

1357 Baseline Road Transportation Impact Assessment Final Report

May 15, 2020

Prepared for:

Selection Groupe International Inc.

Prepared by:

Stantec Consulting Ltd.

Certification

- 1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
- 2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
- 3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
- 4. I am either a licensed¹ or registered¹ professional in good standing, whose field of expertise is either transportation engineering or transportation planning.

Signature of individual certifier that s/he meets the above four criteria.



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e of registration body that oversees the profession is required to have a code of conduct and ethics es that will ensure appropriate conduct and representation for transportation planning and/or transportation ngineering works

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1.0 SCREENING

1.1 SUMMARY OF DEVELOPMENT

Municipal Address	1357 Baseline Road
Description of Location	North-east corner of the Baseline Road at Clyde Avenue intersection. The site is bound by Baseline Road to the south, Clyde Avenue to the west, and existing commercial to the north and east.
Land Use Classification	Residential, Commercial
Development Size (units)	Retirement units: 228 Apartment units: 174
Development Size (ft ²)	Commercial: 5,900ft ² GFA
Number of Accesses and Locations	1 full movements access to the proposed parking garage off existing Private Access 2, approximately 25m north of Baseline Road
Phase of Development	1 Phase
Buildout Year	Assumed build-out and occupancy by 2022

If available, please attach a sketch of the development or site plan to this form.

1.2 TRIP GENERATION TRIGGER

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size	Triggered
Single-family homes	40 units	×
Townhomes or apartments	90 units	\checkmark
Office	3,500 m ²	×
Industrial	5,000 m ²	×
Fast-food restaurant or coffee shop	100 m ²	×
Destination retail	1,000 m ²	×
Gas station or convenience market	75 m²	×

* If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

If the proposed development size is greater than the sizes identified above, <u>the Trip Generation Trigger is</u> satisfied.



1.3 LOCATION TRIGGERS

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	~	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone? *	~	

*DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

1.4 SAFETY TRIGGERS

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		×
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	✓	
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?		×
Is the proposed driveway within auxiliary lanes of an intersection?		×
Does the proposed driveway make use of an existing median break that serves an existing site?		×
Is there a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		×
Does the development include a drive-thru facility?		×

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

1.5 SUMMARY

	Yes	No
Does the development satisfy the Trip Generation Trigger?	\checkmark	
Does the development satisfy the Location Trigger?	\checkmark	
Does the development satisfy the Safety Trigger?	\checkmark	

If none of the triggers are satisfied, <u>the TIA Study is complete</u>. If one or more of the triggers is satisfied, <u>the TIA Study must continue into the next stage</u> (Screening and Scoping).



2.0 SCOPING

2.1 EXISTING AND PLANNED CONDITIONS

2.1.1 Proposed Development

Selection Groupe International Inc. is preparing a development application for Site Plan Control of a proposed development in the Civic Hospital / Central Park neighbourhood of Ottawa, Ontario. The proposed development is located at the north-east corner of the Baseline Road at Clyde Avenue intersection. The site is bound by Baseline Road to the south, Clyde Avenue to the west, and existing commercial to the north and east.

Figure 1 illustrates the location of the subject development. The subject site is currently zoned as Arterial Mainstreet (AM) Zone; the purpose of the AM Zone, according to the City of Ottawa Official Plan, is to:

- "accommodate a broad range of uses including retail, service commercial, offices, residential and institutional uses in mixed-use buildings or side by side in separate buildings in areas designated Arterial Mainstreet in the Official Plan; and
- Impose development standards that will promote intensification while ensuring that they are compatible with the surrounding uses."

The existing property is currently an empty lot that is the last portion to be developed of the overall 1357 Baseline Road property parcel. There are currently three existing shared private accesses to the 1357 Baseline Road property. Private Access 1 is a full movements signalized intersection and is located on Baseline Road approximately 270m east of Clyde Avenue. Private Access 2 is a right-in only intersection and is located on Baseline Road approximately 100m east of Clyde Avenue. Private Access 3 is a right-in / right-out only intersection and is located on Clyde Avenue approximately 100m north of Baseline Road. Access to the parking garage for the subject site will be located approximately 40m north of Baseline Road along Private Access 2 and will not have any turning restrictions. A total of 324 vehicle parking spaces and 175 bicycle parking spaces will be provided as part of the proposed development.

The proposed site will be constructed in one phase. Build-out and occupancy of the proposed site is anticipated to occur in 2022.

Table 1 outlines the proposed land uses assumed for the analysis which were obtained from the *Institute of Transportation (ITE) Trip Generation Manual 10th Edition*.

Figure 2 illustrates the proposed site plan.



1357 BASELINE ROAD TRANSPORTATION IMPACT ASSESSMENT Scoping May 13, 2020



Figure 1 - Site Location

Table 1 - Proposed Land Uses / Land Use Codes

Land Use	Size	Land Use Code (LUC)
LUC 252	228 units	Senior Adult Housing – Attached
LUC 222	174 units	High-Rise Apartments
LUC 820	5,500 ft² GFA	Shopping Centre



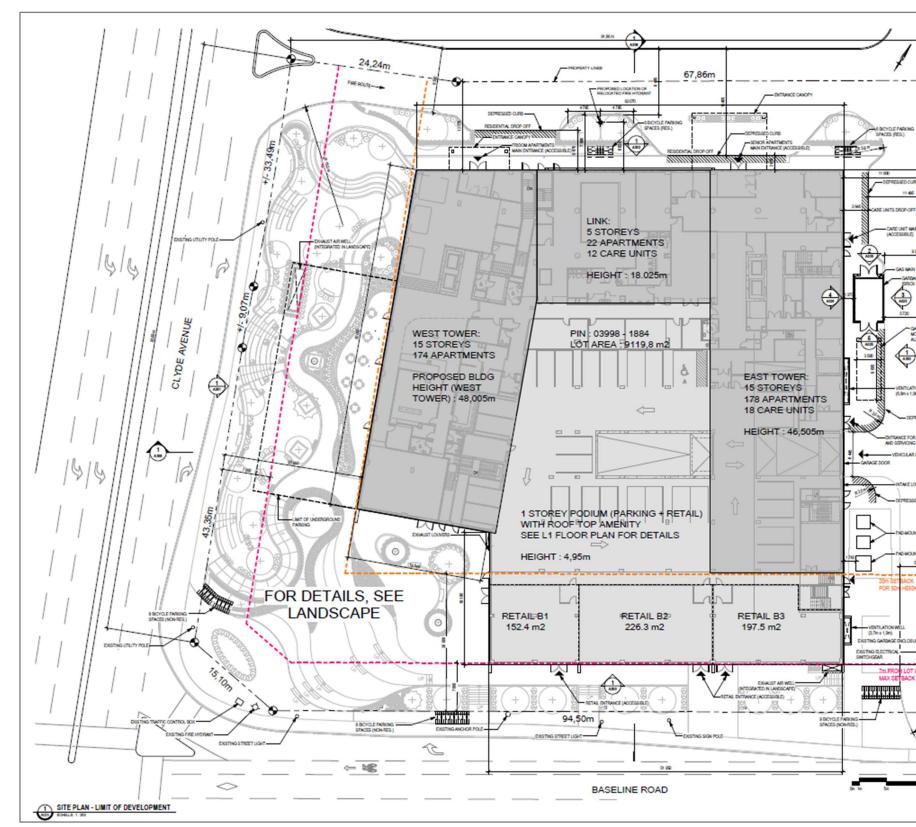
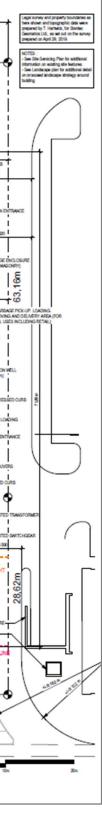


Figure 2 - Site Plan



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May 13, 2020

2.1.2 Existing Conditions

2.1.2.1 Roads and Traffic Control

The roadways under consideration in the study area are described as follows:

Baseline Road	Within the vicinity of the subject site, Baseline Road is a municipal five-lane divided arterial roadway. The posted speed limit along Baseline Road across the frontage of the subject site is 60 km/h. Sidewalks are provided along both sides of the road and an on-street bicycle lane is provided in the westbound direction. As outlined in the City's Official Plan, Baseline Road is designated as an Arterial Mainstreet across the frontage of the subject site.
Clyde Avenue	Within the vicinity of the subject site, Clyde Avenue is a municipal four-lane divided arterial roadway. The posted speed limit along Clyde Avenue across the frontage of the subject site is 60 km/h. Sidewalks are provided along both sides of Clyde Avenue. The intersection with Baseline Road is signalized and auxiliary left turn lanes are provided in all directions.

There are numerous commercial driveways along both Baseline Road and Clyde Avenue within 200m of the existing Private Accesses.

Figure 3 illustrates the existing lane configuration and traffic control.



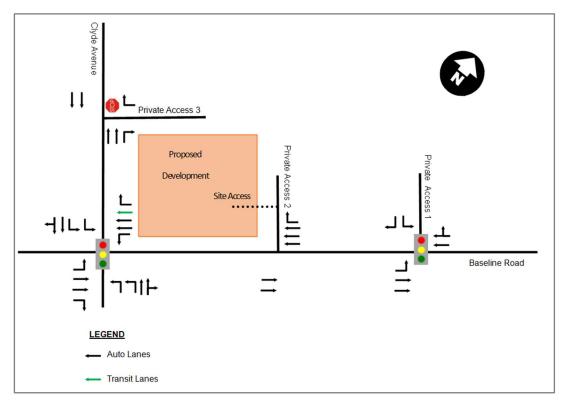


Figure 3 - Existing Lane Configuration and Traffic Control

2.1.2.2 Walking and Cycling

Within the vicinity of the subject site, sidewalks are provided on both sides of Baseline Road and Clyde Avenue. Across the frontage of the subject site, there is currently an on-street bicycle lane along Baseline Road in the westbound direction. Both Baseline Road and Clyde Avenue are designated as 'spine' cycling routes in the City of Ottawa's Ultimate Cycling Network.

2.1.2.3 Transit

Transit service is currently provided in the immediate vicinity of the proposed development via the following routes:

Route 50 Route 50 is a Local Route that runs between Tunney's Pasture Station and Lincoln Fields Station

Route 81 Route 81 is a Local Route that runs between Tunney's Pasture Station and Clyde Avenue

Route 88 Route 88 is a Frequent Route that runs between Hurdman Station and Terry Fox Station

There are transit stops located at the intersection of Baseline Road and Clyde Avenue that are serviced by all three transit routes.

Figure 4 illustrates nearby transit routes and bus stop locations.



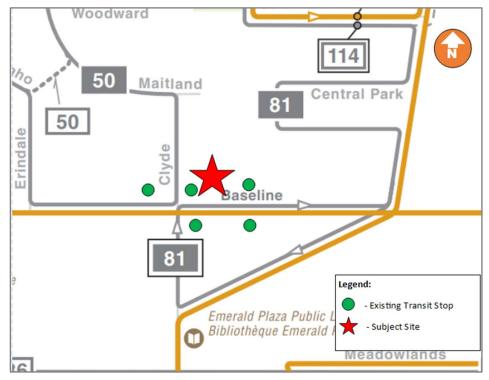


Figure 4 - Study Area Transit Routes and Stops

(Source: OC Transpo System Map, accessed November 7th, 2019)

2.1.2.4 Traffic Management Measures

No traffic management measures are currently provided near the subject site.

2.1.2.5 Traffic Volumes

Traffic volumes at the study area intersections were collected in the summer of 2019. **Figure 5** illustrates the 2019 traffic volumes at the four study area intersections.

Appendix A contains the traffic data and is provided for reference.



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Scoping

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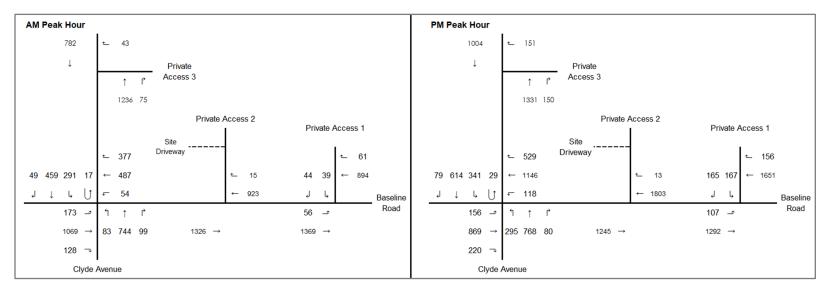


Figure 5 - 2019 Existing Traffic Volumes

2.1.2.6 Collision History

Collision data was provided by the City of Ottawa for the period January 2014 to December 2018 in the vicinity of the subject site. The data was reviewed to determine if any intersections or road segments exhibited an identifiable collision pattern during the five (5) year period.

 Table 2 includes the collision summary for each road segment and intersection in the study area.

Appendix A contains the collision data and is provided for reference.

		Baseline Road at Clyde Avenue	Baseline Road at Private Access 1	Baseline Road between Clyde and Private Access 1	Clyde Avenue between Baseline Road and Maitland Avenue
	Property Damage Only	104	19	16	10
Classification	Non-Fatal Injury	19	10	6	1
	Fatal	0	0	0	1
	Rear End	76	12	15	3
o	Angle / Turning	24	13	0	4
Collision Type	Sideswipe	20	0	5	3
	Single Motor Vehicle	3	4	2	2
	Other Motor Vehicle	112	24	19	9
	Ran off Road	0	0	1	0
Front	Cyclist	1	1	0	1
Event	Pedestrian	0	4	1	1
	Skidding	7	0	1	1
	Physical (curb, pole, barrier)	3	0	0	0

Table 2 - Collision Summary

Based on the collision data summarized in **Table 2** above, it was found that the Baseline Road at Clyde Avenue intersection experienced the highest number of collisions. A collision diagram was created (**Figure 6** below) for this intersection to visually depict the directions the vehicles were traveling at the time of the collisions to determine there are any discernable patterns.



