 | 14 | 11.6 | 35 | 17 | 3000 | 15 | 15 | | 17 |
| Heavy Vehicles (%) | 2% | 4% | 5% | 0% | 6% | 3% | 10% | 4% | 0% | 2% | 2% | 10% |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Actuated Green, G (s) | 29.0 | 29.0 | 29.0 | 20.0 | 20.0 | 20.0 | 66.7 | 59.7 | 59.7 | 88.0 | 77.0 | 77.0 |
| Effective Green, g (s) | 29.0 | 29.0 | 29.0 | 20.0 | 20.0 | 20.0 | 66.7 | 59.7 | 59.7 | 88.0 | 77.0 | 77.0 |
| Actuated g/C Ratio | 0.22 | 0.22 | 0.22 | 0.15 | 0.15 | 0.15 | 0.51 | 0.46 | 0.46 | 0.68 | 0.59 | 0.59 |
| Clearance Time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 234 | 403 | 329 | 165 | 272 | 220 | 178 | 1576 | 653 | 387 | 2073 | 761 |
| v/s Ratio Prot | c0.03 | 0.13 | | | 0.06 | | 0.03 | 0.36 | | c0.15 | 0.42 | |
| v/s Ratio Perm | c0.15 | 111111111 | 0.05 | 0.03 | | 0.02 | 0.22 | 0.000 | 0.01 | c0.40 | | 0.06 |
| v/c Ratio | 0.82 | 0.58 | 0.24 | 0.21 | 0.42 | 0.15 | 0.48 | 0.78 | 0.03 | 0.83 | 0.71 | 0.10 |
| Uniform Delay, d1 | 48.4 | 45.0 | 41.5 | 48.1 | 49.8 | 47.6 | 17.8 | 29.7 | 19.3 | 34.4 | 18.6 | 11.5 |
| Progression 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 |
| Incremental Delay, d2 | 20.1 | 2.0 | 0.4 | 0.6 | 1.1 | 0.3 | 2.0 | 4.0 | 0.1 | 13.7 | 2.1 | 0.3 |
| Delay (s) | 68.5 | 47.1 | 41.8 | 48.8 | 50.8 | 48.0 | 19.8 | 33.7 | 19.4 | 48.1 | 20.7 | 11.7 |
| Level of Service | Е | D | D | D | D | D | В | C | В | D | C | 8 |
| Approach Delay (s) | | 52.2 | | | 48.9 | | | 32.4 | | | 24.8 | |
| Approach LOS | | D | | | D | | | C | | | C | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 33.2 | н | CM 2000 | Level of | Service | | С | | | |
| HCM 2000 Volume to Capac | city ratio | | 0.87 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 130.0 | S | um of los | time (s) | | | 21.0 | | | |
| Intersection Capacity Utilizat | ion | | 89.7% | | | of Service | | | E | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | 0.81 | | | | | | | | | |

Mudcreek TIS Synchro 11 Report TYLin Page 2 HCM Unsignalized Intersection Capacity Analysis 2: Proudfoot Lane & Beaverbrook Avenue

Future Total 2035 AM Peak Hour 06-13-2023

| | , | - | * | - | • | • | 1 | † | - | 1 | ↓ | 1 |
|-------------------------------|-------|-------|-------------|------|-----------|------------|------|----------|------|------|----------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 9 | 26 | 110 | 25 | 34 | 16 | 263 | 9 | 20 | 167 | 31 | 11 |
| Future Volume (vph) | 9 | 26 | 110 | 25 | 34 | 16 | 263 | 9 | 20 | 167 | 31 | - 11 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 10 | 28 | 120 | 27 | 37 | 17 | 286 | 10 | 22 | 182 | 34 | 12 |
| Direction, Lane # | EB 1 | WB1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 158 | 81 | 318 | 228 | | | | | | | | |
| Volume Left (vph) | 10 | 27 | 286 | 182 | | | | | | | | |
| Volume Right (vph) | 120 | 17 | 22 | 12 | | | | | | | | |
| Hadj (s) | -0.29 | -0.03 | 0.23 | 0.16 | | | | | | | | |
| Departure Headway (s) | 5.2 | 5.6 | 5.1 | 5.2 | | | | | | | | |
| Degree Utilization, x | 0.23 | 0.13 | 0.45 | 0.33 | | | | | | | | |
| Capacity (veh/h) | 626 | 566 | 674 | 654 | | | | | | | | |
| Control Delay (s) | 9.7 | 9.4 | 12.3 | 10.7 | | | | | | | | |
| Approach Delay (s) | 9.7 | 9.4 | 12.3 | 10.7 | | | | | | | | |
| Approach LOS | Α | Α | В | В | | | | | | | | |
| Intersection Summary | | | - Street Co | | | | | | | | | |
| Delay | | | 11.0 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | - 3 |
| Intersection Capacity Utiliza | ion | | 37.1% | IC | U Level o | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Timings 3: Proudfoot Lane & Oxford Street West Future Total 2035 AM Peak Hour 06-13-2023

| | • | - | - | • | • | 1 | † | - | 1 | Ţ | |
|----------------------|-------|-------------|-------|-------|--------|-------|----------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | |
| Lane Configurations | * | † 12 | 7 | ** | * | 7 | † | 7 | 7 | 12 | |
| Traffic Volume (vph) | 105 | 1464 | 21 | 818 | 211 | 120 | 168 | 54 | 378 | 95 | |
| Future Volume (vph) | 105 | 1464 | 21 | 818 | 211 | 120 | 168 | 54 | 378 | 95 | |
| Turn Type | pm+pt | NA. | Perm | NA | custom | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 6 | 3 | 7 | 4 | | 3 | 8 | |
| Permitted Phases | 2 | | 6 | | 2 | - 4 | | 4 | 8 | | |
| Detector Phase | 5 | 2 | 6 | 6 | 3 | 7 | - 4 | 4 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | |
| Minimum Split (s) | 9.0 | 23.6 | 23.6 | 23.6 | 9.5 | 9.0 | 31.4 | 31.4 | 9.5 | 31.4 | |
| Total Split (s) | 9.0 | 73.4 | 64.4 | 64.4 | 25.2 | 13.0 | 31.4 | 31.4 | 25.2 | 43.6 | |
| Total Split (%) | 6.9% | 56.5% | 49.5% | 49.5% | 19.4% | 10.0% | 24.2% | 24.2% | 19.4% | 33.5% | |
| Yellow Time (s) | 3.0 | 3.7 | 3.7 | 3.7 | 3.0 | 3.0 | 3.3 | 3.3 | 3.0 | 3.3 | |
| All-Red Time (s) | 1.0 | 1.9 | 1.9 | 1.9 | 1.0 | 1.0 | 3.1 | 3.1 | 1.0 | 3.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 5.6 | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Lead/Lag | Lead | | Lag | Lag | Lead | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | C-Max | C-Max | C-Max | None | None | None | None | None | None | |
| Act Effct Green (s) | 75.8 | 74.2 | 62.6 | 62.6 | 97.0 | 29.9 | 18.6 | 18.6 | 46.2 | 30.9 | |
| Actuated g/C Ratio | 0.58 | 0.57 | 0.48 | 0.48 | 0.75 | 0.23 | 0.14 | 0.14 | 0.36 | 0.24 | |
| v/c Ratio | 0.38 | 0.89 | 0.47 | 0.55 | 0.21 | 0.45 | 0.71 | 0.19 | 1.07 | 0.46 | |
| Control Delay | 17.4 | 32.3 | 65.0 | 28.6 | 0.9 | 35.6 | 68.2 | 1.4 | 100.6 | 38.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 17.4 | 32.3 | 65.0 | 28.6 | 0.9 | 35.6 | 68.2 | 1.4 | 100.6 | 38.4 | |
| LOS | В | C | E | C | A | D | E | A | F | D | |
| Approach Delay | | 31.4 | | 23.8 | | | 46.2 | | | 81.8 | |
| Approach LOS | | C | | C | | | D | | | F | |

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green Natural Cycle: 120

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.07

Intersection Signal Delay: 38.2 Intersection Capacity Utilization 98.7% Analysis Period (min) 15 Intersection LOS: D

ICU Level of Service F

Splits and Phases: 3: Proudfoot Lane & Oxford Street West



Mudcreek TIS Synchro 11 Report **TYLin** Page 3

Mudcreek TIS TYLin

HCM Signalized Intersection Capacity Analysis 3: Proudfoot Lane & Oxford Street West

Future Total 2035 AM Peak Hour 06-13-2023

| | , | - | * | 1 | • | • | 1 | † | - | 1 | 1 | 1 |
|---|------------|-------------|------|---------|-----------|-------------|---------|----------|-----------|-------|------------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | * | 1 | | * | 44 | 7 | 7 | 4 | 7 | * | 14 | |
| Traffic Volume (vph) | 105 | 1464 | 66 | 21 | 818 | 211 | 120 | 168 | 54 | 378 | 95 | 70 |
| Future Volume (vph) | 105 | 1464 | 66 | 21 | 818 | 211 | 120 | 168 | 54 | 378 | 95 | 70 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.0 | 3.0 | 3.0 | 3.3 | 3.5 | 3.0 | 3.2 | 3.6 | 3.2 | 3.0 | 3.4 | 3.3 |
| Total Lost time (s) | 4.0 | 5.6 | | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.99 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1685 | 3271 | | 1517 | 3368 | 1418 | 1615 | 1792 | 1384 | 1644 | 1550 | |
| Fit Permitted | 0.21 | 1.00 | | 0.06 | 1.00 | 1.00 | 0.64 | 1.00 | 1.00 | 0.35 | 1.00 | |
| Satd. Flow (perm) | 379 | 3271 | | 102 | 3368 | 1418 | 1095 | 1792 | 1384 | 609 | 1550 | |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 114 | 1591 | 72 | 23 | 889 | 229 | 130 | 183 | 59 | 411 | 103 | 76 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 0 | 46 | 0 | 0 | 51 | 0 | 22 | - (|
| Lane Group Flow (vph) | 114 | 1661 | 0 | 23 | 889 | 183 | 130 | 183 | 8 | 411 | 157 | - (|
| Confl. Peds. (#/hr) | 2 | 1220 | 5 | 5 | 7777 | 2 | 10 | | 15 | 15 | 375 | 10 |
| Heavy Vehicles (%) | 0% | 2% | 6% | 15% | 6% | 4% | 6% | 6% | 5% | 2% | 19% | 09 |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | (|
| Turn Type | pm+pt | NA | | Perm | NA | custom | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1.01111 | 6 | 3 | 7 | 4 | 1.4000 | 3 | 8 | |
| Permitted Phases | 2 | | | 6 | | 2 | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | 74.2 | 74.2 | | 62.6 | 62.6 | 95.4 | 27.5 | 18.6 | 18.6 | 43.8 | 30.9 | |
| Effective Green, g (s) | 74.2 | 74.2 | | 62.6 | 62.6 | 95.4 | 27.5 | 18.6 | 18.6 | 43.8 | 30.9 | |
| Actuated g/C Ratio | 0.57 | 0.57 | | 0.48 | 0.48 | 0.73 | 0.21 | 0.14 | 0.14 | 0.34 | 0.24 | |
| Clearance Time (s) | 4.0 | 5.6 | | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 292 | 1866 | | 49 | 1621 | 1040 | 267 | 256 | 198 | 373 | 368 | |
| v/s Ratio Prot | 0.02 | c0.51 | | 10.45 | 0.26 | 0.03 | 0.03 | 0.10 | 1897 | c0.18 | 0.10 | |
| v/s Ratio Perm | 0.20 | *********** | | 0.23 | 1000000 | 0.10 | 0.07 | 000000 | 0.01 | c0.19 | The second | |
| v/c Ratio | 0.39 | 0.89 | | 0.47 | 0.55 | 0.18 | 0.49 | 0.71 | 0.04 | 1.10 | 0.43 | |
| Uniform Delay, d1 | 15.2 | 24.3 | | 22.6 | 23.7 | 5.3 | 43.9 | 53.2 | 48.0 | 39.4 | 42.0 | |
| Progression Factor | 1.00 | 1.00 | | 1.22 | 1.11 | 0.42 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.9 | 6.9 | | 26.4 | 1.2 | 0.1 | 1.4 | 9.1 | 0.1 | 76.9 | 0.8 | |
| Delay (s) | 16.1 | 31.2 | | 53.9 | 27.6 | 2.3 | 45.3 | 62.3 | 48.1 | 116.3 | 42.8 | |
| Level of Service | В | C | | D | C | A | D | E | D | F | D | |
| Approach Delay (s) | - 5 | 30.2 | | - 3 | 23.1 | | 1.50 | 54.1 | 181 | 10000 | 94.0 | |
| Approach LOS | | С | | | С | | | D | | | F | |
| Intersection Summary | | | | | | | | | | | | |
| | | | 40.1 | H | CM 2000 | Level of | Service | | D | | | |
| HCM 2000 Control Delay | | | 40.1 | 1.0 | | | | | | | | |
| HCM 2000 Control Delay HCM 2000 Volume to Capa | city ratio | | 1.03 | 1.0 | | | | | | | | |
| | city ratio | | | | | st time (s) | | | 20.0 | | | |
| HCM 2000 Volume to Capa | ordinings. | | 1.03 | Si | um of los | st time (s) | 9 | | 20.0 F | | | |

Synchro 11 Report Page 5 Mudcreek TIS TYLin

Future Total 2035 AM Peak Hour

Timings 4: Beaverbrook Avenue & Oxford Street West

| | 1 | → | 1 | ← | 1 | † | 1 | 1 | ţ | 1 | |
|-----------------------------|-------------------|----------|-----------|-------------|------------|------------|-------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR | |
| Lane Configurations | * | 1 | * | 1 | | 4 | 7 | * | 1 | 7 | |
| Traffic Volume (vph) | 16 | 1771 | 92 | 959 | 23 | 24 | 230 | 219 | 85 | 46 | |
| Future Volume (vph) | 16 | 1771 | 92 | 959 | 23 | 24 | 230 | 219 | 85 | 46 | |
| Turn Type | Perm | NA. | pm+pt | NA | Perm | NA | Perm | pm+pt | NA | Perm | |
| Protected Phases | | 2 | 1 | 6 | | 8 | | 7 | 4 | | |
| Permitted Phases | 2 | | 6 | | 8 | | 8 | 4 | | 4 | |
| Detector Phase | 2 | 2 | -1 | 6 | 8 | 8 | 8 | 7 | 4 | 4 | |
| Switch Phase | | | | | | | | 4 | | | |
| Minimum Initial (s) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Minimum Split (s) | 41.1 | 41.1 | 9.0 | 41.1 | 31.8 | 31.8 | 31.8 | 9.0 | 31.8 | 31.8 | |
| Total Split (s) | 80.1 | 80.1 | 9.0 | 89.1 | 31.9 | 31.9 | 31.9 | 9.0 | 40.9 | 40.9 | |
| Total Split (%) | 61.6% | 61.6% | 6.9% | 68.5% | 24.5% | 24.5% | 24.5% | 6.9% | 31.5% | 31.5% | |
| Yellow Time (s) | 3.5 | 3.5 | 3.0 | 3.5 | 3.3 | 3.3 | 3.3 | 3.0 | 3.3 | 3.3 | |
| All-Red Time (s) | 3.6 | 3.6 | 1.0 | 3.6 | 2.5 | 2.5 | 2.5 | 1.0 | 2.5 | 2.5 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 7.1 | 7.1 | 4.0 | 7.1 | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 | |
| Lead/Lag | Lag | Lag | Lead | 10/20 | Lag | Lag | Lag | Lead | | 2000 | |
| Lead-Lag Optimize? | Yes | Yes | Yes | | Yes | Yes | Yes | Yes | | | |
| Recall Mode | C-Max | C-Max | None | C-Max | None | None | None | None | None | None | |
| Act Effct Green (s) | 78.4 | 78.4 | 90.5 | 87.4 | | 20.7 | 20.7 | 31.5 | 29.7 | 29.7 | |
| Actuated g/C Ratio | 0.60 | 0.60 | 0.70 | 0.67 | | 0.16 | 0.16 | 0.24 | 0.23 | 0.23 | |
| v/c Ratio | 0.06 | 0.96 | 0.94 | 0.50 | | 0.22 | 0.79 | 0.79 | 0.21 | 0.12 | |
| Control Delay | 12.1 | 23.0 | 110.6 | 7.3 | | 47.4 | 48.4 | 63.3 | 40.2 | 5.1 | |
| Queue Delay | 0.0 | 1.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 12.1 | 24.0 | 110.6 | 7.3 | | 47.4 | 48.4 | 63.3 | 40.2 | 5.1 | |
| LOS | В | C | F | A | | D | D | E | D | A | |
| Approach Delay | | 23.9 | | 15.9 | | 48.3 | | | 50.1 | | |
| Approach LOS | | C | | В | | D | | | D | | |
| Intersection Summary | | | | | | | | | | | |
| | | | | | | | | | | | |
| Cycle Length: 130 | 00 | | | | | | | | | | |
| Actuated Cycle Length: 13 | | CDTI | J CAUDTI | Clast of | C | | | | | | |
| Offset: 0 (0%), Reference | a to phase 2 | EBILan | 0 6:MR IT | ., Start of | Green | | | | | | |
| Natural Cycle: 135 | CONTRACTOR OF THE | | | | | | | | | | |
| Control Type: Actuated-C | oordinated | | | | | | | | | | |
| Maximum v/c Ratio: 0.96 | 00.0 | | | | | . 1 00 0 | | | | | |
| Intersection Signal Delay: | | | | | ntersectio | | | | | | |
| Intersection Capacity Utili | zation 90.6% | | | - N | CU Level | of Service | eΕ | | | | |
| Analysis Period (min) 15 | | | | | | | | | | | |

Splits and Phases: 4: Beaverbrook Avenue & Oxford Street West



Mudcreek TIS Synchro 11 Report TYLin Page 6 HCM Signalized Intersection Capacity Analysis 4: Beaverbrook Avenue & Oxford Street West Future Total 2035 AM Peak Hour 06-13-2023

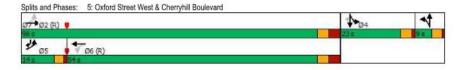
| | 1 | - | * | 1 | • | - | 4 | † | - | 1 | 1 | 1 |
|---|------------|----------|-------|-------|-------------------------|---|---------|----------|-----------|-------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | * | 1 | | 7 | 1 | | | 4 | 7 | * | 4 | 7 |
| Traffic Volume (vph) | 16 | 1771 | 29 | 92 | 959 | 65 | 23 | 24 | 230 | 219 | 85 | 46 |
| Future Volume (vph) | 16 | 1771 | 29 | 92 | 959 | 65 | 23 | 24 | 230 | 219 | 85 | 46 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.7 | 3.3 | 3.3 | 3.0 | 3.5 | 3.5 | 3.3 | 3.3 | 3.3 | 3.7 | 3.7 | 3.7 |
| Total Lost time (s) | 7.1 | 7.1 | | 4.0 | 7.1 | | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Fit Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.98 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1789 | 3382 | | 1465 | 3317 | | | 1739 | 1446 | 1789 | 1883 | 1601 |
| Flt Permitted | 0.24 | 1.00 | | 0.05 | 1.00 | | | 0.83 | 1.00 | 0.61 | 1.00 | 1.00 |
| Satd. Flow (perm) | 455 | 3382 | | 75 | 3317 | | | 1481 | 1446 | 1142 | 1883 | 1601 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 17 | 1925 | 32 | 100 | 1042 | 71 | 25 | 26 | 250 | 238 | 92 | 50 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 86 | 0 | 0 | 39 |
| Lane Group Flow (vph) | 17 | 1956 | 0 | 100 | 1110 | 0 | 0 | 51 | 164 | 238 | 92 | 11 |
| Confl. Peds. (#/hr) | 20110 | | . 7 | 7 | | | | | | | | |
| Heavy Vehicles (%) | 2% | 2% | 6% | 15% | 6% | 2% | 0% | 2% | 8% | 2% | 2% | 29 |
| Bus Blockages (#/hr) | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 0 | (|
| Turn Type | Perm | NA | | pm+pt | NA | 161 | Perm | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | | 2 | | - 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 78.4 | 78.4 | | 87.4 | 87.4 | | | 20.7 | 20.7 | 29.7 | 29.7 | 29.7 |
| Effective Green, g (s) | 78.4 | 78.4 | | 87.4 | 87.4 | | | 20.7 | 20.7 | 29.7 | 29.7 | 29.7 |
| Actuated g/C Ratio | 0.60 | 0.60 | | 0.67 | 0.67 | | | 0.16 | 0.16 | 0.23 | 0.23 | 0.23 |
| Clearance Time (s) | 7.1 | 7.1 | | 4.0 | 7.1 | | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 274 | 2039 | | 103 | 2230 | | | 235 | 230 | 285 | 430 | 365 |
| v/s Ratio Prot | | 0.58 | | c0.04 | 0.33 | | | | | c0.03 | 0.05 | |
| v/s Ratio Perm | 0.04 | | | c0.61 | | | | 0.03 | 0.11 | c0.16 | | 0.01 |
| v/c Ratio | 0.06 | 0.96 | | 0.97 | 0.50 | | | 0.22 | 0.71 | 0.84 | 0.21 | 0.03 |
| Uniform Delay, d1 | 10.6 | 24.3 | | 37.1 | 10.5 | | | 47.6 | 51.8 | 48.3 | 40.7 | 39.0 |
| Progression Factor | 0.92 | 0.61 | | 2.18 | 0.59 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 6.3 | | 74.3 | 0.7 | | | 0.5 | 10.0 | 18.6 | 0.3 | 0.0 |
| Delay (s) | 10.0 | 21.1 | | 155.1 | 6.9 | | | 48.1 | 61.9 | 66.9 | 40.9 | 39.0 |
| Level of Service | A | C | | F | A | | | D | E | E | D | 0 |
| Approach Delay (s) | | 21.0 | | | 19.1 | | | 59.5 | | | 56.9 | |
| Approach LOS | | С | | | В | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 27.0 | Н | CM 2000 | Level of : | Service | | С | | | |
| | | | 0.00 | | | | | | | | | |
| HCM 2000 Volume to Capac | ity ratio | | 0.98 | | | | | | | | | |
| HCM 2000 Volume to Capac Actuated Cycle Length (s) | city ratio | | 130.0 | S | um of lost | time (s) | | | 20.9 | | | |
| | references | | | | um of lost U Level o | And | | | 20.9 E | | | |

Mudcreek TIS Synchro 11 Report TYLin Page 7

Timings 5: Oxford Street West & Cherryhill Boulevard

Future Total 2035 AM Peak Hour 06-13-2023

| | | - | * | | 7 | - 1 | - | * | • | |
|--|--------------|-----------|-----------|------------|------------|-------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | SBR | |
| Lane Configurations | 7 | 1 | 7 | 1 | 7 | 1 | 7 | 4 | 7 | |
| Traffic Volume (vph) | 166 | 1875 | 26 | 957 | 18 | 3 | 150 | 22 | 102 | |
| Future Volume (vph) | 166 | 1875 | 26 | 957 | 18 | 3 | 150 | 22 | 102 | |
| Turn Type | pm+pt | NA. | Perm | NA | Split | NA | Split | NA | pm+ov | |
| Protected Phases | 5 | 2 | | 6 | 7 | 7 | 4 | 4 | 5 | |
| Permitted Phases | 2 | | 6 | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | 6 | 7 | 7 | 4 | 4 | 5 | |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 7.0 | 7.0 | 5.0 | |
| Minimum Split (s) | 9.0 | 41.1 | 41.1 | 41.1 | 9.0 | 9.0 | 22.5 | 22.5 | 9.0 | |
| Total Split (s) | 14.0 | 98.0 | 84.0 | 84.0 | 9.0 | 9.0 | 23.0 | 23.0 | 14.0 | |
| Total Split (%) | 10.8% | 75.4% | 64.6% | 64.6% | 6.9% | 6.9% | 17.7% | 17.7% | 10.8% | |
| Yellow Time (s) | 3.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.0 | 3.5 | 3.5 | 3.0 | |
| All-Red Time (s) | 1.0 | 3.6 | 3.6 | 3.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 7.1 | 7.1 | 7.1 | 4.0 | 4.0 | 4.5 | 4.5 | 4.0 | |
| Lead/Lag | Lead | | Lag | Lag | 10,000 | | | | Lead | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | | | | | Yes | |
| Recall Mode | None | C-Max | C-Max | C-Max | None | None | None | None | None | |
| Act Effct Green (s) | 101.9 | 98.8 | 86.2 | 86.2 | 5.8 | 5.8 | 13.6 | 13.6 | 22.8 | |
| Actuated g/C Ratio | 0.78 | 0.76 | 0.66 | 0.66 | 0.04 | 0.04 | 0.10 | 0.10 | 0.18 | |
| v/c Ratio | 0.49 | 0.83 | 0.44 | 0.52 | 0.27 | 0.24 | 0.57 | 0.56 | 0.34 | |
| Control Delay | 7.0 | 8.8 | 42.0 | 13.7 | 69.4 | 39.9 | 68.5 | 67.0 | 8.6 | |
| Queue Delay | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 7.0 | 8.9 | 42.0 | 13.7 | 69.4 | 39.9 | 68.5 | 67.0 | 8.6 | |
| LOS | A | A | D | В | E | D | E | E | A | |
| Approach Delay | | 8.8 | | 14.4 | | 56.3 | | 45.7 | | |
| Approach LOS | | A | | В | | E | | D | | |
| ntersection Summary | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | |
| Actuated Cycle Length: 13 | n | | | | | | | | | |
| Offset: 0 (0%), Referenced | | FRTI an | ITAM-a h | Start of | Green | | | | | |
| Natural Cycle: 105 | to priase 2. | LDTL dill | U U.VIDIL | , otali or | Olegii | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | |
| | urumateu | | | | | | | | | |
| Maximum v/c Ratio: 0.83 | | | | | | | | | | |
| Maximum v/c Ratio: 0.83 | 13.8 | | | In | tersection | LOS B | | | | |
| Maximum v/c Ratio: 0.83 Intersection Signal Delay: 1 Intersection Capacity Utiliza | | | | | tersection | | F | | | |