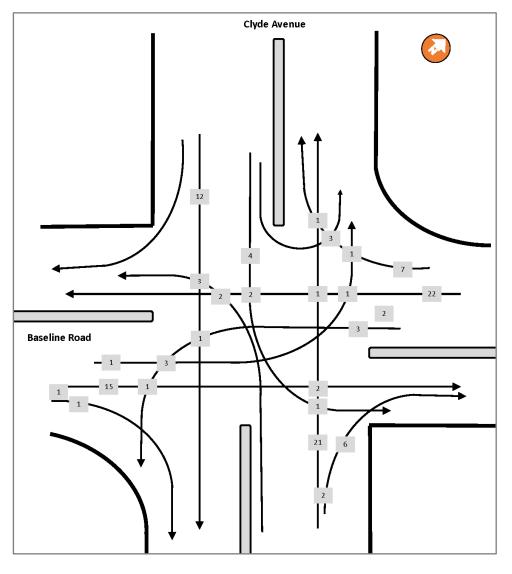


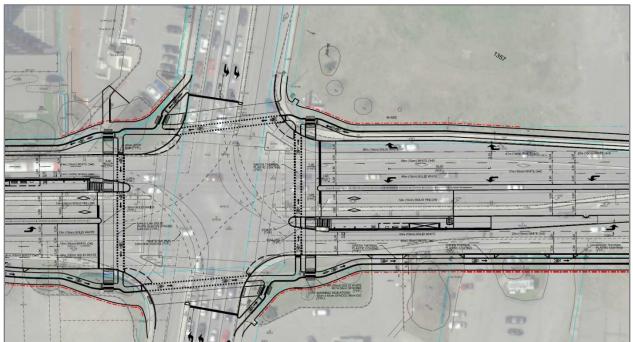
Figure 6 - Collisions at the Baseline Road at Clyde Avenue Intersection (2014 – 2018)

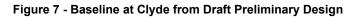
Based on the data depicted in **Figure 6** above, it was found the majority of the collisions at this intersection involved vehicles traveling in the westbound direction. There is a vertical crest along Baseline Road just east of Clyde Avenue which may contribute to the high frequency of collisions. Vehicles traveling in the westbound direction may not see other vehicles that are stopped at the Clyde Avenue intersection as they traverse over the crest of the hill. Their speeds may increase as they descend the hill at which point there may not be sufficient space to safely stop, thus leading to rear end collisions. The westbound right turn lane is currently configured as a regular channelized lane (i.e. instead of a smart channel), which reduces the angle of view for motorists as they attempt to check for oncoming vehicles. To add to the problem, the southbound left turn currently has two lanes with a permitted 'u-turn' sign, which is atypical for dual left turn lanes. This combination of design elements of the westbound right turn lane and permitted u-turn movements in the southbound left direction at this intersection likely contributes to the abnormal number of collisions involving the westbound right turn lane.



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Once the Baseline Road Bus Rapid Transit (BRT) in place, the cross-section of Baseline Road across the frontage of the subject site will change. Based on the draft preliminary design for the Baseline Road BRT, the Baseline Road at Clyde Avenue intersection will include a westbound left turn lane, a westbound through lane, a two westbound through lanes, and a westbound right turn lane (**Figure 7** below).





Source: Draft Preliminary Design. Obtained from the City of Ottawa on October 30, 2019.

2.1.3 Planned Conditions

2.1.3.1 Road Network Modifications

One transit improvement is scheduled to occur within the vicinity of the subject development, as outlined in the City of Ottawa's Transportation Master Plan and are summarized in **Table 3** below.

Table 3 - City of Ottawa Tra	sportation Master Plan Projects
------------------------------	---------------------------------

Project Description		TMP Phase	
Baseline / Heron /	At-grade Bus Rapid Transit connecting Baseline Station to Heron Station	Affordable Network (2031)	
Baseline / Heron / Walkley / St. Laurent	At-grade Bus Rapid Transit connecting Bayshore Station to St. Laurent Station	Network Concept (i.e. beyond 2031)	



1357 BASELINE ROAD TRANSPORTATION IMPACT ASSESSMENT

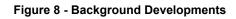
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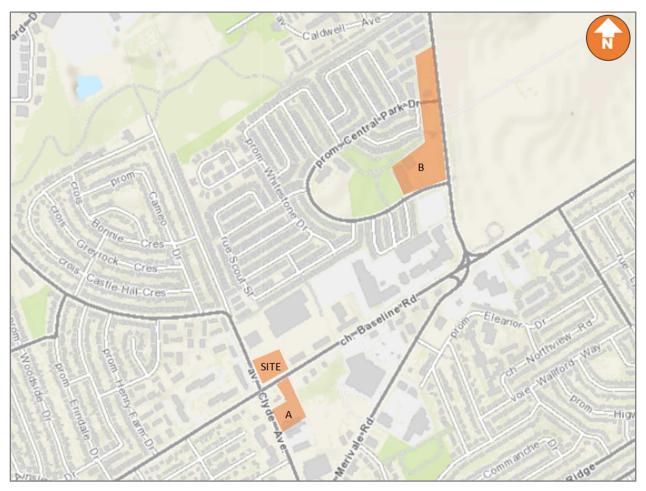
2.1.3.2 Future Background Developments

There are two developments scheduled to occur within the vicinity of the subject site, as illustrated in **Figure 8** and described in **Table 4**.

Key Plan Reference	Development	Location	Description	Build-Out Horizon
А	1375 Clyde Avenue	Southeast quadrant of the Baseline Road at Clyde Avenue intersection.	Self-storage facility, restaurant and expansion of existing retail building.	2020
В	300 Central Park	West of Merivale Road, between Central Park Drive and Caldwell Avenue	740 high-rise apartment units, 180,000 ft ² of retail, and 48,000 ft ² of office.	No definitive timeline outlined in the TIA. Assumed to be by 2022 for the subject TIA.

Table 4 - Background Developments





2.2 STUDY AREA AND TIME PERIODS

2.2.1 Study Area

The proposed study area is limited to the following intersections:

- 1. Baseline Road at Clyde Avenue;
- 2. Baseline Road at Private Access 1;
- 3. Baseline Road at Private Access 2; and
- 4. Clyde Avenue at Private Access 3.

2.2.2 Time Periods

The proposed scope of the transportation assessment includes the following analysis time periods:

- Weekday AM peak hour of roadway; and
- Weekday PM peak hour of roadway.

2.2.3 Horizon Years

The scope of the transportation assessment proposes the following horizon years:

- 2019 existing conditions;
- 2022 future background conditions;
- 2022 total future conditions (site build-out); and
- 2027 total future conditions (5 years beyond build-out).



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2.3 EXEMPTIONS REVIEW

Table 5 summarizes the Exemptions Review table from the City of Ottawa's 2017 Transportation Impact Assessment

 Guidelines.

Module	Element	Exemption Considerations	Exempted?
Design Review Component			
	4.1.2 Circulation and Access	Only required for site plans	No
4.1 Development Design	4.1.3 New Street Networks	Only required for plans of subdivision	Yes
	4.2.1 Parking Supply	Only required for site plans	No
4.2 Parking	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Yes
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	No
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Yes
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	Yes
4.9 Intersection Design	All Elements	Not required if site generation trigger is not met.	No

Table 5 - Exemptions Review



3.0 FORECASTING

The Step 3.0 – Forecasting section has been reviewed by the City of Ottawa and was subject to revision as per the comments prepared by the City, dated November 27th, 2019. The comment responses reflected are herein. Further detail can be found in **Appendix B**.

3.1 DEVELOPMENT GENERATED TRAVEL DEMAND

3.1.1 Trip Generation and Mode Shares

The *Institute of Transportation (ITE) Trip Generation Manual* (10th edition) was used to forecast auto trip generation for the proposed senior's residence and commercial land use. The *TRANS Trip Generation Residential Trip Rates Study Report* was used to forecast auto trip generation for the apartment land use. Land use codes 252 – Senior Adult Housing Attached (ITE), 820 – Shopping Centre (ITE), and 222 – High-Rise Apartments (TRANS) were thought to be the most representative of the proposed land uses. **Table 6** outlines the assumed land uses and the trip generation rates for each land use.

As per the City of Ottawa's 2017 TIA Guidelines, the auto trip generation rates of the apartment land use were converted to person trips using the auto mode shares outlined in Table 3.13 in the TRANS Trip Generation Residential Trip Rates Study Report. The auto trip generation rates of the senior's residence and commercial land use were converted to person trips using a conversion factor of 1.28. **Table 7** outlines development-generated person trips for each land use.

Table 6 - Land Uses and T	rip Generation Rates
---------------------------	----------------------

LUC Land Use		Size	Weekday AM Peak Hour			Weekday PM Peak Hour		
LUC	Lanu Use	Size	In	Out	Rate	In	Out	Total
252	Senior Adult Housing Attached	228 units	35%	65%	0.20	55%	45%	0.26
820	Shopping Centre	5,500 ft ² GFA	62%	38%	0.94	48%	52%	3.81
222	High-Rise Apartments	174 units	24%	76%	0.31	61%	39%	0.36

Table 7 - Person Trips Generated by Land Use

LUC	Land Use	Trip Conversion	Weekday AM Peak Hour Weekday PM Peak He					
LUC	Lanu Use	The Conversion	In	Out	Total	In	Out	Total
	0 ·	Auto Trips	16	29	45	32	27	59
252	Senior Adult Housing Attached	Conversion Factor	1.28	1.28	1.28	1.28	1.28	1.28
	Allaciieu	Person Trips	20	37	58	41	35	76
		Auto Trips	4	2	6	11	11	22
820	Shopping Centre	Conversion Factor	1.28	1.28	1.28	1.28	1.28	1.28
		Person Trips	5	3	8	14	14	28
		Auto Trips	13	41	54	38	25	63
222	High-Rise Apartments	Auto Mode Share		37%		40%		
		Person Trips	27	86	114	73	45	118
	Total	Auto Trips	30	63	93	72	56	128
	rotar	Person Trips	52	126	180	128	94	222



To reflect local travel characteristics, the person trips were assigned to the four primary modal shares (i.e. auto, passenger, transit, and active moves) according to the TRANS Committee's 2011 Origin-Destination (O-D) Survey for the Merivale District. The subject site is located within the Baseline Road Bus Rapid Transit Corridor, however, based on direction from the City of Ottawa, the BRT is planned to be constructed by 2023, which is one year after the build-out of the subject site. As such, the characteristics from the Merivale District were used to develop the mode shares for the subject development for the 2022 build-out horizon.

Table 8 outlines the anticipated trip generation potential of the proposed development by travel mode based on assumed mode share targets for the 2022 horizon year.

LUC Land Use		Trip Conversion		Weeko	Weekday AM Peak Hour			Weekday PM Peak Hour		
LUC	Lanu USe	The conversion		In	Out	Total	In	Out	Total	
		Auto	50%	10	19	29	21	18	38	
	Contine Adult Lloueine	Passenger	15%	3	6	9	6	5	11	
252	Senior Adult Housing Attached	Walk	10%	2	4	6	4	4	8	
	Alldoned	Bike	5%	1	2	3	2	2	4	
		Transit	20%	4	7	12	8	7	15	
		Auto	50%	3	2	4	7	7	14	
		Passenger	15%	1	0	1	2	2	4	
820	Shopping Centre	Walk	10%	1	0	1	1	1	3	
		Bike	5%	0	0	0	1	1	1	
		Transit	20%	1	1	2	3	3	6	
		Auto	50%	14	43	57	37	23	59	
		Passenger	15%	4	13	17	11	7	18	
222	High-Rise Apartments	Walk	10%	3	9	11	7	5	12	
	Apartments	Bike	5%	1	4	6	4	2	6	
		Transit	20%	5	17	23	15	9	24	
		Aut	to Trips	27	64	90	65	48	111	
		Pas	senger	8	19	27	19	14	33	
	Total		Walk	6	13	18	12	10	23	
			Bike	2	6	9	7	5	11	
			Transit	10	25	37	26	19	45	

Table 8 - Trips Generated by Travel Mode – Without Baseline BRT

Once the Baseline Road BRT Is operational, the transit modal share for the subject development will increase and thus the auto modal share will decrease. Therefore, the number of auto trips that the proposed development will generate will decrease once the Baseline Road BRT is constructed. A second trip generation was developed to reflect the revised modal shares once the Baseline BRT is open, as shown in **Table 9** below. These modal shares were agreed upon by the City prior to the submission of the Step 3 TIA.



LUC	Land Use	Trip Conversion		Weeko	Weekday AM Peak Hour			Weekday PM Peak Hour		
LUC	Lanu USe			In	Out	Total	In	Out	Total	
		Auto	30%	6	11	17	12	11	23	
		Passenger	15%	3	6	9	6	5	11	
252	Senior Adult Housing Attached	Walk	10%	2	4	6	4	4	8	
	Alldoned	Bike	5%	1	2	3	2	2	4	
		Transit	40%	8	15	23	16	14	30	
		Auto	30%	2	1	2	4	4	8	
		Passenger	15%	1	0	1	2	2	4	
820	Shopping Centre	Walk	10%	1	0	1	1	1	3	
		Bike	5%	0	0	0	1	1	1	
		Transit	40%	2	1	3	6	6	11	
		Auto	30%	8	26	34	22	14	35	
		Passenger	15%	4	13	17	11	7	18	
222	High-Rise Apartments	Walk	10%	3	9	11	7	5	12	
	Apartments	Bike	5%	1	4	6	4	2	6	
		Transit	40%	11	34	46	29	18	47	
		Aut	to Trips	16	38	53	38	29	66	
		Pas	senger	8	19	27	19	14	33	
	Total		Walk	6	13	18	12	10	23	
			Bike	2	6	9	7	5	11	
			Transit	21	50	72	51	38	88	

Table 9 - Trips Generated by Travel Mode – With Baseline BRT

3.1.2 Trip Distribution

The distribution of traffic to / from the proposed development was determined through examination of the Trans Committee's 2011 Origin-Destination (O-D) Survey for the Merivale District. **Table 10** provides a summary of the estimated distribution for the traffic generated by the proposed development.