Mudcreek TIS TYLin

| | , | - | - | 1 | • | • | 4 | † | - | 1 | † | 4 |
|------------------------------|-------------|----------|-------|---------|------------|------------|----------|----------|------|-------|-----------|-------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | 1 | | * | 1 | | 7 | 1 | | * | नी | 7 |
| Traffic Volume (vph) | 166 | 1875 | 81 | 26 | 957 | 59 | 18 | 3 | 12 | 150 | 22 | 102 |
| Future Volume (vph) | 166 | 1875 | 81 | 26 | 957 | 59 | 18 | 3 | 12 | 150 | 22 | 102 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.8 | 3.3 | 3.3 | 3.1 | 3.3 | 3.5 | 3.4 | 3.5 | 3.5 | 3.2 | 3.3 | 3.6 |
| Total Lost time (s) | 4.0 | 7.1 | | 7.1 | 7.1 | | 4.0 | 4.0 | | 4.5 | 4.5 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 0.95 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 0.71 | | 1.00 | 1.00 | 0.94 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.99 | | 1.00 | 0.99 | | 1.00 | 0.88 | | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (prot) | 1661 | 3363 | | 1705 | 3224 | | 1665 | 1169 | | 1546 | 1610 | 1341 |
| Fit Permitted | 0.20 | 1.00 | | 0.05 | 1.00 | | 0.95 | 1.00 | | 0.95 | 0.96 | 1.00 |
| Satd. Flow (perm) | 358 | 3363 | | 98 | 3224 | | 1665 | 1169 | | 1546 | 1610 | 1341 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 180 | 2038 | 88 | 28 | 1040 | 64 | 20 | 3 | 13 | 163 | 24 | 111 |
| RTOR Reduction (vph) | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 13 | 0 | 0 | 0 | 92 |
| Lane Group Flow (vph) | 180 | 2124 | 0 | 28 | 1101 | 0 | 20 | 3 | 0 | 93 | 94 | 19 |
| Confl. Peds. (#/hr) | 17 | 21711 | 11 | - 11 | 11111 | 17 | 42 | - 27 | 51 | 51 | 10733 | 42 |
| Heavy Vehicles (%) | 11% | 2% | 5% | 0% | 6% | 8% | 6% | 0% | 0% | 6% | 0% | 13% |
| Bus Blockages (#/hr) | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | (|
| Turn Type | pm+pt | NA | | Perm | NA | - i | Split | NA | | Split | NA | pm+ov |
| Protected Phases | 5 | 2 | | . Comme | 6 | | 7 | 7 | | 4 | 4 | pini |
| Permitted Phases | 2 | | | 6 | | | | - | | | - | 4 |
| Actuated Green, G (s) | 97.3 | 97.3 | | 84.7 | 84.7 | | 3.5 | 3.5 | | 13.6 | 13.6 | 22.2 |
| Effective Green, g (s) | 97.3 | 97.3 | | 84.7 | 84.7 | | 3.5 | 3.5 | | 13.6 | 13.6 | 22.2 |
| Actuated g/C Ratio | 0.75 | 0.75 | | 0.65 | 0.65 | | 0.03 | 0.03 | | 0.10 | 0.10 | 0.17 |
| Clearance Time (s) | 4.0 | 7.1 | | 7.1 | 7.1 | | 4.0 | 4.0 | | 4.5 | 4.5 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 354 | 2517 | | 63 | 2100 | | 44 | 31 | | 161 | 168 | 229 |
| v/s Ratio Prot | 0.03 | c0.63 | | V | 0.34 | | c0.01 | 0.00 | | c0.06 | 0.06 | 0.01 |
| v/s Ratio Perm | 0.35 | 50.00 | | 0.29 | 0.01 | | 100.01 | 0.00 | | 50.00 | 0.00 | 0.01 |
| v/c Ratio | 0.51 | 0.84 | | 0.44 | 0.52 | | 0.45 | 0.11 | | 0.58 | 0.56 | 0.08 |
| Uniform Delay, d1 | 6.8 | 11.2 | | 11.1 | 12.0 | | 62.3 | 61.7 | | 55.5 | 55,4 | 45.3 |
| Progression Factor | 1.16 | 0.58 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.5 | 1.5 | | 21.1 | 0.9 | | 7.3 | 1.5 | | 4.9 | 4.0 | 0.2 |
| Delay (s) | 8.3 | 8.0 | | 32.2 | 12.9 | | 69.6 | 63.3 | | 60.4 | 59.4 | 45.5 |
| Level of Service | Α. | Α. | | C | B | | E | E | | E | 55.4 E | |
| Approach Delay (s) | | 8.0 | | C | 13.4 | | _ | 66.8 | | - | 54.5 | |
| Approach LOS | | Α. | | | В | | | E | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 13.9 | Н | CM 2000 | Level of | Service | | В | | | |
| HCM 2000 Volume to Capa | acity ratio | | 0.83 | 1.0 | CHI EUUU | Edital di | out flow | | 5 | | | |
| Actuated Cycle Length (s) | acity rand | | 130.0 | 9 | um of lost | time (e) | | | 19.6 | | | |
| Intersection Capacity Utiliz | ation | | 87.4% | | U Level o | | | | 19.0 | | | |
| Analysis Period (min) | audii | | 15 | P. | o revel (| or dervice | | | 2 | | | |
| c Critical Lane Group | | | 10 | | | | | | | | | |

| | • | → | • | 1 | • | • | 1 | 1 | - | 1 | ļ | 1 |
|-------------------------------|-------|----------|-------|------|---|------------|---------------|------|-------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | | 4 | | | 4 | | 7 | 1 | | 7 | 1 | |
| Traffic Volume (veh/h) | 131 | 4 | 128 | 39 | .11 | 18 | 77 | 313 | 12 | 10 | 333 | 98 |
| Future Volume (Veh/h) | 131 | 4 | 128 | 39 | 11 | 18 | 77 | 313 | 12 | 10 | 333 | 98 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 142 | 4 | 139 | 42 | 12 | 20 | 84 | 340 | 13 | 11 | 362 | 107 |
| Pedestrians | | 16 | | | 20 | | | 25 | | | 11 | |
| Lane Width (m) | | 3.7 | | | 3.7 | | | 3.1 | | | 3.5 | |
| Walking Speed (m/s) | | 1.1 | | | 1.1 | | | 1.1 | | | 1.1 | |
| Percent Blockage | | 1 | | | 2 | | | 2 | | | 1 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 998 | 994 | 456 | 1084 | 1042 | 378 | 485 | | | 373 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 998 | 994 | 456 | 1084 | 1042 | 378 | 485 | | | 373 | | |
| tC, single (s) | 7.2 | 6.5 | 6.3 | 7.1 | 6.5 | 6.2 | 4.2 | | | 4.1 | | |
| tC, 2 stage (s) | | 1000 | 1000 | | 10000 | 1000 | | | | | | |
| tF(s) | 3.6 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 | 2.3 | | | 2.2 | | |
| p0 queue free % | 19 | 98 | 76 | 67 | 94 | 97 | 92 | | | 99 | | |
| cM capacity (veh/h) | 176 | 217 | 575 | 126 | 204 | 655 | 1032 | | | 1174 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | 5, 55, 55, 55 | | | | | |
| Volume Total | 285 | 74 | 84 | 353 | 11 | 469 | | | | | | - 3 |
| Volume Left | 142 | 42 | 84 | 0 | 11 | 0 | | | | | | |
| Volume Right | 139 | 20 | 0 | 13 | 0 | 107 | | | | | | |
| cSH | 268 | 175 | 1032 | 1700 | 1174 | 1700 | | | | | | |
| Volume to Capacity | 1.07 | 0.42 | 0.08 | 0.21 | 0.01 | 0.28 | | | | | | |
| Queue Length 95th (m) | 87.3 | 14.5 | 2.0 | 0.0 | 0.2 | 0.0 | | | | | | |
| Control Delay (s) | 114.7 | 39.7 | 8.8 | 0.0 | 8.1 | 0.0 | | | | | | |
| Lane LOS | F | E | A | 0.0 | A | 0.0 | | | | | | |
| Approach Delay (s) | 114.7 | 39.7 | 1.7 | | 0.2 | | | | | | | |
| Approach LOS | F | E | | | U.E | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 28.6 | | | | | | | | | - 1 |
| Intersection Capacity Utiliza | ation | | 56.3% | IC | U Level | of Service | | | В | | | |
| Analysis Period (min) | -0.00 | | 15 | | 200000000000000000000000000000000000000 | ******* | | | 10000 | | | |

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HCM Unsignalized Intersection Capacity Analysis 101: Beaverbrook Avenue & Street A/Westfield Drive

Future Total 2035 AM Peak Hour 06-13-2023

| | • | - | • | 1 | ← | • | 4 | † | ~ | 1 | ļ | 1 |
|-----------------------------------|-----------|-----------|-------|----------|---|------------|--------|----------|------|----------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 44 | | | 4 | | | 44 | | | 4 | |
| Traffic Volume (veh/h) | 0 | 39 | 118 | 116 | 28 | 0 | 53 | 16 | 82 | 69 | 116 | |
| Future Volume (Veh/h) | 0 | 39 | 118 | 116 | 28 | 0 | 53 | 16 | 82 | 69 | 116 | (|
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 |
| Hourty flow rate (vph) | 0 | 42 | 128 | 126 | 30 | 0 | 58 | 17 | 89 | 75 | 126 | - (|
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | 110110 | | | | |
| Upstream signal (m) | | | | | | | | 319 | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 468 | 498 | 126 | 602 | 454 | 62 | 126 | | | 106 | | |
| vC1, stage 1 conf vol | 100 | 100 | | | 101 | | | | | 100 | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 468 | 498 | 126 | 602 | 454 | 62 | 126 | | | 106 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | 2.00 | 2000 | - 111 | | | - 111 | | |
| tF(s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 90 | 86 | 59 | 93 | 100 | 96 | | | 95 | | |
| cM capacity (veh/h) | 448 | 432 | 924 | 306 | 458 | 1004 | 1460 | | | 1485 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | 100000000000000000000000000000000000000 | 191103 | 500000 | | | 83,60020 | | _ |
| Volume Total | 170 | 156 | 164 | 201 | | | | | | | | |
| Volume Left | 0 | 126 | 58 | 75 | | | | | | | | |
| Volume Right | 128 | 0 | 89 | 0 | | | | | | | | |
| cSH Kight | 721 | 327 | 1460 | 1485 | | | | | | | | |
| Volume to Capacity | 0.24 | 0.48 | 0.04 | 0.05 | | | | | | | | |
| Queue Length 95th (m) | 6.9 | 18.7 | 0.04 | 1.2 | | | | | | | | |
| Control Delay (s) | 11.5 | 25.7 | 2.9 | 3.1 | | | | | | | | |
| Lane LOS | 11.5 B | 20.7 D | Z.9 | 3.1 A | | | | | | | | |
| | 11.5 | 25.7 | 2.9 | 3.1 | | | | | | | | |
| Approach Delay (s) | 11.5 B | 25.7 D | 2.9 | 3.1 | | | | | | | | |
| Approach LOS | В | U | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 10.2 | | | | | | | | | |
| Intersection Capacity Utilization | 1 | | 39.8% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

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HCM Unsignalized Intersection Capacity Analysis 102: Street B & Beaverbrook Avenue Future Total 2035 AM Peak Hour 06-13-2023

| | - | * | 1 | • | 1 | - | |
|-----------------------------------|------|------|-------|------|-----------|-----------|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | 14 | | | 4 | 14 | | |
| Traffic Volume (veh/h) | 167 | 46 | 0 | 16 | 59 | 18 | |
| Future Volume (Veh/h) | 167 | 46 | 0 | 16 | 59 | 18 | |
| Sign Control | Free | | | Free | Stop | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 182 | 50 | 0 | 17 | 64 | 20 | |
| 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 valume | | | 232 | | 224 | 207 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | | | 232 | | 224 | 207 | |
| 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 | | 92 | 98 | |
| cM capacity (veh/h) | | | 1336 | | 764 | 833 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | | | |
| Volume Total | 232 | 17 | 84 | | | | |
| Volume Left | 0 | 0 | 64 | | | | |
| Volume Right | 50 | 0 | 20 | | | | |
| cSH | 1700 | 1336 | 780 | | | | |
| Volume to Capacity | 0.14 | 0.00 | 0.11 | | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 2.7 | | | | |
| Control Delay (s) | 0.0 | 0.0 | 10.2 | | | | |
| Lane LOS | | | В | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 10.2 | | | | |
| Approach LOS | | | В | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 2.6 | | | | |
| Intersection Capacity Utilization | on | | 22.1% | IC | U Level o | f Service | Α |
| Analysis Period (min) | | | 15 | | | | |

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|---------------------------------------|-------|----------|-------|------|------------|------------|------|----------|------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 44 | |
| Traffic Volume (veh/h) | 0 | 31 | 0 | 45 | 20 | 16 | 0 | 0 | 94 | 32 | 0 | (|
| Future Volume (Veh/h) | 0 | 31 | 0 | 45 | 20 | 16 | 0 | 0 | 94 | 32 | 0 | (|
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) Pedestrians | 0 | 34 | 0 | 49 | 22 | 17 | 0 | 0 | 102 | 35 | 0 | (|
| 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 | 39 | | | 34 | | | 162 | 171 | 34 | 264 | 162 | 30 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 39 | | | 34 | | | 162 | 171 | 34 | 264 | 162 | 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 | | | 97 | | | 100 | 100 | 90 | 94 | 100 | 100 |
| cM capacity (veh/h) | 1571 | | | 1578 | | | 783 | 700 | 1039 | 606 | 707 | 1044 |
| Direction, Lane # | EB1 | WB 1 | NB 1 | SB 1 | | | | | | | | * |
| Volume Total | 34 | 88 | 102 | 35 | | | | | | | | |
| Volume Left | 0 | 49 | 0 | 35 | | | | | | | | |
| Volume Right | 0 | 17 | 102 | 0 | | | | | | | | |
| cSH | 1571 | 1578 | 1039 | 606 | | | | | | | | |
| Volume to Capacity | 0.00 | 0.03 | 0.10 | 0.06 | | | | | | | | |
| Queue Length 95th (m) | 0.0 | 0.7 | 2.5 | 1.4 | | | | | | | | |
| Control Delay (s) | 0.0 | 4.2 | 8.8 | 11.3 | | | | | | | | |
| Lane LOS | | A | A | В | | | | | | | | |
| Approach Delay (s) | 0.0 | 4.2 | 8.8 | 11.3 | | | | | | | | |
| Approach LOS | | | A | В | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 6.4 | | | | | | | | | |
| Intersection Capacity Utiliza | ation | | 24.8% | 10 | CU Level o | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| | | | | | | | | | | | | |

| | 1 | • | † | ~ | 1 | 1 | | |
|--------------------------------|------|------|----------|------|-----------|-----------|---|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations | M | | 14 | | | र्स | | |
| Traffic Volume (veh/h) | 20 | 0 | 14 | 31 | 0 | 32 | | |
| Future Volume (Veh/h) | 20 | 0 | 14 | 31 | 0 | 32 | | |
| Sign Control | Stop | | Free | | | Free | | |
| Grade | 0% | | 0% | | | 0% | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Hourly flow rate (vph) | 22 | 0 | 15 | 34 | 0 | 35 | | |
| Pedestrians | | | | | | | | |
| Lane Width (m) | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | |
| Percent Blockage | | | | | | | | |
| Right turn flare (veh) | | | | | | | | |
| Median type | | | None | | | None | | |
| Median storage veh) | | | 140110 | | | 110110 | | |
| Upstream signal (m) | | | | | | | | |
| pX, platoon unblocked | | | | | | | | |
| vC, conflicting volume | 67 | 32 | | | 49 | | | |
| vC1, stage 1 conf vol | UI. | 52 | | | 70 | | | |
| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | 67 | 32 | | | 49 | | | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | | | |
| tC, 2 stage (s) | 0.4 | V.E | | | 40.1 | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | | | |
| p0 queue free % | 98 | 100 | | | 100 | | | |
| cM capacity (veh/h) | 938 | 1042 | | | 1558 | | | |
| | | 1507 | 222 | | 1556 | | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | | |
| Volume Total | 22 | 49 | 35 | | | | | |
| Volume Left | 22 | 0 | 0 | | | | | |
| Volume Right | 0 | 34 | 0 | | | | | |
| cSH | 938 | 1700 | 1558 | | | | | |
| Volume to Capacity | 0.02 | 0.03 | 0.00 | | | | | |
| Queue Length 95th (m) | 0.5 | 0.0 | 0.0 | | | | | |
| Control Delay (s) | 8.9 | 0.0 | 0.0 | | | | | |
| Lane LOS | A | | | | | | | |
| Approach Delay (s) | 8.9 | 0.0 | 0.0 | | | | | |
| Approach LOS | A | | | | | | | |
| Intersection Summary | | | | | | | | |
| Average Delay | | | 1.9 | | | | | |
| Intersection Capacity Utilizat | tion | | 12.3% | IC | U Level o | f Service | A | |
| Analysis Period (min) | | | 15 | | | | | |