				Via (to / from)	
Cardinal Direc	ction	Clyde Avenue	Clyde Avenue	Baseline Road	Baseline Road
		(North)	(South)	(West)	(East)
North	15%	15%			
East	40%	32%			8%
South	5%		5%		
West	10%	5%		5%	
Internal (Merivale)	30%		24%		6%
Total	100%	52%	29%	5%	14%

3.1.3 Trip Assignment

Site generated trips were assigned to the study area road network based on the trip distribution assumptions outlined in **Table 10** above. **Figure 9** outlines the site assignment assumptions. It should be noted that the red value represent the outbound trips and the black values represent the inbound trips.



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Forecasting May 13, 2020

Figure 10 illustrates the site generated trips for the proposed site during the AM and PM peak hours without the Baseline Road BRT in place.

Figure 11 illustrates the site generated trips for the proposed site during the AM and PM peak hours with the Baseline Road BRT in place.

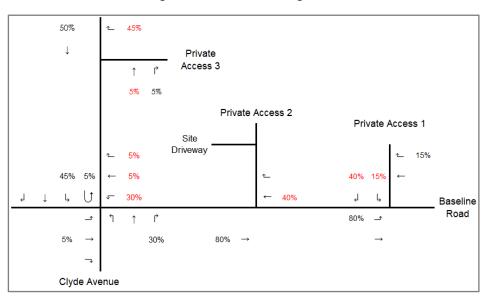


Figure 9 - Site Traffic Assignment



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Forecasting

May 13, 2020

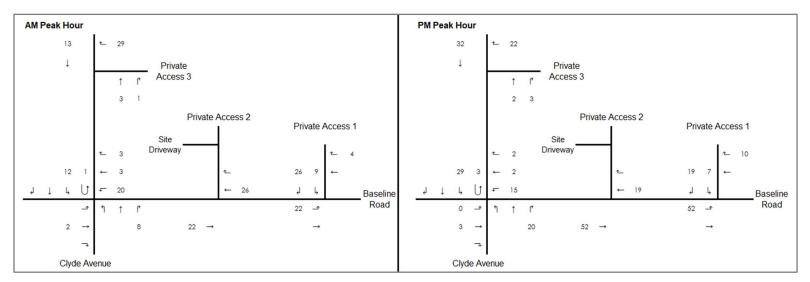
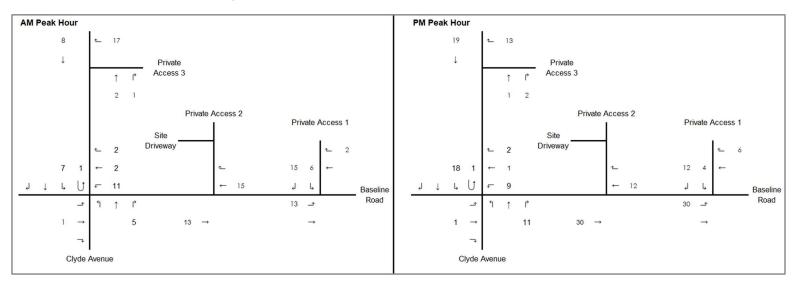


Figure 10 - Site Generated Traffic Volumes – Without Baseline BRT

Figure 11 - Site Generated Traffic Volumes - With Baseline BRT



3.2 BACKGROUND NETWORK TRAVEL DEMAND

3.2.1 Transportation Network Plans

As outlined in **Table 3** in **section 2.1.3.1**, the only road infrastructure project that is included in the TMP within the vicinity of the subject site is the Baseline Road Bus Rapid Transit. As per direction from the City of Ottawa, it is assumed that this BRT will be constructed by 2023.

3.2.2 Background Growth

The City of Ottawa provided **Figure 12** below, which outlines the average annual growth rates based on trend lines. As illustrated in **Figure 12**, the average annual growth in the vicinity of the subject site is in the range of 0.2% - 2.0%. To be conservative, a 2% annual background growth rate was used in the subject analysis until the BRT is constructed, which is assumed to be by 2023.

As outlined in the *Baseline Road Bus Rapid Transit Planning and Environmental Assessment Study* (July 2017), the BRT is anticipated to reduce the traffic volumes on Baseline Road by approximately 10% when comparing 2010 volumes to 2031 projected volumes. Considering that the BRT will be constructed by 2023, this 10% reduction in traffic equates to roughly 1.25% reduction per annum between 2023 and the 2031.

Based on the above, a 2% growth rate was used in the subject analysis between 2019 and 2023 (i.e. until the Baseline BRT is constructed). Between 2023 and 2027 (i.e. the 5-year horizon for the subject development), a -1.25% growth rate was used to account for the shift in modal share from automobile to transit.

As part of the Step 1 and 2 Report, the City of Ottawa agreed that the future volumes on Baseline Road should be capped at approximately 1,600 - 1,800 vehicles per hour (vph) per direction, which is consistent with the existing capacity of the two-lane section of Baseline Road. Using the above growth projections, the 2027 ultimate volumes along Baseline Road at anticipated to be in accordance with the 1,600 - 1,800 vph capacity.

3.2.3 Other Developments

In addition to the background growth rate outlined in **Section 3.2.2** above, there are two background developments that are assumed to be built by the 2027 ultimate horizon, per **Table 4**. The site trips were obtained from their respective traffic studies and explicitly added to the transportation network as background traffic.



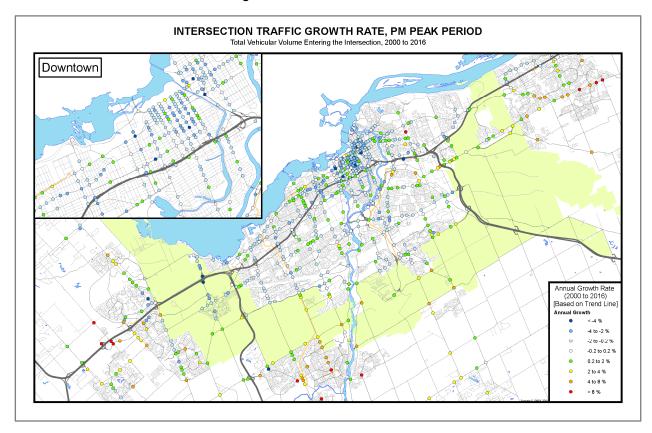


Figure 12 – Annual Growth Rates

3.3 DEMAND RATIONALIZATION

Based on direction from the City of Ottawa, the realistic demands along Baseline Road once the BRT is operational will be in the range of 1,600 - 1,800 vehicles per hour per direction. Based on the aforementioned sections, the volumes along Baseline Road were forecasted to remain within this range. The City has provided direction that these volumes should not be further reduced to account for demand rationalization. This methodology was applied moving forward, even if the operations at the intersections are found to be poor.



4.0 STRATEGY

4.1 DEVELOPMENT DESIGN

4.1.1 Design for Sustainable Modes

Bicycle facilities: A total of 175 bicycle parking spaces are provided for the proposed development. Eighteen (18) spaces are provided at the northern and eastern sides of the building while the rest is provided underground on parking level P1.

Pedestrian facilities: Pedestrian connections are included on the site plan which will connect the proposed building to the existing sidewalks along Baseline Road and Clyde Avenue.

Parking areas: A total of 324 vehicle parking spaces are provided in addition to one (1) loading space. The 324 parking spaces consist of 278 regular vehicle parking spaces, 37 visitor parking spaces, and 9 accessible parking spaces.

The accessible parking spaces are dispersed across all parking levels. The loading space is located at the eastern side of the building, along Private Access 2.

Transit facilities: Transit stops for OC Transpo routes 50, 81, and 88 are currently serviced by stops located at the vicinity of the intersection of Baseline Road and Clyde Avenue Drive. There are sidewalks along both sides of Baseline Road and Clyde Avenue as well as pedestrian crosswalks at the intersection for pedestrians to access these transit stops.

4.1.2 Circulation and Access

One site access (Site Driveway) is proposed approximately 40m north of Baseline Road along the Private Access 2. The Site Driveway connects the developments ground level and underground parking to Private Access 2. The site access will be full movements access with no turning restrictions and will be stop controlled along the access's approach. It should be noted that Private Access 2 intersection at Baseline Road is a Right-In (RI) only access, which means that vehicles existing the Site Driveway will have to use Private Access 1 and Private Access 3 to access the public roadway network. Vehicles heading towards the development's parking structure can utilize Private Accesses 1, 2, and 3 depending on their direction of travel. **Figure 3** shows a schematic of the study area's access as well as private and public roadways.

Within the vicinity of the subject site, pedestrian access is facilitated through the existing sidewalks along Baseline Road and Clyde Avenue. Sidewalk connections are proposed between at all sides of the development. Boulevards are proposed at the southern and western sides of the building and will connect to sidewalks along Baseline Road and Clyde Avenue, respectively.

It should be noted that a Monitoring Plan has been prepared as part of the subject TIA. This Monitoring Plan recommends what should be monitored in the future, once the Baseline Road BRT is in place, in order to determine whether or not a right-out movement would be acceptable at the Baseline Road at Private Access 2 intersection. **Appendix C** contains the Monitoring Plan.



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4.1.3 New Street Networks

Not applicable; exempted during screening and scoping.

4.2 PARKING

4.2.1 Parking Supply

Auto Parking - As per Schedule 1A of the city's zoning by-law No. 2008-250, the development is located in Area B (Outer Urban / Inner Suburban). However, Area X (Inner Urban) rates apply due to the proximity of the development to the future Bus Rapid Transit (BRT) stations as identified in Schedule 2A. Based Sections 101 and 102, the minimum vehicle parking space requirement is 0.25 per rooming unit for the residential component and 1.25 vehicle parking spaces per 100m² for the retail component. No off-street parking spaces are required for the first 12 residential units. The minimum requirement for visitor parking spaces is 0.1 vehicle parking space per unit.

Based on the proposed land uses, a minimum of 101 vehicle parking spaces are required for the residential component, 7 vehicle parking spaces are required for the retail component, and 37 vehicle parking spaces are required for visitors.

Within area B, the maximum total provided spaces shall not exceed 703 spaces, of which the maximum allowed visitor's parking spaces is 60.

The proposed site plan indicates there will be a total of 324 parking spaces provided, of which 20 vehicle parking spaces are allocated for retail uses, 267 vehicle parking spaces for the residential component, and 37 vehicle parking spaces are dedicated for visitors. In addition, one space at the eastern side of the building is allocated for loading and offloading activities. The proposed parking spaces fall within the City of Ottawa minimum and maximum allowed ranges as summarized in **Table 11**.

#	Land Use	Min. Requirement (# Spaces)	Max. Requirement (# Spaces)	Provided (# Spaces)
1	Retail	7	20	20
2	Residential	101	703	267
3	Visitors	37	60	37
4	Loading	NA	NA	1 ¹
5	Accessible	9	NA	9 ²
5	Total	154	783	324

Table 11 - Summary of Development Parking Spaces

Excluded from the total parking spaces calculations
 Included in the total parking count

Bicycle Parking – As per City of Ottawa Zoning By-law 2008-250 (Section 111), the minimum bicycle parking rate of 0.25 bicycle parking space per residential unit and 1 bicycle parking space per 250m² of retail (gross floor area) are required.



Based on the proposed land uses, a minimum of 101 bicycle spaces are required for the residential component and 2 bicycle spaces are required for the retail component. The proposed site plan indicates there will be a total of 175 bicycle spaces provided, where 150 is allocated for the residential component and 25 for the retail component. The provided bicycle parking spaces meets the minimum requirements.

4.2.2 Spillover Parking

Not applicable; exempted during screening and scoping.

4.3 BOUNDARY STREET DESIGN

4.3.1 Design Concept

The subject development is located in an area that will experience a substantial amount of change over the next few years in terms of the transportation environment. The Baseline Road BRT is scheduled to be implemented by 2023, which will have a large impact on the transportation network in the surrounding area. Two separate MMLOS analyses were completed; one for the existing conditions (i.e. before the Baseline Road BRT) and one for the ultimate conditions (i.e. after the Baseline Road BRT).

Appendix D contains the detailed MMLOS analysis and is provided for reference.

4.3.1.1 Existing Conditions (i.e. before the Baseline Road BRT)

As outlined in the City of Ottawa's *Official Plan* Schedule B, both Baseline Road and Clyde Avenue fall within the 'General Urban Area' designation. In addition, the following information was found:

- Baseline Road and Clyde Avenue are both classified as Arterial Roadways;
- Baseline Road and Clyde Avenue are both classified as Cycling Spine Routes;
- Baseline Road is classified as a Cross-Town Bikeway;
- Baseline Road is classified as a Transit Corridor; and
- Baseline Road is classified as a Full Loads truck route.

Based on the aforementioned information, the Pedestrian Level of Service (PLOS) target for both Baseline Road and Clyde Avenue is C. The Bicycle Level of Service (BLOS) target is B for Baseline Road and C for Clyde Avenue. The Transit Level of Service (TLOS) target is B for Baseline Road and D for Clyde Avenue. The Truck Level of Service (TkLOS) target is D for Baseline Road and E for Clyde Avenue.

Figure 13 illustrates the MMLOS targets and results for both roadway segments under existing conditions.



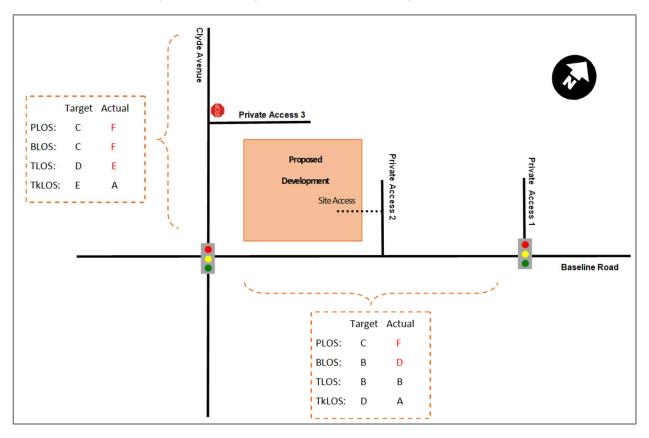


Figure 13 – Existing Conditions – MMLOS Targets and Results

Baseline Road

The PLOS target of C along Baseline Road, across the frontage of the subject development, is not currently being met due to the width of the existing sidewalk, lack of boulevards, volume of traffic, and posted speed limit. To improve the PLOS and meet the target of C, the sidewalk width would need to be increased to 2.0m, a 2.0m boulevard would need to be implemented, and the posted speed limit would need to be reduced to 50 km/h. As Baseline Road is an arterial roadway, reducing the posted speed limit is likely not a viable option. The ultimate design for the Baseline Road BRT includes modifications to the pedestrian facilities, which will be further explored in the MMLOS analysis for the ultimate conditions.

The BLOS target of B along Baseline Road, across the frontage of the subject development, is not currently being met due to the number of vehicle lanes, as well as the posted speed limit. Due to the number of lanes along Baseline Road, the only feasible option to achieve the BLOS target would be to implement a physically separated cycling facility (i.e. cycle track). The ultimate design for the Baseline Road BRT includes cycle tracks along Baseline Road, which will be further explored in the MMLOS analysis for the ultimate conditions.

The TLOS target of B along Baseline Road, across the frontage of the subject development, is currently being met due to the limited parking / driveway friction along the corridor.



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The TkLOS target of D along Baseline Road, across the frontage of the subject development, is currently being met due to the number and width of the travel lanes.

Clyde Avenue

The PLOS target of C along Clyde Avenue, across the frontage of the subject development, is not currently being met due to the width of the existing sidewalk, lack of boulevards, volume of traffic, and posted speed limit. To improve the PLOS and meet the target of C, the sidewalk width would need to be increased to 2.0m, a 2.0m boulevard would need to be implemented, and the posted speed limit would need to be reduced to 50 km/h. As Clyde Avenue is an arterial roadway, reducing the posted speed limit is likely not a viable option.

The BLOS target of C along Clyde Avenue, across the frontage of the subject development, is not currently being met due to the lack of cycling facilities, the number of lanes, as well as the posted speed limit. Due to the number of lanes along Clyde Avenue, the only feasible option to achieve the BLOS target would be to implement a physically separated cycling facility (i.e. cycle track), however, this would have financial and property constraints.

The TLOS target of D along Clyde Avenue, across the frontage of the subject development, is currently being met due to the limited parking / driveway friction along the corridor.

The TkLOS target of E along Clyde Avenue, across the frontage of the subject development, is currently being met due to the number and width of the travel lanes.

4.3.1.2 Ultimate Conditions (i.e. after the Baseline Road BRT)

By the year 2023, the city is expecting to implement the BRT corridor upgrades with dedicated transitway ROW and transit priority measures along Baseline Road. In terms of the MMLOS targets, both roadway segments will fall under the 'within 600m of a rapid transit station' Policy Area once the Baseline BRT is implemented and the proposed transit station at the Baseline Road at Clyde Avenue intersection is built. The geometric elements of the ultimate Baseline Road cross-section were taken from **Figure 7**, included in **Section 2.1.2.6**.

The Pedestrian Level of Service (PLOS) target for both Baseline Road and Clyde Avenue will be A. The Bicycle Level of Service (BLOS) target will be A for Baseline Road and C for Clyde Avenue. The Transit Level of Service (TLOS) target will be A for Baseline Road and D for Clyde Avenue. The Truck Level of Service (TkLOS) targets will remain unchanged at D for Baseline Road and E for Clyde Avenue.

Figure 14 illustrates the MMLOS targets and results for both roadway segments under ultimate conditions.

Baseline Road

The Baseline Road BRT design includes a boulevard and cycle track separating the sidewalk and the vehicle travel lanes. This improves the PLOS in the ultimate conditions, however, with the implementation of the BRT corridor, the PLOS target will increase to an A. Despite the increased width between the pedestrians and vehicles, the PLOS target of A is not anticipated to be met in the ultimate conditions. Reducing the speed limit to 30 km/h or reducing the traffic volumes to less than 3000 AADT would allow the PLOS target of A to be met, however, as Baseline Road is an arterial road, these are not feasible solutions.



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With the implementation of the BRT corridor, the BLOS target will increase to an A along Baseline Road. The Baseline Road BRT design includes separated cycling facilities along both sides of Baseline Road, which will allow the BLOS target of A to be met in the ultimate conditions.

With the rapid transit corridor in place, the TLOS target along Baseline Road will increase to an A, which is anticipated to be met in the ultimate conditions.

The TkLOS target of D along Baseline Road, across the frontage of the subject development, is anticipated to continue to be met due to the number and width of the travel lanes.

Clyde Avenue

The PLOS target of A along Clyde Avenue, across the frontage of the subject development, is anticipated to continue to not be met due to the width of the existing sidewalk, lack of boulevards, volume of traffic, and posted speed limit. To improve the PLOS and meet the target of A, the sidewalk width would need to be increased to 2.0m, a 2.0m boulevard would need to be implemented, the posted speed limit would need to be reduced to 50 km/h, and the volume of traffic would need to be reduced to less than 3000 AADT. As Clyde Avenue is an arterial roadway, reducing the posted speed limit and traffic volumes are likely not viable options.

The BLOS target of C along Clyde Avenue, across the frontage of the subject development, is anticipated to continue to not be met due to the lack of cycling facilities, the number of lanes, as well as the posted speed limit. Due to the number of lanes along Clyde Avenue, the only feasible option to achieve the BLOS target would be to implement a physically separated cycling facility (i.e. cycle track), however, this would have financial and property constraints.

The TLOS target of D along Clyde Avenue, across the frontage of the subject development, is anticipated to continue to not be met due to the limited parking / driveway friction along the corridor.

The TkLOS target of E along Clyde Avenue, across the frontage of the subject development, is anticipated to continue to be met due to the number and width of the travel lanes.



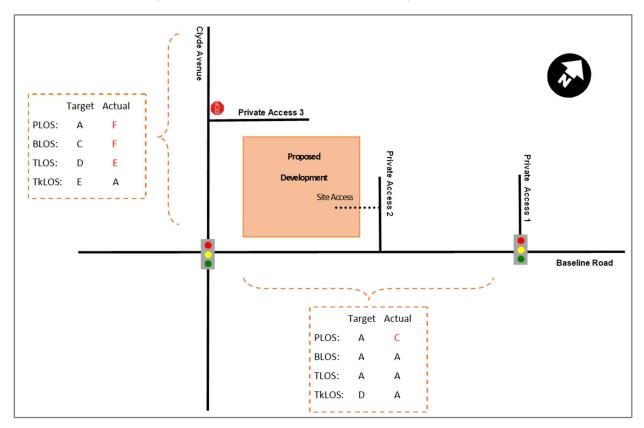


Figure 14 – Ultimate Conditions – MMLOS Targets and Results

4.4 ACCESS INTERSECTIONS DESIGN

4.4.1 Location and Design of Access

The parking garage access for the subject site will be located approximately 45m north of Baseline Road along Private Access 2 and will not have any turning restrictions. The garage entrance will facilitate both ingress and egress and will be approximately 6.5m wide with a variable grade of approximately 6% - 16%.

4.4.2 Intersection Control

The site access is a low-volume driveway located on a Private Shared Access (Private Access 2) and is anticipated to be a One Way Stop Control (OWSC) access.

4.4.3 Intersection Design

Section 4.9.2 contains the detailed intersection and MMLOS analyses under all horizons.



4.5 TRANSPORTATION DEMAND MANAGEMENT

4.5.1 Context for TDM

The proposed development is currently owned by Selection Groupe International Inc. The site consists of senior residential units, apartment units, and three retail units and is expected to be open by the year 2022. The tenants for the retail component are not known yet. As outlined in **Section 3.1.1**, the Traffic Assessment Zone (TAZ) in which the subject development resides calls for an auto mode share of 50% and a transit share of 20%. However, after the implementation of the BRT corridor improvements along Baseline Road, the auto modal share is expected to decrease to 30% while the transit modal share is expected to increase to 40%. These transit modal shares were agreed upon by the City during the preparation of the Step 3 – Forecasting Report. It is expected that BRT service will have a 5-6 minute headway during the AM peak and a 7-8 minute headway during the PM peak, which will support these transit modal share assumptions.

To support the future bicycle modal share of 5%, the development is planned to provide a total of 156 bicycle parking spaces. To support the future walking modal share of 10%, the development is planned to include ample sidewalk connections from the proposed building to the existing pedestrian network along both Clyde Avenue and Baseline Road.

As the proposed development is not anticipated to generate a substantial amount of vehicle traffic as compared to the traffic that is already on the boundary road network, the auto modal shares are not anticipated to be an issue.

4.5.2 Need and Opportunity

In order to support the transit and active modal share targets outlined in **Table 8**, cycling and transit modes will need to be supported. This includes the provision of bicycle parking as well as ensuring convenient pedestrian connections are provided to sidewalk facilities leading to bus stop locations. These aforementioned facilities have been included on the site plan to support active modes.

4.5.3 TDM Program

The City of Ottawa TDM Checklists were used to determine what TDM measures could be implemented based on the available information. Based on the checklists, the following TDM measures have been incorporated into the site plan:

- Locate building close to the street, and do not locate parking areas between the street and building entrances;
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops;
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort;
- Provide convenient, direct access to stations or major stops along rapid transit routes;
- Provide safe, direct, and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major entrances, providing walkways from public streets to major building entrances;



- Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas;
- Make sidewalks and open space as easily accessible through features such as gradual grade transition and depressed curbs at street corners;
- Include adequately spaced inter-block cycling and pedestrian connections to facilitate travel by active transportation;
- Provide safe, direct, and attractive walking routes from building entrances to nearby transit stops;
- Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible
- Provide the number of bicycle parking spaces as per the City of Ottawa By-Law;
- Ensure that bicycle parking spaces and access aisles meet minimum dimensions;
- Where more than 50 bicycle parking spaces are provided, locate at least 25% of spaces within the building;
- Provide a designated area for carpool drivers without using fire lanes or other no-stopping zones;
- Do not provide more parking than permitted by zoning, nor less than required by zoning; and
- Cyclists have the option of using the elevators to access the underground bicycle parking instead of relying on the vehicle ramp.

The TDM checklists are contained in Appendix E.

4.6 NEIGHBOURHOOD TRAFFIC MANAGEMENT

Not applicable; exempted during screening and scoping.

4.7 TRANSIT

4.7.1 Route Capacity

An assumed transit modal share of 20% was adopted for all land uses contained within the proposed development prior to the implementation of the 2023 BRT corridor upgrades along Baseline Road. The 2022 interim forecasted transit trips for the proposed development is 37 and 45 total transit trips during the AM and PM peak hours, respectively.

There are three OC Transpo transit routes within approximately 230m walking distance of the proposed site; routes 50, 81, and 88. Route 50 is a local route that runs Monday to Saturday during peak periods between Lincoln Fields and Tunney's Pasture Station with 30-minute headways. Route 81 is a local route that runs daily with 20- to 30-minute headways between Clyde and Tunney's Pasture Station. Route 88 is a frequent route that runs daily with headways reaching 6-10 minutes during the peak hours between Hurdman and Terry Fox stations.



Standard and articulated buses have seated capacities of 40 and 70 people; respectively. Based on the current transit routes in the vicinity of the subject site, the hourly transit capacity is estimated between 400 and 700 people during the weekday AM and PM peak hours. The proposed development is therefore anticipated to occupy a maximum of 5% to 11% of transit capacity prior to the implementation of Baseline Road's BRT corridor upgrades.

Once the BRT upgrades along Baseline Road are implemented, the subject development's transit trips are expected to increase to 72 and 88 trips during the AM and PM peak hours, respectively. Based on the *Baseline Road Bus Rapid Transit Corridor Transit and Traffic Operations Assessment (2016)* (which is Appendix B of the *Baseline Road Bus Rapid Transit Planning and Environmental Assessment Study)*, the anticipated headways of the BRT corridor are approximately 5 minutes during the AM peak hour and approximately 7 minutes during PM peak hours. It has been assumed that once the BRT is operational, transit route 50 will continue to run with the same schedule as existing, whereas, transit routes 81 and 88 will operate under the BRT headways, as previously described.

The anticipated capacity of the BRT corridor is 480 to 840 people during the weekday AM peak hour and 340 to 600 people during the weekday PM peak. The anticipated capacity of transit route 50 is expected to remain at 80 to 140 people during both the weekday AM and PM peak hours. The total transit capacity in the study area is therefore anticipated to be 560 to 920 people during the weekday AM peak hour and 480 to 745 people during the weekday PM peak hour. The proposed development is therefore anticipated to occupy between 8% to 13% of the transit capacity during the weekday AM peak hour and 12% to 18% during the weekday PM peak hour once the Baseline Road BRT is operational.