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| | 1 | • | † | ~ | 1 | 1 | |
|-------------------------------|-------|------|----------|------|-----------|------------|---|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | |
| Lane Configurations | W | | 14 | | | र्स | |
| Traffic Volume (veh/h) | 0 | 77 | 14 | 0 | 14 | 32 | |
| Future Volume (Veh/h) | 0 | 77 | 14 | 0 | 14 | 32 | |
| Sign Control | Stop | | Free | | | Free | |
| Grade | 0% | | 0% | | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | |
| Hourly flow rate (vph) | 0 | 84 | 15 | 0 | 15 | 35 | |
| Pedestrians | | | | | | | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| Median type | | | None | | | None | |
| Median storage veh) | | | | | | | |
| Upstream signal (m) | | | | | | | |
| pX, platoon unblocked | | | | | | | |
| vC, conflicting volume | 80 | 15 | | | 15 | | |
| vC1, stage 1 conf vol | - | | | | 10 | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | 80 | 15 | | | 15 | | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | | |
| tC, 2 stage (s) | - 2 | | | | | | |
| tF(s) | 3.5 | 3.3 | | | 2.2 | | |
| p0 queue free % | 100 | 92 | | | 99 | | |
| cM capacity (veh/h) | 914 | 1065 | | | 1603 | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total | 84 | 15 | 50 | | | | |
| Volume Left | 0 | 15 | 15 | | | | |
| Volume Lett Volume Right | 84 | 0 | 13 | | | | |
| volume Right cSH | 1065 | 1700 | 1603 | | | | |
| | 0.08 | 0.01 | 0.01 | | | | |
| Volume to Capacity | 1.9 | 0.01 | 0.01 | | | | |
| Queue Length 95th (m) | 1000 | | | | | | |
| Control Delay (s) | 8.7 | 0.0 | 2.2 | _ | | | |
| Lane LOS | A | 0.0 | A | | | | |
| Approach Delay (s) | 8.7 | 0.0 | 2.2 | | | | |
| Approach LOS | A | | | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 5.6 | | | | |
| Intersection Capacity Utiliza | ation | | 19.5% | IC | U Level o | of Service | Α |
| Analysis Period (min) | | | 15 | | | | |

| Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control Grade Peak Hour Factor Hourly flow rate (vph) | 0 0 0 Free 0% 0.92 0 | 0 0 0 0.92 0 | 0 0 0 0.92 0 | WBT 0 0 0 Free 0% 0.92 0 | 0 0 0 Stop 0% 0.92 | NBR 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | |
|---|--|--------------------------|--------------------------|---|-----------------------------------|---|---|
| Lane Configurations Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control Grade Peak Hour Factor Hourly flow rate (vph) | 0 0 Free 0% 0.92 | 0.92 | 0 0 | 0 0 Free 0% 0.92 | 0 0 0 Stop 0% 0.92 | 0 | |
| Traffic Volume (veh/h) Future Volume (Veh/h) Sign Control Grade Peak Hour Factor Hourly flow rate (vph) | 0 0 Free 0% 0.92 | 0.92 | 0.92 | 0 0 Free 0% 0.92 | 0 0 Stop 0% 0.92 | 0 | |
| Future Volume (Veh/h) Sign Control Grade Peak Hour Factor Hourly flow rate (vph) | 0% 0.92 | 0.92 | 0.92 | Free 0% 0.92 | Stop 0% 0.92 | | |
| Sign Control Grade Peak Hour Factor Hourly flow rate (vph) | 0% 0.92 | | 7077 | 0% 0.92 | 0% 0.92 | 0.00 | |
| Grade Peak Hour Factor Hourly flow rate (vph) | 0.92 | | 7077 | 0.92 | 0.92 | 0.00 | |
| Peak Hour Factor Hourly flow rate (vph) | 0.92 | | 7077 | 0.92 | 0.92 | 0.00 | |
| | 0 | 0 | 0 | 0 | | U.SZ | |
| | | | | | 0 | 0 | |
| Pedestrians | | | | | | | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| | None | | | None | | | |
| Median storage veh) | nicotornos. | | | | | | |
| Upstream signal (m) | | | | | | | |
| pX, platoon unblocked | | | | | | | |
| vC, conflicting valume | | | 0 | | 0 | 0 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | | | 0 | | 0 | 0 | |
| 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 | | 1023 | 1085 | |
| Direction, Lane # | EB1 | WB 1 | NB 1 | | | 130000 | |
| Volume Total | 0 | 0 | 0 | | | | |
| Volume Left | 0 | 0 | 0 | | | | |
| Volume Right | 0 | 0 | 0 | | | | |
| | 1700 | 1700 | 1700 | | | | |
| | 0.00 | 0.00 | 0.00 | | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | | |
| Lane LOS | 0.0 | 0.0 | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | | |
| Approach LOS | 0.0 | 0.0 | A | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 0.0 | | | | |
| Intersection Capacity Utilization | | | 0.0% | IC | III evel | of Service | A |
| Analysis Period (min) | | | 15 | 10 | 201010 | | |

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| | - | * | - | • | 1 | - | | |
|-------------------------------|--------|-------|---------|--------|-----------|------------|---|--|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | | |
| Lane Configurations | 1. | | | 4 | * | 7 | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sign Control | Free | | | Free | Stop | | | |
| Grade | 0% | | | 0% | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Hourty flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Pedestrians | | | | | | | | |
| Lane Width (m) | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | |
| Percent Blockage | | | | | | | | |
| Right turn flare (veh) | | | | | | | | |
| Median type | None | | | None | | | | |
| Median storage veh) | 140176 | | | 740110 | | | | |
| Upstream signal (m) | | | | | | | | |
| pX, platoon unblocked | | | | | | | | |
| vC, conflicting volume | | | 0 | | 0 | 0 | | |
| vC1, stage 1 conf vol | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | | | 0 | | 0 | 0 | | |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | 4.1 | | 0.4 | 0.2 | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | | | 100 | | 100 | 100 | | |
| cM capacity (veh/h) | | | 1623 | | 1023 | 1085 | | |
| | ED 4 | MID 4 | 3 (357) | ND 0 | 1020 | 1000 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | | | | |
| Volume Total | 0 | 0 | 0 | 0 | | | | |
| Volume Left | 0 | 0 | 0 | 0 | | | | |
| Volume Right | 0 | 0 | 0 | 0 | | | | |
| cSH | 1700 | 1700 | 1700 | 1700 | | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| Queue Length 95th (m) | 0,0 | 0.0 | 0.0 | 0.0 | | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Lane LOS | | | A | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | | | |
| Approach LOS | | | A | | | | | |
| Intersection Summary | | | | | | | | |
| Average Delay | | | 0.0 | | | | | |
| Intersection Capacity Utiliza | ation | | 0.0% | IC | U Level o | of Service | A | |
| Analysis Period (min) | | | 15 | | | | | |

| | 1 | - | • | • | 1 | 1 | | |
|-----------------------------------|------|------|------|------|---|------------|---|--|
| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
| Lane Configurations | | 4 | 1 | | ** | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sign Control | | Free | Free | | Stop | | | |
| Grade | | 0% | 0% | | 0% | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 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 valume | 0 | | | | 0 | 0 | | |
| vC1, stage 1 conf vol | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | 0 | | | | 0 | 0 | | |
| 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 | | | | 1023 | 1085 | | |
| Direction, Lane # | EB1 | WB 1 | SB 1 | | *************************************** | 1,000,000 | | |
| Volume Total | 0 | 0 | 0 | | | | | |
| Volume Left | 0 | 0 | 0 | | | | | |
| Volume Right | 0 | 0 | 0 | | | | | |
| cSH | 1700 | 1700 | 1700 | | | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | | | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | | | |
| Lane LOS | | | A | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | | | |
| Approach LOS | | | A | | | | | |
| Intersection Summary | | | | | | | | |
| Average Delay | | | 0.0 | | | | | |
| Intersection Capacity Utilization | on | | 0.0% | IC | U Level | of Service | A | |
| Analysis Period (min) | | | 15 | | | | | |
| | | | | | | | | |

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Future Total 2035 PM Peak Hour

1: Wonderland Road & Beaverbrook Avenue

| | , | - | • | 1 | | - | 1 | T | - | - | + | * |
|----------------------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|----------|-------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | * | * | 7 | 7 | | 7 | 7 | ** | 7 | * | ^ | 7 |
| Traffic Volume (vph) | 118 | 278 | 196 | 85 | 361 | 421 | 242 | 1415 | 65 | 296 | 1720 | 317 |
| Future Volume (vph) | 118 | 278 | 196 | 85 | 361 | 421 | 242 | 1415 | 65 | 296 | 1720 | 317 |
| Turn Type | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 7 | 4 | | | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | 8 | 2 | | 2 | 6 | | 6 |
| Detector Phase | 7 | 4 | 4 | 8 | 8 | 8 | 5 | 2 | 2 | - 1 | 6 | - 6 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | 7.0 |
| Minimum Split (s) | 9.0 | 39.7 | 39.7 | 39.7 | 39.7 | 39.7 | 9.0 | 32.3 | 32.3 | 9.0 | 32.3 | 32.3 |
| Total Split (s) | 9.0 | 48.7 | 48.7 | 39.7 | 39.7 | 39.7 | 19.0 | 71.3 | 71.3 | 25.0 | 77.3 | 77.3 |
| Total Split (%) | 6.2% | 33.6% | 33.6% | 27.4% | 27.4% | 27.4% | 13.1% | 49.2% | 49.2% | 17.2% | 53.3% | 53.3% |
| Yellow Time (s) | 3.0 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.0 | 4.1 | 4.1 | 3.0 | 4.1 | 4.1 |
| All-Red Time (s) | 1.0 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 1.0 | 2.2 | 2.2 | 1.0 | 2.2 | 2.2 |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Lost Time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Lead/Lag | Lead | | | Lag | Lag | Lag | Lead | Lag | Lag | Lead | Lag | Lag |
| Lead-Lag Optimize? | Yes | | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Recall Mode | None | None | None | None | None | None | None | C-Max | C-Max | None | C-Max | C-Max |
| Act Effct Green (s) | 43.0 | 40.3 | 40.3 | 31.3 | 31.3 | 31.3 | 84.0 | 65.1 | 65.1 | 94.0 | 71.0 | 71.0 |
| Actuated g/C Ratio | 0.30 | 0.28 | 0.28 | 0.22 | 0.22 | 0.22 | 0.58 | 0.45 | 0.45 | 0.65 | 0.49 | 0.49 |
| v/c Ratio | 0.96 | 0.56 | 0.35 | 0.44 | 0.91 | 0.85 | 1.00 | 0.89 | 0.10 | 0.95 | 1.00 | 0.45 |
| Control Delay | 114.5 | 49.3 | 6.7 | 56.8 | 82.2 | 40.6 | 102.5 | 45.2 | 0.3 | 84.6 | 59.4 | 14.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 114.5 | 49.3 | 6.7 | 56.8 | 82.2 | 40.6 | 102.5 | 45.2 | 0.3 | 84.6 | 59.4 | 14.0 |
| LOS | F | D | A | E | F | D | F | D | A | F | E | Е |
| Approach Delay | | 48.2 | | | 59.5 | | | 51.6 | | | 56.5 | |
| Approach LOS | | D | | | Е | | | D | | | Ε | |
| Intersection Summary | | | | | | | | | | | | |

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00

Intersection Signal Delay: 54.5

Intersection LOS: D ICU Level of Service H

Intersection Capacity Utilization 109.5% Analysis Period (min) 15



Mudcreek TIS Synchro 11 Report **TYLin** Page 1

HCM Signalized Intersection Capacity Analysis 1: Wonderland Road & Beaverbrook Avenue