4.7.2 Transit Priority

Prior to the implementation of the BRT corridor upgrades along Baseline Road, the proposed development will utilize the existing transit stops abutting the subject site and is therefore not expected to significantly impact the transit travel times of the existing routes or trigger the need for transit priority measures. Currently, localized transit priority measures are implemented at the intersection of Baseline Road at Clyde Avenue and consist of bus queue jumps along the eastbound and westbound approaches of the intersection. It is planned that the east-west transit service will run at a dedicated BRT Transitway with TSP measures implemented at intersections during the 2023 horizon year. Based on direction from the City of Ottawa, it is anticipated that TSP operations will be implemented along Baseline Road at signalized intersections. Therefore, a Bus TSP phasing with the ability to truncate conflicting phases and extend parallel phases that can run with the BRT was assumed at the intersections of Baseline Road with Clyde Avenue and Private Access 1. The method of TSP detection and anticipated operations are not known at this time and could affect the Measures of Effectiveness (MOEs) at the intersection (i.e. delays and queues for transit and general traffic). For the purpose of the ultimate conditions' assessment, it has been assumed that the TSP can truncate conflicting phases left turn phases by 4 to 6 seconds and extend parallel non-conflicting phases (eastbound and westbound through movements) by the same time during the AM peak hour. During the PM peak hour, it was assumed that the TSP is capable of truncating conflicting left turns by up to two seconds and is able to extend parallel phases by two seconds at the intersection of Baseline Road / Clyde Avenue. At the intersection of Baseline Road / Private Access 1, the TSP was assumed to be capable of truncating the westbound left turn phase by up to 8 seconds while the same duration was assumed to be used as parallel phases' extension when transit is detected prior to the end of the east-west phases green time.



It should be noted that for TSP phase extension operations, typically transit vehicles are detected in advance of the approach's stop bar. Upon bus detection, the controller decides whether to extend the parallel phase, if already operating, based on the travel time needed to reach and clear the intersection <u>or</u> decides to terminate the parallel phase early then operates all upcoming conflicting phases at specified minimum splits in order to serve buses as early as possible. Factors influencing the controller's decision to extend or truncate include the travel time and travel time reliability from the point of detection (i.e. slack time) as well as the method of TSP activation (loop detection versus wireless).

4.8 REVIEW OF NETWORK CONCEPT

Not applicable; exempted during screening and scoping.

4.9 INTERSECTION DESIGN

4.9.1 Intersection Control

The existing intersection control will be maintained as the default control for all study area intersections for existing and 2022 assessments. The 2027 horizon year assessment utilizes the BRT corridor upgrades as illustrated in **Figure 7**. It should be noted that the ultimate intersection design for the intersection of Baseline Road at Private Access 1 was not available, however, the intersection operations assumed no improvements were planned except for the implementation of a dedicate BRT ROW as well as TSP operations and the addition of a continuous segregated cycling facility was running east-west through the intersection. Any intersection improvements triggered through the intersection level of service analysis will be highlighted and adopted accordingly. The existing signal timing plan for the intersections of Baseline Road with Clyde Avenue and Private Access 1 were obtained from the City of Ottawa.

4.9.2 Intersection Design

An assessment of the study area intersections was undertaken to determine the operational characteristics of the study area intersections under the horizons identified in the Screening and Scoping report. Intersection operational analysis was facilitated by Synchro 10.0[™] software package and the MMLOS analysis was completed for the signalized intersection for all modes and compared against the City of Ottawa's MMLOS targets. The Highway Capacity Manual (HCM) 6th edition analysis method in Synchro was used to assess the study intersections. It should be noted that this method has some limitations which were addressed as follows:

- Unsignalized Movement Delays (Channelized Right turns with yield control): The HCM method does not report on
 unsignalized movements delays. Rather these movements were analyzed and reported on using Synchro's
 percentile method as a mean to approximate delays and queues experienced by right turning traffic. This limitation
 impacts the 2019 and 2022 horizon year vehicular LOS assessments.
- RTOR: HCM's implementation of right turns on red is conservative and assumes no vehicles performing RTOR.
 RTOR influence on signal operations was incorporated using the equations provided by Trafficware's white paper on HCM 6th edition implementation in Synchro².



v.trafficware.com/uploads/2/2/2/5/22256874/hcm6th_working_white_paper_synchro_-_march2018.pdf

• Synchro does not report on the intersection volume-to-capacity ratio using HCM 6th edition method. Therefore, intersection volume-to-capacity is not reported for the overall intersection operations. For the MMLOS purpose, the maximum movement's volume-to-capacity at the intersection was used to assess the intersections performance.

4.9.2.1 2019 Existing Conditions

Figure 5 illustrates 2019 existing AM and PM peak hour traffic volumes at the study area intersections.

Intersection Capacity Analysis

Table 12 summarizes the results of the Synchro analysis under 2019 existing conditions. The intersection of Baseline Road at Clyde Avenue is currently operating at or above capacity with several individual movements operating at LOS F during the AM and PM peak hours. No improvements are recommended as this intersection is expected to be upgraded to favor east-west BRT transit once the BRT upgrades are implemented along Baseline Road by 2023. Furthermore, implementing intersection treatments to address vehicular operations is expected to negatively impact the multi-modal traffic operations for other modes (transit, cycling, and pedestrian).

The southbound movement at the intersection of Baseline Road at Private Access 1 is currently operating with more than 50s of delay during both the AM and PM peak hours, while the volume to capacity ratios remain acceptable (i.e. less than 0.90). This suggests that any additional traffic (background or site generated) will likely cause the delays to increase.

The Clyde Avenue at Private Access 3 intersection is currently operating acceptably.

Appendix F contains detailed intersection performance worksheets.

Intersection	Intersection Control	Арр	roach / Movement	LOS	V/C	Delay (s)	Queue 95 th (m)
			Left	F (F)	1.17 (1.16)	177.1 (182.0)	120.4 (114.1)
		EB	Through	F (D)	1.02 (0.84)	72.0 (46.6)	221.9 (159.6)
	Traffic Signals		Right	A* (A*)	0.24* (0.41*)	5.1* (15.4*)	11.2* (37.8*)
			Left	C (D)	0.78 (0.87)	72.6 (97 .1)	28.0 (70.7)
Deceline Decel et		WB	Through	A (F)	0.56 (<mark>1.10</mark>)	38.1 (<mark>101.8</mark>)	83.3 (282.1)
Baseline Road at Clyde Avenue			Right	B* (E)	0.70* (<mark>0.94</mark> *)	22.6* (50.6*)	69.1* (#164.7)
Olyde Avenue		NB	Left	B (D)	0.64 (0.90)	61.1 (80.9)	19.6 (77.0)
		IND	Through / Right	E (F)	0.99 (1.08)	81.8 (113.9)	186.9 (224.0)
		SB	Left	D (F)	0.86 (<mark>1.04</mark>)	68.4 (114.8)	69.3 (100.8)
			Through / Right	A (D)	0.47 (0.88)	31.3 (<mark>64.5</mark>)	79.8 (147.7)
		Ove	erall Intersection	-	-	62.1 (82.7)	-
		EB	Left	A (B)	0.14 (0.70)	3.8 (38.5)	4.2 (59.5)
		ED	Through	A (A)	0.54 (0.55)	3.9 (6.6)	70.0 (93.1)
Baseline Road at	Traffic	WB	Through / Right	A (D)	0.42 (0.84)	6.7 (24.0)	67.9 (228.9)
Private Access 1	Signals	SB	Left	A (D)	0.37 (0.83)	55.4 (62.7)	17.5 (77.7)
		30	Right	A (A)	0.09 (0.42)	52.7 (53.2)	7.7 (67.9)
		Ove	erall Intersection	-	-	5.9 (19.9)	-
Clyde Avenue at		WB	Right	A (A)	0.13 (0.50)	15.8 (26.3)	2.8 (18.9)
Private Access 3 (right-in / right-out)	Minor Stop	Ove	erall Intersection	-	-	-	-

Table 12 - 2019 Existing Intersection Operations



	Notes:	
	1.	Table format: AM (PM)
	2.	v/c – represents the anticipated volume divided by the predicted capacity
	3.	* Estimated using Synchro's Percentile Method
	4.	# for v/c <1, queue requires multiple cycles to be cleared
	5.	Red highlight: Movement operating at or above capacity; Orange Highlight: Movement operating near capacity.
1		

Multi-Modal Level of Service Analysis – Signalized Intersections

The MMLOS targets at intersections are determined by taking the most stringent of the MMLOS targets for each individual road segment. As such, based on **Section 4.3.1**, the PLOS target is currently C, the BLOS target is currently B, the TLOS target is currently D, and the TkLOS target is currently D. The Vehicle Level of Service (VLOS) target is currently D for both intersections. The aforementioned targets apply to both study area signalized intersections.

Baseline Road at Clyde Avenue

The Pedestrian Level of Service (PLOS) at the intersection of Baseline Road at Clyde Avenue is currently operating at a PLOS F, which does not meet the desired target of C. Based on the MMLOS guidelines, intersection PLOS is largely influenced by the number of lanes pedestrians cross at the intersection. Due to the nature of arterial roads, reducing the number of lanes at the intersection is not a feasible option. Incorporating pedestrian refuge areas by means of wide medians (i.e. > 2.4m) along with operational measures such as prohibition of RTOR are not expected to highly improve the PLOS.

The Bicycle Level of Service (BLOS) is currently operating at a BLOS of F at the intersection of Baseline Road at Clyde Avenue which does not meet the desired target of B. Based on the MMLOS guidelines, intersection BLOS is influenced by the availability of dedicated cycling amenities, number of lanes cyclists must cross to negotiate a turn at intersections, and roadway operating speeds. As the Baseline Road BRT plans include cycling infrastructure (i.e. cycle tracks), it is not recommended to implement any improvements as an interim mitigation measure.

The Transit Level of Service (TLOS) at the intersection of Baseline Road at Clyde Avenue is currently operating with a TLOS of F which does not meet the desired target of D. Based on the MMLOS guidelines, intersection TLOS is governed by the delay at the intersection. The signal timing plans that were obtained from the City of Ottawa indicates that this intersection operates with a conventional NEMA phasing. The Synchro analysis indicate that the eastbound and westbound queues at the intersection of Baseline Road / Clyde Avenue reach beyond the bus queue jumps in both directions. Therefore, buses are highly impacted by traffic operations. It is not recommended to implement any improvements as an interim mitigation measure as Baseline Road's corridor within the vicinity of the study area is expected to be upgraded to include a dedicated east-west BRT corridor.

The Truck Level of Service (TkLOS) at the intersection of Baseline Road at Clyde Avenue is currently operating with a TkLOS of B, which meets the target of D.

The Vehicular Level of Service (VLOS) is currently operating at VLOS F at the intersection of Baseline Road at Clyde Avenue, which does not meet the target of D. Improving the intersection can be performed by adding additional roadway capacity through increasing the number of lanes; however, this treatment may not be feasible due to cost, ROW restrictions, and adverse impacts on MMLOS performance for other modes.

Appendix D contains the detailed MMLOS analysis and is provided for reference.



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Baseline Road at Private Access 1

The Pedestrian Level of Service (PLOS) at the intersection of Baseline Road and Private Access 1 currently operates with a PLOS F, which does not meet the desired target of C. Based on the MMLOS guidelines, intersection PLOS is largely influenced by the number of lanes pedestrians cross. Due to the nature of arterial roads, reducing the number of lanes at the intersection is not a feasible option. Incorporating pedestrian refuge areas by means of wide medians (i.e. > 2.4m) along with operational measures such as prohibition of RTOR are not expected to highly improve the PLOS to the desired targets.

The Bicycle Level of Service (BLOS) at the intersection of Baseline Road at Private Access 1 is currently operating a BLOS of F, which does not meet the desired target of B. Based on the MMLOS guidelines, intersection BLOS is influenced by the availability of dedicated cycling amenities, number of lanes cyclists must cross to negotiate a turn at intersections, and roadway operating speeds. Introducing dedicated bike lanes as well as reducing the speed limits to 50 km/h is expected to result in meeting the desired BLOS target of B. As the Baseline Road BRT plans include cycling infrastructure (i.e. cycle tracks), it is not recommended to implement any improvements as an interim mitigation measure.

The Transit Level of Service (TLOS) at the intersection of Baseline Road at Private Access 1 is currently operating with a TLOS of E, which does not meet the targeted value of D. Based on the MMLOS guidelines, intersection TLOS is governed by the delay at the intersection. Currently, buses operate under mixed traffic conditions with high exposure to signal delays. No improvements are recommended to address existing conditions as Baseline Road's corridor within the vicinity of the study area is expected to be upgraded to include a dedicated east-west running BRT corridor.

The Truck Level of Service (TkLOS) at the intersection of Baseline Road at Private Access 1 is currently operating with a TkLOS of B, which meets the target of D.

The Vehicular Level of Service (VLOS) at the intersection of Baseline Road at Private Access 1 is currently operating at VLOS of D, which meets the desired target.

Appendix C contains the detailed MMLOS analysis and is provided for reference.

4.9.2.2 2022 Future Background Conditions

Figure 15 illustrates the 2022 future background AM and PM peak hour traffic volumes at the study area intersections.

Intersection Capacity Analysis

Table 13 summarizes the results of the Synchro analysis for the 2022 future background horizon. Consistent with the existing conditions, the intersection of Baseline Road at Clyde Avenue is expected to operate at or above capacity with multiple movements operating at LOS F during both the AM and PM peak hours. However, geometric improvements are not recommended as this intersection is expected to be upgraded to favor east-west BRT transit through BRT corridor upgrades by the year 2023. Furthermore, implementing intersection treatments to address vehicular operations is expected to negatively impact the multi-modal traffic operations for other modes (transit, cycling, and pedestrian).

Although no geometric improvements are recommended, there is an opportunity to improve the overall intersection operations during the AM peak hour by increasing the eastbound left turn split by 6 seconds, which is time taken from



the conflicting westbound through traffic phase. The overall intersection cycle length was maintained at 120 seconds during the AM peak hour similar to the existing Signal Timing Plan (STP). This signal timing adjustment improves the operations for the eastbound left turn movement, particularly during the AM peak hour. The operations for both the existing signal timing plan as well as this optimized signal timing plan was reported in Table 13 below.

Consistent with the results from the existing conditions analysis, the southbound movement at the intersection of Baseline Road at Private Access 1 is anticipated to experience more than 50s of delay during both the AM and PM peak hours. Despite this, the volume to capacity ratios remains acceptable.

The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably.

Appendix F contains detailed intersection performance worksheets.

Intersection	Intersection Control	Арр	roach / Movement	LOS	V/C	Delay (s)	Queue 95 th (m)
			Left	F (F)	1.12 (1.11)	160.3 (163.9)	111.3 (105.7)
		EB	Through	E (D)	1.00 (0.83)	65.7 (46.1)	210.7 (156.8)
			Right	A* (A)	0.23* (0.39*)	4.6* (14.5*)	10.0* (35.0*)
			Left	C (D)	0.78 (0.86)	72.6 (94.3)	28.0 (68.6)
Decelling Decelled	T	WB	Through	A (F)	0.56 (<mark>1.09</mark>)	38.0 (<mark>97.5</mark>)	84.0 (274.4)
Baseline Road at Clyde Avenue	Traffic Signals		Right	B* (E)	0.70* (<mark>0.92</mark> *)	22.0* (46.7*)	68.2* (#157.9*)
Ciyde Avenue	Olghais	NB	Left	B (D)	0.64 (0.89)	61.2 (<mark>80.0</mark>)	18.9 (76.3)
		IND	Through / Right	E (F)	0.95 (1.06)	72.9 (109.2)	172.2 (217.0)
		SB	Left	D (F)	0.85 (<mark>1.03</mark>)	67.8 (111.7)	67.9 (99.4)
		30	Through / Right	A (D)	0.45 (0.84)	31.1 (<mark>59.5</mark>)	76.3 (137.2)
		Ove	erall Intersection	-	-	57.5 (79.0)	-
		Opti	mized Signal Timing			t increased by 6	seconds taken
					om WBT split	//	
		EB	Left	D (F)	0.87 (1.11)	75.2 (163.9)	79.8 (105.7)
			Through	E (D)	1.00 (0.83)	65.7 (46.1)	210.7 (156.8)
			Right	A* (A)	0.23* (0.39*)	4.6* (14.5*)	10.0* (35.0*)
		WB	Left	C (D)	0.78 (0.86)	72.6 (94.3)	28.0 (68.6)
Baseline Road at			Through	A (F)	0.62 (<mark>1.09</mark>)	41.8 (<mark>97.5</mark>)	87.5 (274.4)
Clyde Avenue			Right	B* (E)	0.73* (<mark>0.92</mark> *)	23.0* (46.7*)	67.0* (#157.9*)
		NB	Left	B (D)	0.64 (0.89)	61.2 (80.0)	18.9 (76.3)
			Through / Right	E (F)	0.95 (1.06)	72.9 (109.2)	172.2 (217.0)
		SB	Left	D (F)	0.85 (<mark>1.03</mark>)	67.8 (111.7)	67.9 (99.4)
		00	Through / Right	A (D)	0.45 (0.84)	31.1 (<mark>59.5</mark>)	76.3 (137.2)
		Ove	erall Intersection	-	-	54.5 (79.0)	-
		EB	Left	A (A)	0.12 (0.59)	3.7 (29.9)	4.2 (35.0)
			Through	A (A)	0.54 (0.55)	3.7 (6.0)	67.2 (89.6)
Baseline Road at	Traffic	WB	Through / Right	A (D)	0.41 (0.83)	6.5 (20.7)	65.1 (229.6)
Private Access 1	Signals	SB	Left	A (D)	0.35 (0.82)	55.5 (63.6)	16.1 (71.4)
		00	Right	A (A)	0.08 (0.42)	53.0 (54.4)	6.3 (63.0)
		Ove	erall Intersection	-	-	5.7 (17.5)	-
Clyde Avenue at		WB	Right	A (A)	0.11 (0.45)	15.4 (24.1)	2.8 (15.4)
Private Access 3 (right-in / right-out)	Private Access 3 Minor Stop (right-in / right-out)		erall Intersection	-	-	-	-

Table 13 - 2022 Future Background Conditions Intersection Operations

Notes: 2.

Table format: AM (PM) v/c – represents the anticipated volume divided by the predicted capacity

3. 4. * Estimated using Synchro's Percentile Method

5.

for v/c <1, queue requires multiple cycles to be cleared Red highlight: Movement operating at or above capacity; Orange Highlight: Movement operating near capacity.



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Multi-Modal Level of Service Analysis – Signalized Intersections

The intersection operating conditions remain similar to existing conditions; therefore, the intersection MMLOS discussion in **Section 4.9.2.1** applies to the 2022 future background analysis.

Appendix D contains the detailed MMLOS analysis and is provided for reference.



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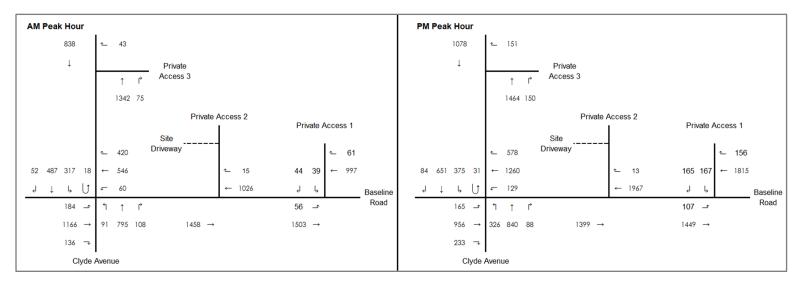


Figure 15 – 2022 Future Background Traffic Volumes

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4.9.2.3 2022 Total Future Conditions

Figure 16 illustrates 2022 total future AM and PM peak hour traffic volumes at the study area intersections.

Intersection Capacity Analysis

Table 14 summarizes the results of the Synchro analysis for the 2022 total future horizon. Consistent with the previous two horizons, the intersection of Baseline Road at Clyde Avenue is expected to continue to operate at or above capacity with multiple movements operating at LOS F during the AM and PM peak hours. However, no improvements are recommended as this intersection is expected to be upgraded to favor east-west BRT transit as the BRT corridor upgrades take place by the year 2023. Furthermore, implementing intersection treatments to address vehicular operations is expected to negatively impact the multi-modal traffic operations for other modes (transit, cycling, and pedestrian).

Consistent with the previous horizons, the southbound movement at the intersection of Baseline Road at Private Access 1 is anticipated to experience more than 50s of delay during both the AM and PM peak hours. Despite this, the volume to capacity ratios remains acceptable.

The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably.

Appendix F contains detailed intersection performance worksheets.

Intersection	Intersection Control	Арр	roach / Movement	LOS	V/C	Delay (s)	Queue 95 th (m)
			Left	D (F)	0.87 (<mark>1.11</mark>)	75.2 (163.9)	79.8 (105.7)
		EB	Through	F (D)	1.06 (0.83)	83.1 (46.2)	230.3 (157.5)
			Right	A* (A*)	0.24* (0.39*)	4.6* (14.5*)	10.0* (35.0*)
			Left	C (E)	0.79 (<mark>0.96</mark>)	68.8 (119.3)	36.4 (83.3)
	- <i>m</i>	WB	Through	B (F)	0.63 (<mark>1.09</mark>)	42.4 (<mark>98.2</mark>)	88.2 (275.8)
Baseline Road at Clyde Avenue	Traffic Signals		Right	B* (E)	0.74* (<mark>0.93</mark> *)	23.7* (48.7*)	68.2* (#160.9)
Ciyde Avenue	Olgilais	NB	Left	B (D)	0.64 (0.89)	61.2 (80.0)	18.9 (76.3)
		IND	Through / Right	E (F)	0.96 (1.09)	75.3 (118.3)	175.7 (228.2)
		SB	Left	D (F)	0.86 (<mark>1.11</mark>)	69.1 (136.4)	70.7 (114.1)
		30	Through / Right	A (D)	0.45 (0.84)	30.8 (<mark>59.5</mark>)	76.3 (137.2)
		Ove	erall Intersection	-	-	59.8 (83.6)	-
		EB	Left	A (B)	0.17 (0.86)	4.3 (<mark>58.0</mark>)	5.6 (62.3)
		ED	Through	A (A)	0.54 (0.55)	4.2 (6.3)	72.1 (91.7)
Baseline Road at	Traffic	WB	Through / Right	A (D)	0.42 (0.85)	7.2 (23.0)	70.7 (242.9)
Private Access 1	Signals	SB	Left	A (D)	0.37 (0.82)	54.2 (63.0)	18.9 (73.5)
		30	Right	A (A)	0.29 (0.50)	53.6 (55.1)	28.0 (74.9)
		Ove	erall Intersection	-	-	6.9 (20.3)	-
Clyde Avenue at		WB	Right	A (A)	0.19 (0.52)	16.3 (26.5)	4.9 (19.6)
Private Access 3 (right-in / right-out) Notes:	Minor Stop	Ove	Overall Intersection		-	-	-

Table 14 – 2022 Total Future Intersection Operations

1

Table format: AM (PM) v/c – represents the anticipated volume divided by the predicted capacity 2.

3. * Estimated using Synchro's Percentile Method

4

for v/c <1, queue requires multiple cycles to be cleared Red highlight: Movement operating at or above capacity; Orange Highlight: Movement operating near capacity.



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Multi-Modal Level of Service Analysis – Signalized Intersections

The intersection operating conditions remain similar to existing conditions; therefore, the intersection MMLOS discussion in **Section 4.9.2.1** applies to the 2022 total future analysis.

Appendix D contains the detailed MMLOS analysis and is provided for reference.



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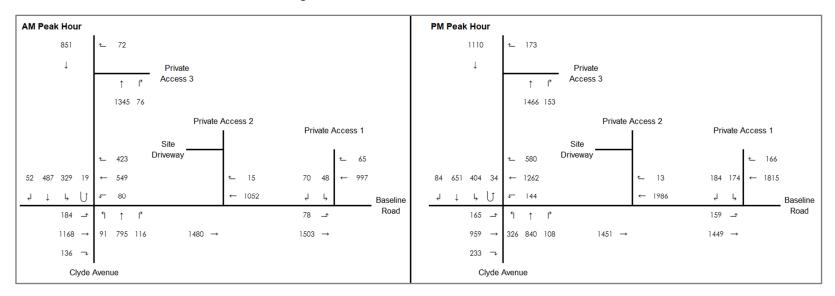


Figure 16 – 2022 Total Future Traffic Volumes

4.9.2.4 2027 Ultimate Conditions

Figure 17 illustrates 2027 ultimate AM and PM peak hour traffic volumes at the study area intersections.

Intersection Capacity Analysis

Table 15 summarizes the results of the Synchro analysis for the 2027 ultimate horizon. The intersection of Baseline Road at Clyde Avenue was assessed using the preliminary design geometry that includes the BRT Transitway upgrades shown in **Figure 7**. The intersection of Baseline Road at Private Access 1 was assessed with a dedicated BRT Transitway as well as a segregated cycling facility. It was assumed that right turn on red (RTOR) operations will be prohibited at both Baseline Road Intersections within the vicinity of the development due to the segregated cycling facilities.

Based on discussions with the City of Ottawa, both signalized intersections are expected to operate under intersection TSP measures. It was assumed that the bus phase operates with non-conflicting traffic phases, i.e. eastbound and westbound through traffic phases. TSP operations were assumed to run through advanced detection and TSP activation was assumed to be able to truncate conflicting phases or extend non-conflicting phases that can run with the bus phase. The TSP operations were assumed not to be able to omit or rotate traffic phases.

Generally, once a bus is detected in advance, prior reaching the signal's stop line, if there is sufficient time for the bus to reach and clear the intersection, within the allowable maximum phase extension limits, the eastbound and westbound through phases will be extended to allow the unimpeded movement of the bus. On the other hand, if the bus's travel time to the intersection is greater than the allowable parallel phases' green extension, the parallel phases will be terminated early and the signal will run all conflicting phases at pre-defined minimum times so that the stopped bus gets service early. For a signal to be able to extend parallel phases, bus travel time reliability is usually considered in the decision to extend versus truncate phases. For instance, if the detection method is wireless with a travel time uncertainty of 2 seconds, the traffic controller adds 2 seconds to the detection travel time and compares the total to remaining green time in the parallel phase added to the maximum extension limit.

Typically, for median running at-grade BRT corridors, parallel left turn lanes operate as fully protected left phases as a safety requirement. This is due to the fact that it is challenging for left turners to look for conflicts for buses coming from behind. In the case of the study intersections, all eastbound and westbound left turn movements must be fully protected at the intersections of Baseline Road with Clyde Avenue and Private Access 1. Further to the above, it was assumed that all RTOR operations will be prohibited both intersections as a full implementation of a complete streets design with cycling facilities is expected. The signalized intersections within the study area were assessed and summarized in **Table 15** both with and without TSP operations in place. It should be noted that the TSP assessment using Synchro is only an approximation and is not intended to be an accurate assessment. To approximate TSP operations, left turn phase splits were reduced manually to a minimum split that results in less than 3 minutes of average delay for conflicting vehicular movements.

As indicated in **Table 15**, without TSP phase implementation, the intersection of Baseline Road at Clyde Avenue is expected to continue to operate at or above capacity with several individual movements operating at LOS F during both the weekday AM and PM peak hours. With the TSP implementation, the non-conflicting through movements (eastbound and westbound through movements) are expected to improve slightly but remain close to capacity operating conditions. Conflicting left turn phases are expected to experience deteriorated operations as compared to the without TSP



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scenario. Although there are multiple movements operating at or above capacity, no improvements are recommended to address vehicular operational delays.

At the intersection of Baseline Road / Private Access 1, the scenario without TSP operations results in high delays for the eastbound left and southbound movements. Once TSP operations are in place, it was found that the delays for the eastbound left turn movement deteriorate substantially and the volume to capacity ratio exceeds 1.0.

Adding vehicular capacity is expected to result in deteriorated Pedestrian and Bicycle Levels of Service. Furthermore, higher vehicular delays are generally acceptable along highly active multi-modal corridors especially those served by frequent rapid transit.

The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably under 2027 ultimate conditions.

Appendix F contains detailed intersection performance worksheets.