Future Total 2035 PM Peak Hour

| | ١ | → | • | 1 | • | • | 1 | 1 | ~ | - | ļ | 1 |
|--|--|----------|--------|------|------------|----------|---------|-------|------|------------|--------------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | 7 | 1 | 7 | 7 | 4 | 7 | 7 | 44 | 7 | 7 | 44 | 7 |
| Traffic Volume (vph) | 118 | 278 | 196 | 85 | 361 | 421 | 242 | 1415 | 65 | 296 | 1720 | 317 |
| Future Volume (vph) | 118 | 278 | 196 | 85 | 361 | 421 | 242 | 1415 | 65 | 296 | 1720 | 317 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.0 | 3.5 | 3.5 | 3.0 | 3.5 | 3.3 | 3.0 | 3.5 | 3.0 | 3.0 | 3.5 | 3.0 |
| Total Lost time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 1.00 | 1.00 | 0.88 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Fit Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1665 | 1789 | 1494 | 1615 | 1842 | 1465 | 1668 | 3535 | 1378 | 1668 | 3500 | 1290 |
| Flt Permitted | 0.15 | 1.00 | 1.00 | 0.52 | 1.00 | 1.00 | 0.06 | 1.00 | 1.00 | 0.06 | 1.00 | 1.00 |
| Satd. Flow (perm) | 257 | 1789 | 1494 | 891 | 1842 | 1465 | 108 | 3535 | 1378 | 102 | 3500 | 1290 |
| 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) | 118 | 278 | 196 | 85 | 361 | 421 | 242 | 1415 | 65 | 296 | 1720 | 317 |
| RTOR Reduction (vph) | 0 | 0 | 142 | 0 | 0 | 180 | 0 | 0 | 36 | 0 | 0 | 78 |
| Lane Group Flow (vph) | 118 | 278 | 54 | 85 | 361 | 241 | 242 | 1415 | 29 | 296 | 1720 | 239 |
| Confl. Peds. (#/hr) | 31 | 210 | 26 | 26 | 301 | 31 | 36 | 1410 | 24 | 24 | 1120 | 36 |
| Heavy Vehicles (%) | 1% | 5% | 2% | 2% | 2% | 1% | 1% | 1% | 0% | 1% | 2% | 3% |
| | | NA. | | | NA | | | NA. | | | NA. | |
| Turn Type Protected Phases | pm+pt 7 | NA 4 | Perm | Perm | NA 8 | Perm | pm+pt | | Perm | pm+pt 1 | NA 6 | Pem |
| Permitted Phases | 4 | 4: | 4 | 8 | - 0 | 8 | 5 | 2 | 2 | 100 | 0 | |
| NAME AND ADDRESS OF THE OWNER, TH | | 40.3 | 40.3 | | 04.0 | | 81.8 | 65.1 | 65.1 | 91,7 | 74.0 | 74.6 |
| Actuated Green, G (s) | 40.3 | | 40.3 | 31.3 | 31.3 | 31,3 | | | | 91.7 | 71.0 71.0 | 71.0 |
| Effective Green, g (s) | 40.3 | 40.3 | | | 31.3 | 31.3 | 81.8 | 65.1 | 65.1 | | 10.000 | |
| Actuated g/C Ratio | 0.28 | 0.28 | 0.28 | 0.22 | 0.22 | 0.22 | 0.56 | 0.45 | 0.45 | 0.63 | 0.49 | 0.49 |
| Clearance Time (s) | 4.0 | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 | 4.0 | 6.3 | 6.3 | 4.0 | 6.3 | 6.3 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 119 | 497 | 415 | 192 | 397 | 316 | 240 | 1587 | 618 | 308 | 1713 | 631 |
| v/s Ratio Prot | c0.03 | 0.16 | | | 0.20 | | 0.12 | 0.40 | | c0.15 | c0.49 | |
| v/s Ratio Perm | c0.24 | | 0.04 | 0.10 | | 0.16 | 0.45 | 2,000 | 0.02 | 0.46 | 444 | 0.19 |
| v/c Ratio | 0.99 | 0.56 | 0.13 | 0.44 | 0.91 | 0.76 | 1.01 | 0.89 | 0.05 | 0.96 | 1.00 | 0.38 |
| Uniform Delay, d1 | 51.6 | 44.8 | 39.2 | 49.3 | 55.5 | 53.3 | 49.3 | 36.7 | 22.5 | 49.0 | 37.0 | 23.2 |
| Progression 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 |
| Incremental Delay, d2 | 79.6 | 1.4 | 0.1 | 1.6 | 24.0 | 10.4 | 60.2 | 8.0 | 0.1 | 40.7 | 22.7 | 1.7 |
| Delay (s) | 131.2 | 46.1 | 39.4 | 50.9 | 79.5 | 63.7 | 109.5 | 44.7 | 22.6 | 89.6 | 59.7 | 24.9 |
| Level of Service | F | D | D | D | E | E | F | D | C | F | E | (|
| Approach Delay (s) | | 60.9 | | | 69.0 | | | 53.0 | | | 58.8 | |
| Approach LOS | | Ε | | | Ε | | | D | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 58.8 | н | CM 2000 | Level of | Service | | Е | | | |
| HCM 2000 Volume to Capa | city ratio | | 1.03 | | | | | | | | | |
| Actuated Cycle Length (s) | - | | 145.0 | S | um of lost | time (s) | | | 21.0 | | | |
| Intersection Capacity Utiliza | ation | | 109.5% | | U Level | | 1 | | н | | | |
| Analysis Period (min) | - Control of the Cont | | 15 | | | | | | | | | |
| c Critical Lane Group | | | - 00 | | | | | | | | | |

Mudcreek TIS Synchro 11 Report TYLin Page 2 HCM Unsignalized Intersection Capacity Analysis 2: Proudfoot Lane & Beaverbrook Avenue

Future Total 2035 PM Peak Hour 06-13-2023

| | 1 | - | * | 1 | • | • | 4 | † | - | 1 | Į. | 1 |
|-------------------------------|-------|-------|----------|------|-----------|------------|------|----------|------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | | 4 | | | 4 | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Traffic Volume (vph) | 26 | 78 | 260 | 13 | 38 | 47 | 171 | 15 | 36 | 98 | 15 | 12 |
| Future Volume (vph) | 26 | 78 | 260 | 13 | 38 | 47 | 171 | 15 | 36 | 98 | 15 | 12 |
| 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 |
| Hourly flow rate (vph) | 26 | 78 | 260 | 13 | 38 | 47 | 171 | 15 | 36 | 98 | 15 | 12 |
| Direction, Lane # | EB 1 | WB1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total (vph) | 364 | 98 | 222 | 125 | | | | | | | | |
| Volume Left (vph) | 26 | 13 | 171 | 98 | | | | | | | | |
| Volume Right (vph) | 260 | 47 | 36 | 12 | | | | | | | | |
| Hadj (s) | -0.34 | -0.23 | 0.16 | 0.13 | | | | | | | | |
| Departure Headway (s) | 4.7 | 5.2 | 5.4 | 5.6 | | | | | | | | |
| Degree Utilization, x | 0.47 | 0.14 | 0.33 | 0.19 | | | | | | | | |
| Capacity (veh/h) | 727 | 624 | 607 | 584 | | | | | | | | |
| Control Delay (s) | 11.8 | 9.0 | 11.1 | 9.9 | | | | | | | | |
| Approach Delay (s) | 11.8 | 9.0 | 11.1 | 9.9 | | | | | | | | |
| Approach LOS | В | A | В | A | | | | | | | | |
| Intersection Summary | | | -24-42-4 | | | | | | | | | |
| Delay | | | 11.0 | | | | | | | | | |
| Level of Service | | | В | | | | | | | | | |
| Intersection Capacity Utiliza | ation | | 45.3% | IC | U Level o | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

3: Proudfoot Lane & Oxford Street West

Timings

Future Total 2035 PM Peak Hour

| | | \rightarrow | 1 | • | - | 1 | T | - | - | + | |
|----------------------|-------|---------------|-------|----------|--------|-------|----------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | |
| Lane Configurations | * | † | 7 | ^ | 7 | 7 | † | 7 | 7 | 7. | |
| Traffic Volume (vph) | 96 | 924 | 22 | 1502 | 559 | 197 | 347 | 40 | 356 | 191 | |
| Future Volume (vph) | 96 | 924 | 22 | 1502 | 559 | 197 | 347 | 40 | 356 | 191 | |
| Turn Type | pm+pt | NA. | Perm | NA | custom | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 6 | 3 | 7 | 4 | | 3 | 8 | |
| Permitted Phases | 2 | | 6 | | 2 | - 4 | | 4 | 8 | | |
| Detector Phase | 5 | 2 | 6 | 6 | 3 | 7 | - 4 | 4 | 3 | 8 | |
| Switch Phase | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 7.0 | 7.0 | 5.0 | 7.0 | |
| Minimum Split (s) | 9.0 | 23.6 | 23.6 | 23.6 | 9.0 | 9.0 | 31.4 | 31.4 | 9.0 | 31.4 | |
| Total Split (s) | 9.0 | 71.6 | 62.6 | 62.6 | 27.0 | 18.0 | 31.4 | 31.4 | 27.0 | 40.4 | |
| Total Split (%) | 6.9% | 55.1% | 48.2% | 48.2% | 20.8% | 13.8% | 24.2% | 24.2% | 20.8% | 31.1% | |
| Yellow Time (s) | 3.0 | 3.7 | 3.7 | 3.7 | 3.0 | 3.0 | 3.3 | 3.3 | 3.0 | 3.3 | |
| All-Red Time (s) | 1.0 | 1.9 | 1.9 | 1.9 | 1.0 | 1.0 | 3.1 | 3.1 | 1.0 | 3.1 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 5.6 | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Lead/Lag | Lead | | Lag | Lag | Lead | Lead | Lag | Lag | Lead | Lag | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | |
| Recall Mode | None | C-Max | C-Max | C-Max | None | None | None | None | None | None | |
| Act Effct Green (s) | 67.6 | 66.0 | 57.0 | 57.0 | 90.6 | 40.6 | 25.0 | 25.0 | 54.4 | 34.8 | |
| Actuated g/C Ratio | 0.52 | 0.51 | 0.44 | 0.44 | 0.70 | 0.31 | 0.19 | 0.19 | 0.42 | 0.27 | |
| v/c Ratio | 0.83 | 0.66 | 0.15 | 0.98 | 0.57 | 0.53 | 0.97 | 0.11 | 1.01 | 0.60 | |
| Control Delay | 67.9 | 25.6 | 25.5 | 46.3 | 3.6 | 32.1 | 92.6 | 0.6 | 87.5 | 45.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 67.9 | 25.6 | 25.5 | 46.3 | 3.6 | 32.1 | 92.6 | 0.6 | 87.5 | 45.6 | |
| LOS | E | C | C | D | A | C | F | A | F | D | |
| Approach Delay | | 29.1 | | 34.6 | | | 65.9 | | | 69.1 | |
| Approach LOS | | C | | C | | | E | | | E | |

Intersection Summary Cycle Length: 130

Actuated Cycle Length: 130 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

TYLin

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.01

Analysis Period (min) 15

Intersection Signal Delay: 42.1 Intersection Capacity Utilization 103.2% Intersection LOS: D

ICU Level of Service G

Splits and Phases: 3: Proudfoot Lane & Oxford Street West



Mudcreek TIS Synchro 11 Report **TYLin** Page 3 Mudcreek TIS

HCM Signalized Intersection Capacity Analysis 3: Proudfoot Lane & Oxford Street West

Future Total 2035 PM Peak Hour

| | • | - | * | 1 | • | • | 1 | Ť | ~ | 1 | + | 4 |
|-------------------------------|-----------------|----------|--------|------|-----------|-------------|---------|------|------|-------|------|-------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | 7 | † | | 7 | ^ | 7 | 7 | • | 7 | 7 | 14 | |
| Traffic Volume (vph) | 96 | 924 | 150 | 22 | 1502 | 559 | 197 | 347 | 40 | 356 | 191 | 87 |
| Future Volume (vph) | 96 | 924 | 150 | 22 | 1502 | 559 | 197 | 347 | 40 | 356 | 191 | 87 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.0 | 3.0 | 3.0 | 3.3 | 3.5 | 3.0 | 3.2 | 3.6 | 3.2 | 3.0 | 3.4 | 3.3 |
| Total Lost time (s) | 4.0 | 5.6 | | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frpb, ped/bikes | 1.00 | 0.99 | | 1.00 | 1.00 | 0.93 | 1.00 | 1.00 | 0.94 | 1.00 | 0.99 | |
| Flpb, ped/bikes | 1.00 | 1.00 | | 0.99 | 1.00 | 1.00 | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.95 | |
| Fit Protected | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1620 | 3193 | | 1601 | 3500 | 1383 | 1638 | 1863 | 1366 | 1665 | 1676 | |
| Fit Permitted | 0.07 | 1.00 | | 0.20 | 1.00 | 1.00 | 0.56 | 1.00 | 1.00 | 0.14 | 1.00 | |
| Satd. Flow (perm) | 112 | 3193 | | 333 | 3500 | 1383 | 967 | 1863 | 1366 | 242 | 1676 | |
| 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) | 96 | 924 | 150 | 22 | 1502 | 559 | 197 | 347 | 40 | 356 | 191 | 87 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 20 | 0 | 0 | 32 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 96 | 1064 | 0 | 22 | 1502 | 539 | 197 | 347 | 8 | 356 | 266 | 0 |
| Confi. Peds. (#/hr) | 21 | | 19 | 19 | | 21 | 22 | | 32 | 32 | | 22 |
| Heavy Vehicles (%) | 4% | 2% | 2% | 8% | 2% | 1% | 4% | 2% | 4% | 1% | 6% | 0% |
| Bus Blockages (#/hr) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| Turn Type | pm+pt | NA | | Perm | NA | custom | pm+pt | NA | Perm | pm+pt | NA | - 100 |
| Protected Phases | 5 | 2 | | | 6 | 3 | 7 | 4 | | 3 | 8 | |
| Permitted Phases | 2 | | | 6 | | 2 | 4 | | 4 | 8 | | |
| Actuated Green, G (s) | 66.0 | 66.0 | | 57.0 | 57.0 | 89.0 | 38.2 | 25.0 | 25.0 | 52.0 | 34.8 | |
| Effective Green, g (s) | 66.0 | 66.0 | | 57.0 | 57.0 | 89.0 | 38.2 | 25.0 | 25.0 | 52.0 | 34.8 | |
| Actuated g/C Ratio | 0.51 | 0.51 | | 0.44 | 0.44 | 0.68 | 0.29 | 0.19 | 0.19 | 0.40 | 0.27 | |
| Clearance Time (s) | 4.0 | 5.6 | | 5.6 | 5.6 | 4.0 | 4.0 | 6.4 | 6.4 | 4.0 | 6.4 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 114 | 1621 | | 146 | 1534 | 946 | 352 | 358 | 262 | 348 | 448 | |
| v/s Ratio Prot | 0.03 | c0.33 | | | c0.43 | 0.10 | 0.06 | 0.19 | | c0.18 | 0.16 | |
| v/s Ratio Perm | 0.39 | | | 0.07 | | 0.29 | 0.11 | | 0.01 | c0.23 | | |
| v/c Ratio | 0.84 | 0.66 | | 0.15 | 0.98 | 0.57 | 0.56 | 0.97 | 0.03 | 1.02 | 0.59 | |
| Uniform Delay, d1 | 29.6 | 23.6 | | 21.9 | 35.9 | 10.6 | 36.8 | 52.1 | 42.6 | 39.1 | 41.4 | |
| Progression Factor | 1.00 | 1.00 | | 1.05 | 0.95 | 0.33 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 40.1 | 2.1 | | 1.1 | 12.0 | 0.4 | 1.9 | 38.9 | 0.0 | 54.2 | 2.1 | |
| Delay (s) | 69.7 | 25.7 | | 24.1 | 46.0 | 3.8 | 38.8 | 91.0 | 42.7 | 93.4 | 43.5 | |
| Level of Service | E | C | | C | D | Α | D | F | D | F | D | |
| Approach Delay (s) | | 29.3 | | | 34.4 | | 1700 | 70.1 | 784 | 19397 | 71.5 | |
| Approach LOS | | C | | | С | | | E | | | E | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 43.0 | Н | CM 2000 | Level of | Service | | D | | | |
| HCM 2000 Volume to Capa | acity ratio | | 1.02 | | | V1015 | | | | | | |
| Actuated Cycle Length (s) | on the contract | | 130.0 | S | um of los | st time (s) | | | 20.0 | | | |
| Intersection Capacity Utiliza | ation | | 103.2% | IC | U Level | of Service | 0 | | G | | | |
| intersection depacity office | | | | | | | | | | | | |