Intersection	Intersection Control	Аррі	roach / Movement	LOS	V/C	Delay (s)	Queue 95 th (m)
			Left	D (F)	0.86 (1.07)	74.1 (153.4)	77.7 (100.1)
		EB	Through	E (C)	0.99 (0.80)	62.7 (44.6)	200.2 (150.5)
			Right	A (A)	0.26 (0.45)	30.0 (36.2)	39.9 (74.2)
			Left	C (D)	0.79 (0.88)	70.5 (100.1)	31.5 (72.8)
	Traffic Signals	WB	Through	A (F)	0.59 (1.06)	40.8 (<mark>85.7</mark>)	84.7 (252.7)
			Right	F (F)	1.02 (1.13)	93.7 (123.4)	179.2 (280)
	<u>Without TSP</u>	NB	Left	B (D)	0.64 (0.87)	61.3 (76.6)	18.2 (72.8)
		IND	Through / Right	E (F)	0.95 (1.07)	72.6 (111.8)	170.8 (219.8)
		SB	Left	D (F)	0.85 (1.04)	67.5 (116.3)	67.2 (102.2)
		30	Through / Right	A (D)	0.44 (0.82)	31.0 (57.1)	74.9 (131.6)
Baseline Road at		Ove	erall Intersection	-	-	61.0 (85.2)	-
Clyde Avenue			Left	F (F)	1.08 (1.07)	148.5 (153.4)	105.0 (100.1)
		EB	Through	E (C)	0.92 (0.77)	48.6 (41.6)	181.3 (146.3)
			Right	A (A)	0.25 (0.43)	27.6 (34.3)	38.5 (72.8)
		WB	Left	C (D)	0.79 (0.88)	70.5 (100.1)	31.5 (72.8)
	Traffic		Through	A (F)	0.50 (1.01)	34.6 (70.5)	78.4 (235.9)
	Signals		Right	D (F)	0.86 (<mark>1.08</mark>)	56.3 (104.1)	144.9 (260.4)
	<u>With TSP</u>	NB	Left	B (E)	0.65 (1.00)	61.7 (109.7)	18.2 (85.4)
		IND	Through / Right	E (F)	0.95 (1.07)	72.6 (111.8)	170.8 (219.8)
		SB	Left	F (F)	1.10 (1.21)	136.8 (179.4)	90.3 (121.1)
		30	Through / Right	A (D)	0.48 (0.82)	33.4 (<mark>57.6</mark>)	77.7 (132.3)
		Ove	erall Intersection	-	-	61.4 (85.6)	-
		EB	Left	C (D)	0.79 (0.84)	73.6 (73.4)	30.8 (62.3)
		LD	Through	A (A)	0.53 (0.54)	4.2 (6.7)	70.0 (91.7)
	Traffic Signals	WB	Through / Right	A (D)	0.42 (0.90)	7.8 (32.9)	71.4 (277.9)
	Without TSP	SB	Left	A (D)	0.32 (0.70)	53.4 (<mark>57.4</mark>)	16.8 (67.2)
Baseline Road at	<u></u>	30	Right	A (A)	0.47 (0.82)	55.6 (62.3)	46.9 (121.8)
Private Access 1		Ove	erall Intersection	-	-	8.3 (22.9)	-
	T	EB	Left	C (D)	0.79 (<mark>1.02</mark>)	86.8 (143.5)	35.0 (84.0)
	Traffic Signals	ED	Through	A (A)	0.53 (0.54)	4.2 (6.7)	70.0 (91.7)
	With TSP	WB	Through / Right	A (D)	0.42 (0.88)	7.8 (29.0)	71.4 (261.8)
	<u></u>	SB	Left	A (D)	0.32 (0.70)	53.4 (<mark>57.4</mark>)	16.8 (67.2)

Table 15 – 2027 Ultimate Intersection Operations



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			Right	A (A)	0.47 (0.82)	55.6 (<mark>62.3</mark>)	46.9 (121.8)
		Ove	erall Intersection	-	-	8.6 (23.9)	-
Clyde Avenue at		WB	Right	A (A)	0.15 (0.45)	15.6 (23.9)	3.5 (16.1)
Private Access 3 (right-in / right-out)	Minor Stop	Ove	erall Intersection	-	-	-	-
Notes: 6. Table format: AM (PM) 7. v/c – represents the an 8. * Estimated using Sync 9. # for v/c <1, queue req	ticipated volume divide hro's Percentile Metho uires multiple cycles to	od be cleare		nt operating ne	ar capacity.		

Multi-Modal Level of Service Analysis – Signalized Intersections

By 2027, the Baseline Road BRT upgrades will be implemented, and as such, both study area signalized intersections will be considered 'within 600m of a rapid transit station' Policy Area due to the proposed transit stop at the Baseline Road at Clyde Avenue intersection. The multi-modal level of service (MMLOS) targets at intersections are determined by taking the most stringent of the MMLOS targets for each individual roadway segment. As such, for both signalized intersections, the Pedestrian Level of Service (PLOS) target is A, Bicycle Level of Service (BLOS) target is A, Transit Level of Service (TLOS) target is A, Truck Level of Service (TkLOS) target is D, and Vehicular Level of Service (VLOS) target is E.

Baseline Road at Clyde Avenue

The Pedestrian Level of Service (PLOS) is projected to operate with a PLOS of F, which does not meet the desired target of A. Based on the MMLOS guidelines, intersection PLOS is largely influenced by the number of lanes pedestrians cross. Due to the nature of arterial roads, reducing the number of lanes at the intersection is not a feasible option. Incorporating other improvements such as pedestrian leading intervals or reducing the corner radii are not expected to highly improve the PLOS to the desired targets and will have minimal impacts to the PLOS.

The ultimate geometry for the Baseline Road at Clyde Avenue intersection includes cycle tracks and cross-rides. Based on this configuration, the Bicycle Level of Service (BLOS) is expected to operate with a BLOS of A, which meets the desired target.

The Transit Level of Service (TLOS) is projected to operate with a TLOS of F, which does not meet the desired target of A. Based on the MMLOS guidelines, intersection TLOS is governed by the delay at the intersection. The signal timing plans that were obtained from the City of Ottawa indicates that this intersection operates with a conventional NEMA phasing. The ultimate conditions Synchro analysis indicate that the eastbound and westbound delays are likely 30 seconds of less. However, the north and south approaches are expected to serve transit with delays greater than 40 seconds and therefore resulting in a TLOS F. Introducing bus queue jumps may have limited benefits as queues are expected to be beyond 200 metres long. Furthermore, queue jumps may be subject to ROW limitations. Implementing intersection modifications or operating aggressive forms of TSP operations (i.e. skipping and rotating traffic phases) could improve transit service but can severely impact other modes LOS. Therefore, no improvements are recommended to address future ultimate conditions.

The Truck Level of Service (TkLOS) is projected to operate with a TkLOS of B, which meets the desired target of D.

The Vehicular Level of Service (VLOS) is projected to operate with a VLOS of F, which does not meet the desired target of E. Increasing the number of lanes at this intersection would increase capacity and thus improve the VLOS, however, it would be to the detriment of the other modes of transportation and is therefore not recommended.



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Baseline Road at Private Access 1

The Pedestrian Level of Service (PLOS) is projected to operate with a PLOS of F, which does not meet the desired target of A. Based on the MMLOS guidelines, intersection PLOS is largely influenced by the number of lanes pedestrians cross. Due to the nature of arterial roads, reducing the number of lanes at the intersection is not a feasible option. Incorporating other improvements such as pedestrian leading intervals or reducing the corner radii are not expected to highly improve the PLOS to the desired targets and have minimal impacts to PLOS.

The ultimate geometry for the Baseline Road BRT includes cycle tracks and cross-rides at intersecting street with Baseline Road. Based on this configuration, the Bicycle Level of Service (BLOS) is expected to operate with a BLOS of A, which meets the desired target.

The Transit Level of Service (TLOS) is projected to operate with a TLOS of C, which does not meet the targeted value of A. Based on the MMLOS guidelines, intersection TLOS is governed by the delay at the intersection. Buses are expected to operate with approximately 20 seconds of delay, which is significantly less compared to general traffic. Implementing intersection modifications or operating aggressive forms of TSP operations (i.e. skipping and rotating traffic phases) could improve transit service but can severely impact other modes of transportation. Therefore, no improvements are recommended to address the TLOS at this intersection.

The Truck Level of Service (TkLOS) is projected to operate with a TkLOS of B, which meets the desired target of D.

The Vehicular Level of Service (VLOS) is projected to operate with a VLOS of D, which meets the desired target of E.

Appendix D contains the detailed MMLOS analysis and is provided for reference.



Strategy

May 13, 2020

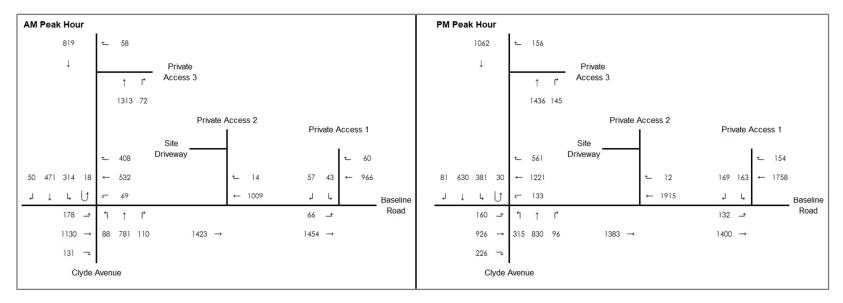


Figure 17 - 2027 Ultimate Traffic Volumes

Conclusion May 13, 2020

5.0 CONCLUSION

The subject Transportation Impact Assessment (TIA) was prepared in support of a Site Plan application for a proposed development located in the Civic Hospital / Central Park neighborhood of Ottawa, Ontario. The proposed development is located at 1357 Baseline Road at the north-east quadrant of the Baseline Road at Clyde Avenue intersection.

The proposed development includes 228 senior adult housing units, 174 apartment units, and approximately 5,500 ft² GFA of retail space. The development includes 333 vehicle parking spaces and 156 bicycle parking spaces. The development will be accessed via one full movements site access along Private Access 2.

2019 Existing

- The intersection of Baseline Road at Clyde Avenue is currently operating at or above capacity with several
 individual movements operating at a LOD F during both the AM and PM peak hours. No improvements are
 recommended as this intersection is expected to be upgraded to favor east-east BRT transit once the BRT
 upgrades are implemented along Baseline Road by 2023.
- The southbound movement at the intersection of Baseline Road at Private Access 1 is currently operating with more than 50s of delay during both the AM and PM peak hours, while the volume to capacity ratios remain acceptable (i.e. less than 0.90). This suggests that any additional traffic (background or site generated) will likely cause the delays to increase.
- The Clyde Avenue at Private Access 3 intersection is currently operating acceptably.

2022 Future Background

- Consistent with the existing conditions, the intersection of Baseline Road at Clyde Avenue is expected to
 operate at or above capacity with multiple movements operating at LOS F during both the AM and PM peak
 hours. However, geometric improvements are not recommended as this intersection is expected to be
 upgraded to favor east-west BRT transit through BRT corridor upgrades by the year 2023. The signal timing
 plan can be improved by increasing the eastbound left turn split by 6 seconds, which is time taken from the
 conflicting westbound through traffic phase. This signal timing adjustment improves the operations for the
 eastbound left turn movement, particularly during the AM peak hour.
- Consistent with the results from the existing conditions analysis, the southbound movement at the intersection of Baseline Road at Private Access 1 is anticipated to experience more than 50s of delay during both the AM and PM peak hours. Despite this, the volume to capacity ratios remains acceptable.
- The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably.

2022 Total Future

• Consistent with the previous two horizons, the intersection of Baseline Road at Clyde Avenue is expected to continue to operate at or above capacity with multiple movements operating at LOS F during the AM and PM



peak hours. However, no improvements are recommended as this intersection is expected to be upgraded to favor east-west BRT transit as the BRT corridor upgrades take place by the year 2023.

- Consistent with the previous horizons, the southbound movement at the intersection of Baseline Road at Private Access 1 is anticipated to experience more than 50s of delay during both the AM and PM peak hours. Despite this, the volume to capacity ratios remains acceptable.
- The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably.

2027 Ultimate

- The Baseline Road BRT improvements are scheduled to be in place by 2023. The geometry from the draft preliminary design for the Baseline Road BRT project was used in the analysis of the 2027 ultimate horizon.
- Without Transit Signal Priority (TSP) in place along the BRT corridor, the intersection of Baseline Road at Clyde Avenue is expected to continue to operate at or above capacity with several individual movements operating at LOS F during both the weekday AM and PM peak hours. With TSP implementation, the nonconflicting through movements (eastbound and westbound through movements) are expected to improve slightly but remain close to capacity operating conditions. Conflicting left turn phases are expected to experience deteriorated operations as compared to the without TSP scenario.
- At the intersection of Baseline Road / Private Access 1, the scenario without TSP operations results in high delays for the eastbound left and southbound movements. Once TSP operations are in place, it was found that the delays for the eastbound left turn movement deteriorate substantially and the volume to capacity ratio exceeds 1.0.
- The intersection of Clyde Avenue at Private Access 3 is anticipated to continue to operate acceptably under 2027 ultimate conditions.

The Multi-Modal Level of Service (MMLOS) assessment for existing roadway segments (i.e. prior to the Baseline Road BRT) found that:

Baseline Road and Clyde Avenue, across the frontage of the subject development, do not currently meet the
Pedestrian and Bicycle Level of Service targets, while they do meet the Transit and Truck Level of Service
targets. To improve the PLOS, the sidewalk widths would need to be increased to 2.0m, a 2.0m boulevard
would need to be implemented, and the posted speed limit would need to be reduced to 50 km/h. To improve
the BLOS, a physically separated bicycle facility (i.e. cycle track) would need to be implemented. As the
Baseline Road BRT will be implemented by 2023, it is not recommended to mitigate these deficiencies as an
interim condition.