Mudcreek TIS Synchro 11 Report **TYLin** Page 5 Timings

Future Total 2035 PM Peak Hour 06-13-2023

4: Beaverbrook Avenue & Oxford Street West

| WBL | | | 7 | Ť | - | - | + | 4 | |
|----------|------------------------|----------|----------------|---------------|-----------------------|-----------------------|-----------------------|------------------------------|------------------------------|
| | Group EBL | WBT | NBL | NBT | NBR | SBL | SBT | SBR | |
| | Configurations | 1 | | 4 | 7 | 7 | 1 | 76 | |
| 16 200 | Volume (vph) 18 | 1972 | 35 | 92 | 195 | 129 | 37 | 22 | |
| 16 200 | e Volume (vph) 18 | 1972 | 35 | 92 | 195 | 129 | 37 | 22 | |
| IA pm+pt | Type Perm | NA | Perm | NA | Perm | pm+pt | NA | Perm | |
| 2 1 | cted Phases | 6 | | 8 | | 7 | 4 | | |
| 6 | itted Phases 2 | | 8 | | 8 | 4 | | 4 | |
| 2 1 | tor Phase 2 | 6 | 8 | 8 | 8 | 7 | 4 | 4 | |
| | h Phase | | | | | 4 | | | |
| .0 5.0 | num Initial (s) 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| .1 9.0 | ium Split (s) 41.1 | 41.1 | 31.8 | 31.8 | 31.8 | 9.0 | 31.8 | 31.8 | |
| .0 19.0 | Split (s) 70.0 | 89.0 | 32.0 | 32.0 | 32.0 | 9.0 | 41.0 | 41.0 | |
| % 14.6% | Split (%) 53.8% | 68.5% | 24.6% | 24.6% | 24.6% | 6.9% | 31.5% | 31.5% | |
| .5 3.0 | v Time (s) 3.5 | 3.5 | 3.3 | 3.3 | 3.3 | 3.0 | 3.3 | 3.3 | |
| .6 1.0 | ed Time (s) 3.6 | 3.6 | 2.5 | 2.5 | 2.5 | 1.0 | 2.5 | 2.5 | |
| .0 0.0 | Time Adjust (s) 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| .1 4.0 | Lost Time (s) 7.1 | 7.1 | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 | |
| ag Lead | Lag Lag | | Lag | Lag | Lag | Lead | 77.77 | | |
| es Yes | Lag Optimize? Yes | | Yes | Yes | Yes | Yes | | | |
| ax None | I Mode C-Max | C-Max | None | None | None | None | None | None | |
| .2 95.5 | ffct Green (s) 75.2 | 92.4 | | 15.7 | 15.7 | 26.5 | 24.7 | 24.7 | |
| 58 0.73 | ted g/C Ratio 0.58 | 0.71 | | 0.12 | 0.12 | 0.20 | 0.19 | 0.19 | |
| 69 0.71 | atio 0.32 | 0.89 | | 0.66 | 0.56 | 0.63 | 0.10 | 0.06 | |
| .4 26.5 | ol Delay 24.9 | 17.2 | | 70.5 | 13.0 | 58.5 | 42.0 | 0.3 | |
| 0.0 | e Delay 0.0 | 0.3 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| .4 26.5 | Delay 24.9 | 17.4 | | 70.5 | 13.0 | 58.5 | 42.0 | 0.3 | |
| B C | C | В | | E | В | E | D | A | |
| .5 | ach Delay | 18.2 | | 35.7 | | | 48.4 | | |
| В | ach LOS | В | | D | | | D | | |
| | ection Summary | | | | | | | | |
| | each Delay each LOS | 5 B | .5 18.2 B B | 5 18.2 B B | .5 18.2 35.7 B B D | .5 18.2 35.7 B B D | .5 18.2 35.7 B B D | .5 18.2 35.7 48.4 B B D D | .5 18.2 35.7 48.4 B B D D |

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.89

Intersection Signal Delay: 20.0 Intersection Capacity Utilization 95.6% Analysis Period (min) 15 Intersection LOS: B

ICU Level of Service F

Splits and Phases: 4: Beaverbrook Avenue & Oxford Street West



Mudcreek TIS TYLin

HCM Signalized Intersection Capacity Analysis 4: Beaverbrook Avenue & Oxford Street West Future Total 2035 PM Peak Hour 06-13-2023

| | , | - | * | 1 | • | • | 4 | † | - | 1 | † | 4 |
|--|----------------|----------|--------------|-------|-----------------------|----------------------|---------------------|----------|------|-------|----------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | * | 1 | | 7 | 1 | | | 4 | 7 | * | † | 7 |
| Traffic Volume (vph) | 18 | 1316 | 28 | 200 | 1972 | 202 | 35 | 92 | 195 | 129 | 37 | 22 |
| Future Volume (vph) | 18 | 1316 | 28 | 200 | 1972 | 202 | 35 | 92 | 195 | 129 | 37 | 22 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Width | 3.7 | 3.3 | 3.3 | 3.0 | 3.5 | 3.5 | 3.3 | 3.3 | 3.3 | 3.7 | 3.7 | 3.7 |
| Total Lost time (s) | 7.1 | 7.1 | | 4.0 | 7.1 | | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | | 1.00 | 0.99 | | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Fit Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | | 0.99 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1789 | 3349 | | 1560 | 3424 | | | 1750 | 1473 | 1789 | 1883 | 1601 |
| Fit Permitted | 0.05 | 1.00 | | 0.12 | 1.00 | | | 0.89 | 1.00 | 0.44 | 1.00 | 1.00 |
| Satd. Flow (perm) | 100 | 3349 | | 197 | 3424 | | | 1586 | 1473 | 828 | 1883 | 1601 |
| 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) | 18 | 1316 | 28 | 200 | 1972 | 202 | 35 | 92 | 195 | 129 | 37 | 22 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 171 | 0 | 0 | 18 |
| Lane Group Flow (vph) | 18 | 1343 | 0 | 200 | 2169 | 0 | 0 | 127 | 24 | 129 | 37 | 4 |
| Confl. Peds. (#/hr) | | | 12 | 12 | 71000 | 177 | 1070 | 100 | 7.0 | 177 | | |
| Heavy Vehicles (%) | 2% | 3% | 0% | 8% | 2% | 2% | 0% | 2% | 6% | 2% | 2% | 2% |
| Bus Blockages (#/hr) | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 5 | 0 | 0 | 0 | (|
| Turn Type | Perm | NA | | pm+pt | NA | 151 | Perm | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 1.0111 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | | 8 | | 8 | 4 | | 4 |
| Actuated Green, G (s) | 75.2 | 75.2 | | 92.4 | 92.4 | | | 15.7 | 15.7 | 24.7 | 24.7 | 24.7 |
| Effective Green, g (s) | 75.2 | 75.2 | | 92.4 | 92.4 | | | 15.7 | 15.7 | 24.7 | 24.7 | 24.7 |
| Actuated g/C Ratio | 0.58 | 0.58 | | 0.71 | 0.71 | | | 0.12 | 0.12 | 0.19 | 0.19 | 0.19 |
| Clearance Time (s) | 7.1 | 7.1 | | 4.0 | 7.1 | | | 5.8 | 5.8 | 4.0 | 5.8 | 5.8 |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 57 | 1937 | | 278 | 2433 | | | 191 | 177 | 194 | 357 | 304 |
| v/s Ratio Prot | 0.750 | 0.40 | | 0.07 | c0.63 | | | 18.7 | 18.5 | c0.03 | 0.02 | - 94 |
| v/s Ratio Perm | 0.18 | | | 0.44 | | | | 0.08 | 0.02 | c0.10 | | 0.00 |
| v/c Ratio | 0.32 | 0.69 | | 0.72 | 0.89 | | | 0.66 | 0.13 | 0.66 | 0.10 | 0.01 |
| Uniform Delay, d1 | 14.1 | 19.3 | | 16.7 | 14.8 | | | 54.6 | 51.1 | 48.8 | 43.5 | 42.8 |
| Progression Factor | 0.68 | 0.67 | | 1.72 | 0.96 | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 9.7 | 1.4 | | 2.4 | 1.5 | | | 8.4 | 0.3 | 8.3 | 0.1 | 0.0 |
| Delay (s) | 19.3 | 14.3 | | 31.0 | 15.8 | | | 63.1 | 51.4 | 57.1 | 43.6 | 42.8 |
| Level of Service | В | В | | C | В | | | E | D | E | D | |
| Approach Delay (s) | | 14.4 | | | 17.1 | | | 56.0 | 180 | 11/0 | 52.8 | 100 |
| Approach LOS | | В | | | В | | | E | | | D | |
| 2000 200 200 | | | | | | | | | | | | |
| Intersection Summary | | | | | | Contract of the last | ACCORDING TO SECURE | | 7122 | | | |
| Intersection Summary HCM 2000 Control Delay | | | 20.7 | Н | CM 2000 | Level of ! | Service | | C | | | |
| | ity ratio | | 20.7 0.90 | Н | CM 2000 | Level of | Service | | С | | | |
| HCM 2000 Control Delay | ity ratio | | | | CM 2000 um of lost | | Service | | 20.9 | | | |
| HCM 2000 Control Delay HCM 2000 Volume to Capac | and the second | | 0.90 | S | | time (s) | | | - | | | |

Mudcreek TIS Synchro 11 Report TYLin Synchro 12 Report Page 7

Timings 5: Oxford Street West & Cherryhill Boulevard Future Total 2035 PM Peak Hour

| | • | - | 1 | - | 1 | † | - | Ţ | 1 | |
|------------------------------|--|----------|-----------------|------------|------------|------------|-------|-------|-------|--|
| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | SBL | SBT | SBR | |
| Lane Configurations | * | 14 | 1 | 14 | 7 | 1 | * | 4 | # | |
| Traffic Volume (vph) | 169 | 1444 | 8 | 2067 | 45 | 7 | 251 | 1 | 286 | |
| Future Volume (vph) | 169 | 1444 | 8 | 2067 | 45 | 7 | 251 | 1 | 286 | |
| Turn Type | pm+pt | NA. | Perm | NA | Split | NA | Split | NA | pm+ov | |
| Protected Phases | 5 | 2 | | 6 | 7 | 7 | 4 | 4 | 5 | |
| Permitted Phases | 2 | | 6 | | | | | | 4 | |
| Detector Phase | 5 | 2 | 6 | 6 | 7 | 7 | 4 | 4 | 5 | |
| Switch Phase | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 7.0 | 7.0 | 7.0 | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | |
| Minimum Split (s) | 9.0 | 41.1 | 41.1 | 41.1 | 9.0 | 9.0 | 22.5 | 22.5 | 9.0 | |
| Total Split (s) | 14.0 | 98.4 | 84.4 | 84.4 | 9.0 | 9.0 | 22.6 | 22.6 | 14.0 | |
| Total Split (%) | 10.8% | 75.7% | 64.9% | 64.9% | 6.9% | 6.9% | 17.4% | 17.4% | 10.8% | |
| Yellow Time (s) | 3.0 | 3.5 | 3.5 | 3.5 | 3.0 | 3.0 | 3.5 | 3.5 | 3.0 | |
| All-Red Time (s) | 1.0 | 3.6 | 3.6 | 3.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Lost Time (s) | 4.0 | 7.1 | 7.1 | 7.1 | 4.0 | 4.0 | 4.5 | 4.5 | 4.0 | |
| Lead/Lag | Lead | | Lag | Lag | 10,000 | | - | | Lead | |
| Lead-Lag Optimize? | Yes | | Yes | Yes | | | | | Yes | |
| Recall Mode | None | C-Max | C-Max | C-Max | None | None | None | None | None | |
| Act Effct Green (s) | 98.3 | 95.2 | 80.9 | 80.9 | 6.4 | 6.4 | 14.8 | 14.8 | 25.6 | |
| Actuated g/C Ratio | 0.76 | 0.73 | 0.62 | 0.62 | 0.05 | 0.05 | 0.11 | 0.11 | 0.20 | |
| v/c Ratio | 0.89 | 0.60 | 0.04 | 1.01 | 0.54 | 0.36 | 0.69 | 0.69 | 0.86 | |
| Control Delay | 80.6 | 4.4 | 11.9 | 47.2 | 83.6 | 38.1 | 74.5 | 74.3 | 55.6 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 10.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | |
| Total Delay | 80.6 | 4.4 | 11.9 | 57.8 | 83.6 | 38.1 | 74.5 | 74.3 | 55.8 | |
| LOS | F | A | В | E | F | D | E | E | E | |
| Approach Delay | | 12.3 | | 57.6 | | 64.3 | | 64.5 | | |
| Approach LOS | | В | | E | | E | | E | | |
| Intersection Summary | | | | | | | | | | |
| Cycle Length: 130 | | | | | | | | | | |
| Actuated Cycle Length: 13 | | | | | | | | | | |
| Offset: 0 (0%), Referenced | to phase 2 | EBTL an | d 6:WBTL | , Start of | Green | | | | | |
| Natural Cycle: 145 | octorio contra de la contra del | | | | | | | | | |
| Control Type: Actuated-Co | ordinated | | | | | | | | | |
| Maximum v/c Ratio: 1.01 | | | | 107 | | | | | | |
| Intersection Signal Delay: | | | | | tersection | | | | | |
| Intersection Capacity Utiliz | ation 96.5% | | | IC | U Level | of Service | e F | | | |
| Analysis Period (min) 15 | | | | | | | | | | |
| Dallia and Dhanna . T. O. | Land Charles | 14/ | the same de tra | and and | | | | | | |
| Splits and Phases: 5: Or | xford Street | west & C | nerryhill i | Boulevard | 33 | | | | | |

07 02 (R) 98.4s 96 (R) 96 (R)

Mudcreek TIS TYLin

169 1444

1900 1900

3.8

4.0

1.00

1.00

1.00

1.00

0.95

1677

0.05

84 3348

1.00

0

169

19

0

10%

pm+pt

94.4 94.4

0.73

4.0

3.0

187 2431

c0.07

0.58

0.90

45.3

1.57

32.5

103.8

3.3

7.1

0.95

1.00

1.00

1.00

1.00

3348

1.00

1.00

1444

1462

4

NA.

94.4

0.73

7.1

3.0

0.44

0.60

0.39

0.8

4.2

14.5

39.1

0.97 130.0

96.5%

15

19

1900

3.3

1.00

19

n

21

0

11%

8 2067

1900

3.3

7.1

0.95

1.00

1.00

1.00

1.00

3376

1.00

1.00

2067

2117

4

NA

80.1

7.1

3.0

c0.63

1.02

25.0

D

D

Sum of lost time (s)

ICU Level of Service

HCM 2000 Level of Service

49.1

1900

3.1

1.00

1.00

1.00

1.00

0.95

1696

0.17

301 3376

1.00

21

0

Perm

80.1 80.1

0.62 0.62

7.1

3.0

185 2080

0.04

1.00 1.00

0.4 24.3

10.3 49.2 51

1900

3.5

1.00

51

n

19 37

0

45

3.4

1.00

1.00 0.83

1.00

1.00

0.95

1713

0.95

1713

1.00

45

3%

Split

5.2

0.04

4.0

3.0

c0.03

0.66

1.00

21.6

83.1

0

1900

3.5

4.0

1.00

1.00

0.88

1.00

1373

1.00

1373

1.00

25

0

NA

5.2

0.04

4.0

3.0

54

0.01

0.15

60.3

1.00

13

61.5

74.0

Movement Lane Configurations Traffic Volume (vph) Future Volume (vph)

Lane Width

Ideal Flow (vphpl)

Total Lost time (s)

Lane Util. Factor

Frpb, ped/bikes

Flpb, ped/bikes

Satd. Flow (prot)

Satd. Flow (perm)

Adj. Flow (vph)

Peak-hour factor, PHF

RTOR Reduction (vph)

Lane Group Flow (vph)

Confi. Peds. (#/hr)

Heavy Vehicles (%)

Protected Phases Permitted Phases Actuated Green, G (s)

Turn Type

Bus Blockages (#/hr)

Effective Green, g (s)

Actuated g/C Ratio

Clearance Time (s)

Vehicle Extension (s)

Lane Grp Cap (vph)

v/s Ratio Prot

v/c Ratio

Delay (s) Level of Service

v/s Ratio Perm

Uniform Delay, d1

Progression Factor

Approach Delay (s)

Intersection Summary

HCM 2000 Control Delay

Actuated Cycle Length (s)

Analysis Period (min) c Critical Lane Group

Intersection Capacity Utilization

HCM 2000 Volume to Capacity ratio

Approach LOS

Incremental Delay, d2

Fit Protected

Fit Permitted

26 251

3.5

1.00

0

28 28

0

1900

3.2

0.95

1.00

1.00

1.00

0.95

1591

0.95

1591

1.00

251

125

0

Split

14.8

14.8

0.11

4.5

3.0

0.08

0.69

55.4

1.00

10.8

66.2

D

19.6

286

1900

3.6

4.0

1.00

0.95

0.85

1.00

1413

1.00

1413

1.00

286

55

231

37

0.19

4.0

3.0

272

0.10

1.00

21.2

71.8

3.3

4.5

0.95

1.00

1.00 1.00

1.00

0.95

1614

0.95

1614

1.00

127

0

14.8 25.1

14.8 25.1

0.11

4.5

3.0

183

0.08 c0.07

0.69 0.85

55.4 50.6

1.00

10.8

66.3

E

E

69.2

NA pm+ov

| | 1 | - | • | 1 | ← | • | 1 | † | - | 1 | Į. | 1 |
|-------------------------------|-------|------|-------|------|----------|------------|------|----------|------|------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | 7 | 1 | | 7 | T. | |
| Traffic Volume (veh/h) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Future Volume (Veh/h) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Pedestrians | | 35 | | | 19 | | | 23 | | | 20 | |
| Lane Width (m) | | 3.7 | | | 3.7 | | | 3.1 | | | 3.5 | |
| Walking Speed (m/s) | | 1.1 | | | 1.1 | | | 1.1 | | | 1.1 | |
| Percent Blockage | | 3 | | | 2 | | | 2 | | | 2 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting valume | 1205 | 1220 | 610 | 1222 | 1288 | 356 | 671 | | | 352 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1205 | 1220 | 610 | 1222 | 1288 | 356 | 671 | | | 352 | | |
| tC, single (s) | 7.2 | 6.5 | 6.3 | 7.1 | 6.5 | 6.2 | 4.2 | | | 4.7 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF(s) | 3.6 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 | 2.3 | | | 2.7 | | |
| p0 queue free % | 0 | 93 | 76 | 77 | 96 | 98 | 85 | | | 99 | | |
| cM capacity (veh/h) | 121 | 145 | 459 | 93 | 132 | 668 | 858 | | | 933 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | | | | | | 7 |
| Volume Total | 252 | 39 | 128 | 333 | 12 | 636 | | | | | | |
| Volume Left | 133 | 21 | 128 | 0 | 12 | 0 | | | | | | |
| Volume Right | 109 | 13 | 0 | 31 | 0 | 167 | | | | | | |
| cSH | 179 | 138 | 858 | 1700 | 933 | 1700 | | | | | | |
| Volume to Capacity | 1.41 | 0.28 | 0.15 | 0.20 | 0.01 | 0.37 | | | | | | |
| Queue Length 95th (m) | 116.4 | 8.3 | 4.0 | 0.0 | 0.3 | 0.0 | | | | | | |
| Control Delay (s) | 263.0 | 41.1 | 9.9 | 0.0 | 8.9 | 0.0 | | | | | | |
| Lane LOS | F | E | A | | A | | | | | | | |
| Approach Delay (s) | 263.0 | 41.1 | 2.8 | | 0.2 | | | | | | | |
| Approach LOS | F | E | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 49.5 | | | | | | | | | Ť |
| Intersection Capacity Utiliza | ation | | 71.5% | IC | U Level | of Service | | | С | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| | | | | | | | | | | | | |

| | | - | • | • | -38.5 | 1 | 1 | T | | - | + | 4 |
|-------------------------------|--------|------|-------|------|---------|------------|-------|------|-------|-------|------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | 4 | | | 4 | | * | 1 | | 7 | 1 | |
| Traffic Volume (veh/h) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Future Volume (Veh/h) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 133 | 10 | 109 | 21 | 5 | 13 | 128 | 302 | 31 | 12 | 469 | 167 |
| Pedestrians | | 35 | | | 19 | | | 23 | | | 20 | |
| Lane Width (m) | | 3.7 | | | 3.7 | | | 3.1 | | | 3.5 | |
| Walking Speed (m/s) | | 1.1 | | | 1.1 | | | 1.1 | | | 1.1 | |
| Percent Blockage | | 3 | | | 2 | | | 2 | | | 2 | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1205 | 1220 | 610 | 1222 | 1288 | 356 | 671 | | | 352 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1205 | 1220 | 610 | 1222 | 1288 | 356 | 671 | | | 352 | | |
| tC, single (s) | 7.2 | 6.5 | 6.3 | 7.1 | 6.5 | 6.2 | 4.2 | | | 4.7 | | |
| tC, 2 stage (s) | | 1000 | 9000 | | 10000 | - 100 | | | | | | |
| tF(s) | 3.6 | 4.0 | 3.4 | 3.5 | 4.0 | 3.3 | 2.3 | | | 2.7 | | |
| p0 queue free % | 0 | 93 | 76 | 77 | 96 | 98 | 85 | | | 99 | | |
| cM capacity (veh/h) | 121 | 145 | 459 | 93 | 132 | 668 | 858 | | | 933 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 | 10000 | | | 0.000 | | - 4 |
| Volume Total | 252 | 39 | 128 | 333 | 12 | 636 | | | | | | - 3 |
| Volume Left | 133 | 21 | 128 | 0 | 12 | 0 | | | | | | |
| Volume Right | 109 | 13 | 0 | 31 | 0 | 167 | | | | | | |
| cSH | 179 | 138 | 858 | 1700 | 933 | 1700 | | | | | | |
| Volume to Capacity | 1.41 | 0.28 | 0.15 | 0.20 | 0.01 | 0.37 | | | | | | |
| Queue Length 95th (m) | 116.4 | 8.3 | 4.0 | 0.0 | 0.3 | 0.0 | | | | | | |
| Control Delay (s) | 263.0 | 41.1 | 9.9 | 0.0 | 8.9 | 0.0 | | | | | | |
| Lane LOS | F | Е | A | 0.0 | A | 0.0 | | | | | | |
| Approach Delay (s) | 263.0 | 41.1 | 2.8 | | 0.2 | | | | | | | |
| Approach LOS | F | E | 2.0 | | 0.2 | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 49.5 | | | | | | | | | |
| Intersection Capacity Utiliza | ation | | 71.5% | IC | U Level | of Service | | | С | | | |
| Analysis Period (min) | 200000 | | 15 | - 67 | | | | | 10000 | | | |

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|--------------|-------------------|
| TYLin | Page 9 |

Synchro 11 Report Mudcreek TIS TYLin Page 10 HCM Unsignalized Intersection Capacity Analysis 101: Beaverbrook Avenue & Street A/Westfield Drive

Future Total 2035 PM Peak Hour 06-13-2023

| | • | - | • | 1 | • | • | 4 | † | ~ | 1 | Ţ | 1 |
|-----------------------------------|------|------|---------|------|---------|------------|------|----------|------|------|--------|------|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBF |
| Lane Configurations | | 4 | | | 4 | | | 44 | | | 4 | |
| Traffic Volume (veh/h) | 0 | 26 | 64 | 62 | 111 | 0 | 156 | 47 | 140 | 47 | 62 | (|
| Future Volume (Veh/h) | 0 | 26 | 64 | 62 | 111 | 0 | 156 | 47 | 140 | 47 | 62 | (|
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| 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 |
| Hourly flow rate (vph) | 0 | 26 | 64 | 62 | 111 | 0 | 156 | 47 | 140 | 47 | 62 | (|
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | 140110 | | | 140110 | |
| Upstream signal (m) | | | | | | | | 319 | | | | |
| pX, platoon unblocked | | | | | | | | 0.10 | | | | |
| vC, conflicting volume | 640 | 655 | 62 | 662 | 585 | 117 | 62 | | | 187 | | |
| vC1, stage 1 conf vol | 040 | 000 | 02 | 002 | 500 | | 02 | | | 101 | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 640 | 655 | 62 | 662 | 585 | 117 | 62 | | | 187 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | 7.1 | 0.0 | 0.2 | 1.1 | 0.0 | 0.2 | 4.1 | | | 4.1 | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 92 | 94 | 79 | 70 | 100 | 90 | | | 97 | | |
| cM capacity (veh/h) | 269 | 335 | 1003 | 297 | 367 | 935 | 1541 | | | 1387 | | |
| | | | 5 B 2 V | | 307 | 533 | 1041 | | | 1301 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | | | | | | | | |
| Volume Total | 90 | 173 | 343 | 109 | | | | | | | | |
| Volume Left | 0 | 62 | 156 | 47 | | | | | | | | |
| Volume Right | 64 | 0 | 140 | 0 | | | | | | | | |
| cSH | 636 | 339 | 1541 | 1387 | | | | | | | | |
| Volume to Capacity | 0.14 | 0.51 | 0.10 | 0.03 | | | | | | | | |
| Queue Length 95th (m) | 3.7 | 21.0 | 2.6 | 0.8 | | | | | | | | |
| Control Delay (s) | 11.6 | 26.2 | 3.9 | 3.5 | | | | | | | | |
| Lane LOS | В | D | A | A | | | | | | | | |
| Approach Delay (s) | 11.6 | 26.2 | 3.9 | 3.5 | | | | | | | | |
| Approach LOS | В | D | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 10.2 | | | | | | | | | |
| Intersection Capacity Utilization | 1 | | 48.3% | IC | U Level | of Service | | | Α | | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

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 Synchro 11 Report

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HCM Unsignalized Intersection Capacity Analysis 102: Street B & Beaverbrook Avenue Future Total 2035 PM Peak Hour 06-13-2023

| | → | 7 | 1 | • | 1 | - | |
|-----------------------------------|----------|------|-------|------|-----------|---|---------------|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | 1. | | | 4 | */* | | |
| Traffic Volume (veh/h) | 98 | 114 | 0 | 47 | 51 | 11 | |
| Future Volume (Veh/h) | 98 | 114 | 0 | 47 | 51 | 11 | |
| Sign Control | Free | | | Free | Stop | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Hourly flow rate (vph) | 98 | 114 | 0 | 47 | 51 | 11 | |
| 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 valume | | | 212 | | 202 | 155 | |
| vC1, stage 1 conf vol | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | | | 212 | | 202 | 155 | |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 | |
| tC, 2 stage (s) | | | | | | | |
| tF(s) | | | 2.2 | | 3.5 | 3.3 | |
| p0 queue free % | | | 100 | | 94 | 99 | |
| cM capacity (veh/h) | | | 1358 | | 787 | 891 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | 200 | ,,, | |
| Volume Total | 212 | 47 | 62 | | | | |
| Volume Left | 0 | 0 | 51 | | | | |
| Volume Right | 114 | 0 | 11 | | | | |
| cSH | 1700 | 1358 | 803 | | | | |
| Volume to Capacity | 0.12 | 0.00 | 0.08 | | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 1.9 | | | | |
| Control Delay (s) | 0.0 | 0.0 | 9.9 | | | | |
| Lane LOS | 0.0 | | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 9.9 | | | | |
| Approach LOS | - | - | A | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 1.9 | | | | |
| Intersection Capacity Utilization | 1 | | 22.3% | IC | U Level o | f Service | A |
| Analysis Period (min) | e c | | 15 | 10 | 207010 | 100000000000000000000000000000000000000 | 11 4 E |

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 Synchro 11 Report

 TYLin
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54

1.00 54

0%

406

6.5

4.0 3.3 100 963 100

485

1.00 1.00

1.00

460

7.1

3.5

452

3.3

1061

| | 1 | • | † | - | 1 | ↓ | | | • | - | * | 1 | • | * | 1 | † |
|-------------------------------|-----------|------|----------|------|-------------|---------------|------|--------------------|--|-------|-------|------|---|--------------|------|------|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT |
| Lane Configurations | W | | 14 | | | 4 | | Lane Configurat | | 45 | | | 4 | | | 4 |
| Fraffic Volume (veh/h) | 67 | 0 | 10 | 18 | 0 | 80 | | Traffic Volume (| | 18 | 0 | 147 | 67 | 53 | 0 | 0 |
| uture Volume (Veh/h) | 67 | 0 | 10 | 18 | 0 | 80 | | Future Volume (| | | 0 | 147 | 67 | 53 | 0 | 0 |
| Sign Control | Stop | | Free | | | Free | | Sign Control | | Free | | | Free | | | Stop |
| Grade | 0% | | 0% | | | 0% | | Grade | | 0% | | | 0% | | | 0% |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | Peak Hour Facto | or 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| fourly flow rate (vph) | 67 | 0 | 10 | 18 | 0 | 80 | | Hourly flow rate | | 18 | 0 | 147 | 67 | 53 | 0 | 0 |
| edestrians | - | | | | | | | Pedestrians | and the same of th | | | | | | | |
| ane Width (m) | | | | | | | | Lane Width (m) | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | Walking Speed | (m/s) | | | | | | | |
| Percent Blockage | | | | | | | | Percent Blockag | | | | | | | | |
| Right turn flare (veh) | | | | | | | | Right turn flare (| | | | | | | | |
| Median type | | | None | | | None | | Median type | vonj | None | | | None | | | |
| Median storage veh) | | | IVOITE | | | HOHE | | Median storage | woh\ | None | | | THORIC | | | |
| Jpstream signal (m) | | | | | | | | Upstream signal | | | | | | | | |
| X, platoon unblocked | | | | | | | | pX, platoon unbi | | | | | | | | |
| C, conflicting volume | 99 | 19 | | | 28 | | | vC, conflicting w | | | | 18 | | | 406 | 432 |
| C1, stage 1 conf vol | 99 | 19 | | | 20 | | | vC1, stage 1 cor | | | | 10 | | | 400 | 432 |
| | | | | | | | | | | | | | | | | |
| C2, stage 2 conf vol | 00 | 40 | | | 0.0 | | | vC2, stage 2 cor | | | | 40 | | | 406 | 400 |
| vCu, unblocked vol | 99 | 19 | | | 28 | | | vCu, unblocked | | | | 18 | | | | 432 |
| C, single (s) | 6.4 | 6.2 | | | 4.1 | | | tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 |
| C, 2 stage (s) | | | | | | | | tC, 2 stage (s) | | | | | | | | |
| F (s) | 3.5 | 3.3 | | | 2.2 | | | tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 |
| p0 queue free % | 93 | 100 | | | 100 | | | p0 queue free % | | | | 91 | | | 100 | 100 |
| cM capacity (veh/h) | 900 | 1059 | | | 1585 | | | cM capacity (vel | νh) 1468 | | | 1599 | | | 517 | 469 |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | | Direction, Lane a | N. The state of th | WB 1 | NB 1 | SB 1 | | | | |
| Volume Total | 67 | 28 | 80 | | | | | Volume Total | 18 | 267 | 54 | 18 | | | | |
| Volume Left | 67 | 0 | 0 | | | | | Volume Left | 0 | 147 | 0 | 18 | | | | |
| Volume Right | 0 | 18 | 0 | | | | | Volume Right | 0 | 53 | 54 | 0 | | | | |
| cSH | 900 | 1700 | 1585 | | | | | cSH | 1468 | 1599 | 1061 | 452 | | | | |
| Volume to Capacity | 0.07 | 0.02 | 0.00 | | | | | Volume to Capa | city 0.00 | 0.09 | 0.05 | 0.04 | | | | |
| Queue Length 95th (m) | 1.8 | 0.0 | 0.0 | | | | | Queue Length 9 | | 2.3 | 1.2 | 0.9 | | | | |
| Control Delay (s) | 9.3 | 0.0 | 0.0 | | | | | Control Delay (s | | 4.5 | 8.6 | 13.3 | | | | |
| Lane LOS | A | | | | | | | Lane LOS | | A | A | В | | | | |
| Approach Delay (s) | 9.3 | 0.0 | 0.0 | | | | | Approach Delay | (s) 0.0 | 4.5 | 8.6 | 13.3 | | | | |
| Approach LOS | A | 0.0 | 0.0 | | | | | Approach LOS | 177 | - 110 | A | В | | | | |
| Intersection Summary | | | | | | | | Intersection Sun | nmary | | | | | | | |
| Average Delay | | | 3.6 | | | | | Average Delay | | | 5.3 | | | | | |
| Intersection Capacity Utiliza | ation | | 14.6% | 1C | U Level | of Service | A | Intersection Cap | acity Utilization | | 35.9% | IC | U Level | of Service | | |
| Analysis Period (min) | 275,65710 | | 15 | - 10 | 00017500000 | piocesierios: | 5.50 | Analysis Period | | | 15 | | 000000000000000000000000000000000000000 | 505555555555 | | |

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| | 1 | • | 1 | - | 1 | Ţ | | |
|-------------------------------|-------|-------|--------|------|-----------|------------|---|--|
| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
| Lane Configurations | W | | 1 | | | 4 | | |
| Traffic Volume (veh/h) | 0 | 62 | 10 | 0 | 34 | 80 | | |
| Future Volume (Veh/h) | 0 | 62 | 10 | 0 | 34 | 80 | | |
| Sign Control | Stop | | Free | | | Free | | |
| Grade | 0% | | 0% | | | 0% | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Hourty flow rate (vph) | 0 | 62 | 10 | 0 | 34 | 80 | | |
| Pedestrians | | | | | | | | |
| Lane Width (m) | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | |
| Percent Blockage | | | | | | | | |
| Right turn flare (veh) | | | | | | | | |
| Median type | | | None | | | None | | |
| Median storage veh) | | | 110110 | | | - 20110 | | |
| Upstream signal (m) | | | | | | | | |
| pX, platoon unblocked | | | | | | | | |
| vC, conflicting volume | 158 | 10 | | | 10 | | | |
| vC1, stage 1 conf vol | 100 | 10 | | | 10 | | | |
| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | 158 | 10 | | | 10 | | | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | | | |
| tC, 2 stage (s) | 0.4 | 0.2 | | | 4.1 | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | | | |
| p0 queue free % | 100 | 94 | | | 98 | | | |
| cM capacity (veh/h) | 816 | 1071 | | | 1610 | | | |
| | | 15000 | | | 1010 | | | |
| Direction, Lane # | WB 1 | NB 1 | SB 1 | | | | | |
| Volume Total | 62 | 10 | 114 | | | | | |
| Volume Left | 0 | 0 | 34 | | | | | |
| Volume Right | 62 | 0 | 0 | | | | | |
| cSH | 1071 | 1700 | 1610 | | | | | |
| Volume to Capacity | 0.06 | 0.01 | 0.02 | | | | | |
| Queue Length 95th (m) | 1.4 | 0.0 | 0.5 | | | | | |
| Control Delay (s) | 8.6 | 0.0 | 2.3 | | | | | |
| Lane LOS | A | | A | | | | | |
| Approach Delay (s) | 8.6 | 0.0 | 2.3 | | | | | |
| Approach LOS | A | | | | | | | |
| Intersection Summary | | | | | | | | |
| Average Delay | | | 4.3 | | | | | |
| Intersection Capacity Utiliza | ation | | 23.3% | IC | U Level o | of Service | A | |
| Analysis Period (min) | | | 15 | | | | | |

| | - | * | 1 | • | 1 | - | |
|---------------------------------|------|------|------|------|-----------|------------|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | 1 | | | 4 | 14 | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Sign Control | Free | | | Free | Stop | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 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 | | | 0 | | 0 | 0 | |
| vC1, stage 1 conf vol | | | | | | 1,300 | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | | | 0 | | 0 | 0 | |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 | |
| tC, 2 stage (s) | | | | | 0.7 | 0.2 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 | |
| p0 queue free % | | | 100 | | 100 | 100 | |
| cM capacity (veh/h) | | | 1623 | | 1023 | 1085 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | | 1020 | 1000 | |
| Volume Total | | | 0 | | | | |
| F-91001130, 1-91001 | 0 | 0 | | | | | |
| Volume Left | | 0 | 0 | | | | |
| Volume Right | 0 | | | | | | |
| cSH | 1700 | 1700 | 1700 | | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | | |
| Lane LOS | | | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | | |
| Approach LOS | | | A | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 0.0 | | | | |
| Intersection Capacity Utilizati | ion | | 0.0% | IC | U Level o | of Service | A |
| Analysis Period (min) | | | 15 | | | | |

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Synchro 11 Report Page 16 Mudcreek TIS TYLin

| | → | * | - | - | 1 | - | |
|---|----------|------|----------|------|-----------|------------|---|
| Movement | EBT | EBR | WBL | WBT | NBL | NBR | |
| Lane Configurations | 1 | | | 4 | * | 7 | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Sign Control | Free | | | Free | Stop | | |
| Grade | 0% | | | 0% | 0% | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 0 | 0 | |
| Pedestrians | | | | | | | |
| Lane Width (m) | | | | | | | |
| Walking Speed (m/s) | | | | | | | |
| Percent Blockage | | | | | | | |
| Right turn flare (veh) | | | | | | | |
| Median type | None | | | None | | | |
| Median storage veh) | . 10110 | | | | | | |
| Upstream signal (m) | | | | | | | |
| pX, platoon unblocked | | | | | | | |
| vC, conflicting volume | | | 0 | | 0 | 0 | |
| vC1, stage 1 conf vol | | | | | - | | |
| vC2, stage 2 conf vol | | | | | | | |
| vCu, unblocked vol | | | 0 | | 0 | 0 | |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 | |
| tC, 2 stage (s) | | | 7,1 | | 0.4 | 2500 | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 | |
| p0 queue free % | | | 100 | | 100 | 100 | |
| cM capacity (veh/h) | | | 1623 | | 1023 | 1085 | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB2 | 1020 | ,,,,,, | |
| - Contract of the Contract of | | | 10000000 | | | | |
| Volume Total | .0 | 0 | 0 | 0 | | | |
| Volume Left | 0 | 0 | 0 | 0 | | | |
| Volume Right | 0 | 0 | 0 | 0 | | | |
| cSH | 1700 | 1700 | 1700 | 1700 | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | 0.00 | | | |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| Lane LOS | | 0.0 | A | A | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 | | | | |
| Approach LOS | | | A | | | | |
| Intersection Summary | | | | | | | |
| Average Delay | | | 0.0 | | | | |
| Intersection Capacity Utiliza | ation | | 0.0% | IC | U Level o | of Service | Α |
| Analysis Period (min) | | | 15 | | | | |

| | 1 | - | • | • | - | 1 | | |
|-----------------------------------|------|------|----------|------|-----------|------------|---|--|
| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
| Lane Configurations | | 4 | 7. | | 14 | | | |
| Traffic Volume (veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Future Volume (Veh/h) | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Sign Control | | Free | Free | | Stop | | | |
| Grade | | 0% | 0% | | 0% | | | |
| Peak Hour Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Hourly flow rate (vph) | 0 | 0 | 0 | 0 | 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 | 0 | | | | 0 | 0 | | |
| vC1, stage 1 conf vol | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | 0 | | | | 0 | 0 | | |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | 711 | | | | 2571 | 0.2 | | |
| tF(s) | 2.2 | | | | 3.5 | 3.3 | | |
| p0 queue free % | 100 | | | | 100 | 100 | | |
| cM capacity (veh/h) | 1623 | | | | 1023 | 1085 | | |
| Direction, Lane # | EB 1 | WB 1 | SB 1 | | | 000000 | | |
| Volume Total | 0 | 0 | 0 | | | | | |
| Volume Left | 0 | 0 | 0 | | | | | |
| Volume Lent Volume Right | 0 | 0 | 0 | | | | | |
| cSH | 1700 | 1700 | 1700 | | | | | |
| Volume to Capacity | 0.00 | 0.00 | 0.00 | | | | | |
| Queue Length 95th (m) | 0.00 | 0.00 | 0.00 | | | | | |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | | | | | |
| Lane LOS | 0.0 | 0.0 | | | | | | |
| | 0.0 | 0.0 | 0.0 | | | | | |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 A | | | | | |
| Approach LOS | | | A | | | | | |
| Intersection Summary | | | | | | | | |
| Average Delay | | | 0.0 | | | | | |
| Intersection Capacity Utilization | n | | 0.0% | IC | U Level o | of Service | A | |
| Analysis Period (min) | | | 15 | | | | | |

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