The Multi-Modal Level of Service (MMLOS) assessment for ultimate roadway segments (i.e. with the Baseline Road BRT) found that:

Implementing the Baseline Road BRT increases the PLOS target to an A along Baseline Road, which is not
anticipated to be met in the ultimate conditions. Reducing the speed limit to 30 km/h or reducing the traffic



volumes to less than 3000 AADT would allow the PLOS target of A to be met, however, as Baseline Road is an arterial road, these are not feasible solutions.

- The proposed cycle tracks along Baseline Road will allow the BLOS target on Baseline Road to be met in the ultimate conditions.
- The TLOS and TkLOS targets are anticipated to continue to be met along Baseline Road under the ultimate conditions.
- Clyde Avenue is not anticipated to meet the PLOS nor BLOS targets under the ultimate conditions. To improve
 these levels of service, a 2.0m sidewalks with 2.0m boulevard would need to be implemented, the volume of
 traffic would need to be reduced to less than 3000 AADT, the posted speed limit would need to be reduced to
 50 km/h, and a physically separated bicycle facility (i.e. cycle track) would need to be implemented.
- The TLOS and TkLOS targets are anticipated to continue to be met along Clyde Avenue under the ultimate conditions.

The MMLOS assessment for existing signalized intersections (i.e. prior to the Baseline Road BRT) found that:

- The intersection of Baseline Road at Clyde Avenue currently does not meet the PLOS, BLOS, TLOS, and VLOS targets, while it does meet the TkLOS target. Measures that would improve the MMLOS include reducing the number of vehicle lanes, reducing the posted speed limit, reducing the volume of cars, and implementing higher order cycling facilities. As this intersection is scheduled to undergo geometric changes as a result of the Baseline Road BRT, no interim mitigation measures are recommended.
- The intersection of Baseline Road at Private Access 1 currently does not meet the PLOS, BLOS, and TLOS targets while it does meet the TkLOS and VLOS targets. Measures that would improve the MMLOS include reducing the number of vehicle lanes, reducing the posted speed limit, reducing the volume of cars, and implementing higher order cycling facilities. As this intersection is scheduled to undergo geometric changes as a result of the Baseline Road BRT, no interim measures are recommended.

The MMLOS assessment for ultimate signalized intersections (i.e. with the Baseline Road BRT) found that:

- The intersection of Baseline Road at Clyde Avenue is not projected to meet the PLOS, TLOS, and VLOS targets while it is projected to meet the BLOS and TkLOS targets. Despite the future geometry at this intersection, based on the crossing distance for pedestrians, it is anticipated at the PLOS target will not be met. Reducing the number of vehicle lanes would improve the PLOS, however, as Baseline Road and Clyde Avenue are both arterial roadways, this is not a feasible option. While the future geometry at this intersection includes median BRT, the transit delays in the northbound and southbound directions result in a TLOS that is below target. Introducing features such as queue jump lanes would improve the TLOS, however, there may be ROW limitations. Adding additional vehicle lanes at this intersection would improve the VLOS, however, it would be to the detriment of the other modes of transportation and is therefore not recommended.
- The intersection of Baseline Road at Private Access 1 is not projected to meet the PLOS and TLOS targets while it is anticipated to meet the BLOS, TkLOS, and VLOS targets. Reducing the number of lanes along Baseline Road would improve the PLOS, however, with the future median BRT and the classification of



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Baseline Road as an arterial roadway, this is not a feasible option. To improve the TLOS, measures such as aggressive forms of TSP operations could be implemented, however, this can severely impact other modes of transportation and is therefore not recommended.

Based on the transportation evaluation presented in this transportation study, the proposed development at 1357 Baseline Road can be supported and should be permitted to proceed from a transportation perspective.



APPENDICES

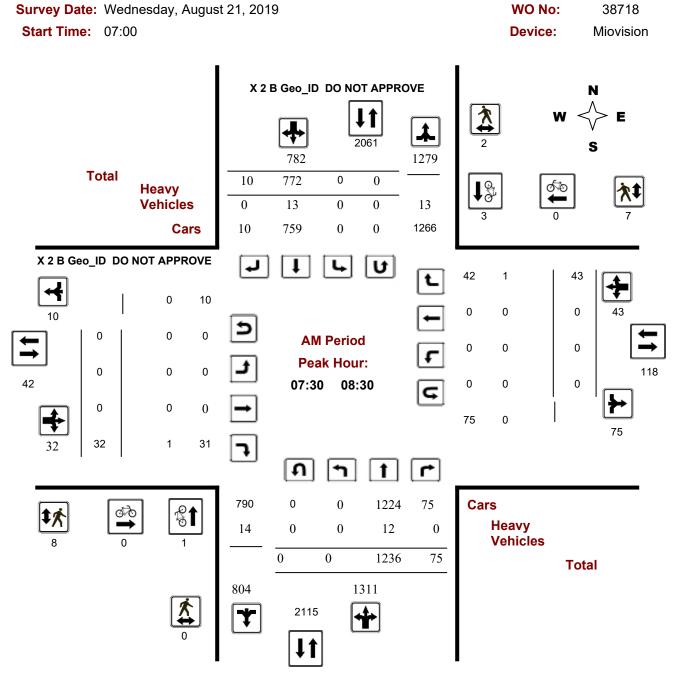
Appendix A Traffic and Collision DAta May 13, 2020

Appendix A TRAFFIC AND COLLISION DATA





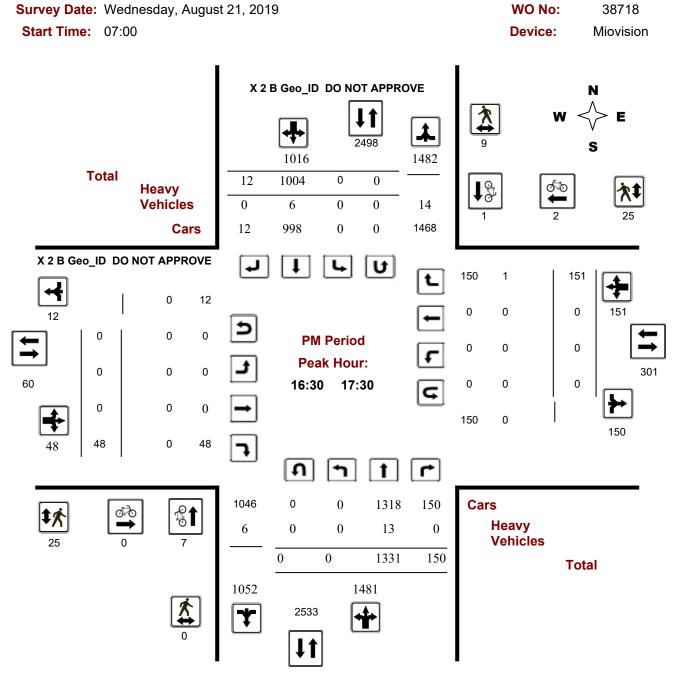
Turning Movement Count - Full Study Peak Hour DiagramX 2 B Geo ID DO NOT APPROVE @ X 2 B Geo ID DO NOT APPROVE



Comments ACTUAL LOC : CLYDE AVE 90M NORTH OF BASELINE RD PRIV ACCESS



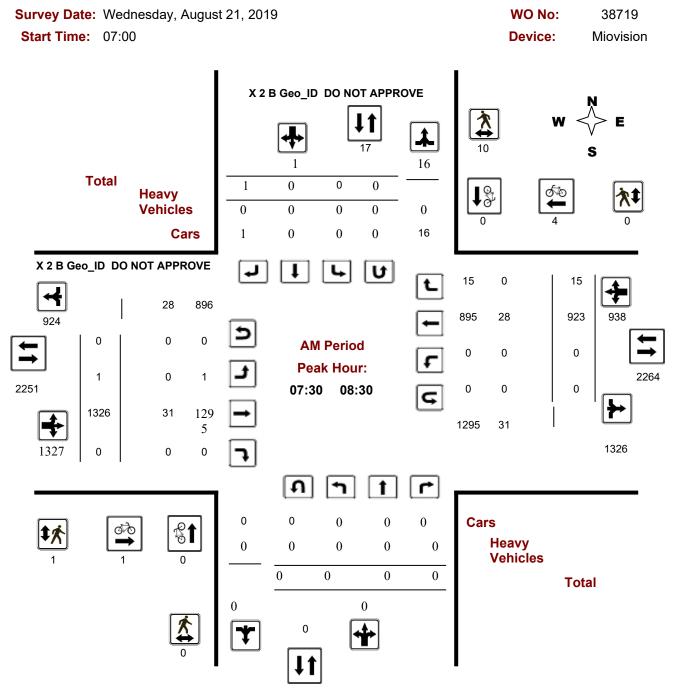
Turning Movement Count - Full Study Peak Hour DiagramX 2 B Geo ID DO NOT APPROVE @ X 2 B Geo ID DO NOT APPROVE



Comments ACTUAL LOC : CLYDE AVE 90M NORTH OF BASELINE RD PRIV ACCESS



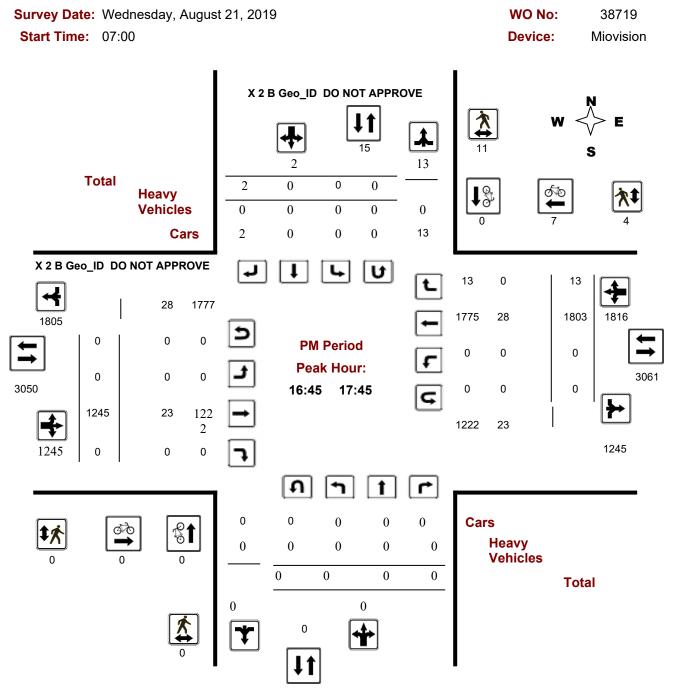
Turning Movement Count - Full Study Peak Hour DiagramX 2 B Geo ID DO NOT APPROVE @ X 2 B Geo ID DO NOT APPROVE



Comments ACTUAL LOC : BASELINE RD 115M EAST OF CLYDE AVE



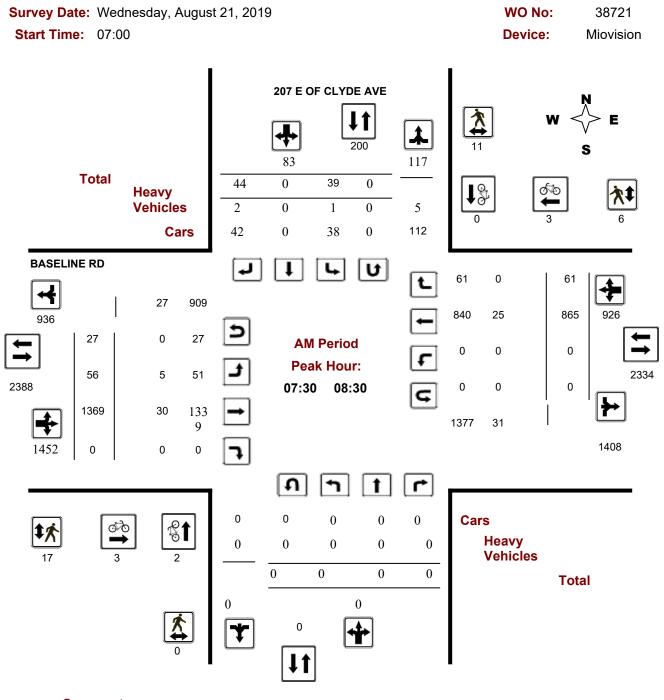
Turning Movement Count - Full Study Peak Hour DiagramX 2 B Geo ID DO NOT APPROVE @ X 2 B Geo ID DO NOT APPROVE



Comments ACTUAL LOC : BASELINE RD 115M EAST OF CLYDE AVE

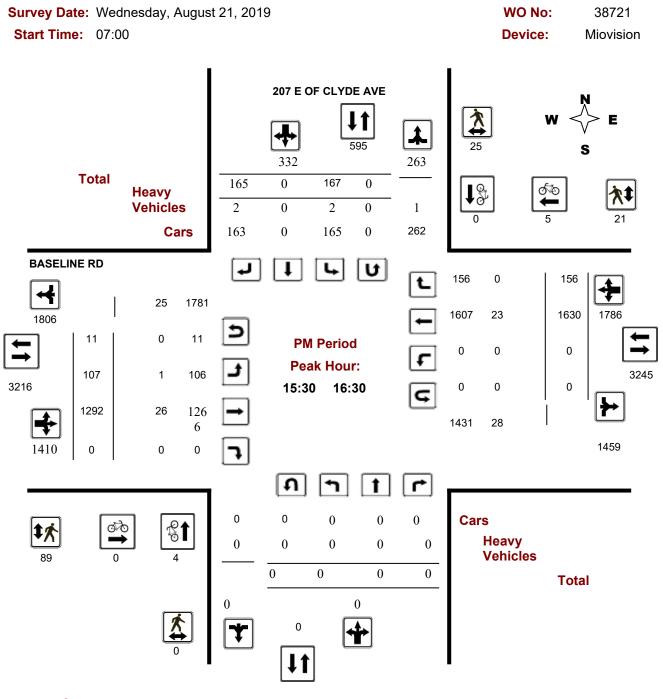


Turning Movement Count - Full Study Peak Hour Diagram BASELINE RD @ 207 E OF CLYDE AVE



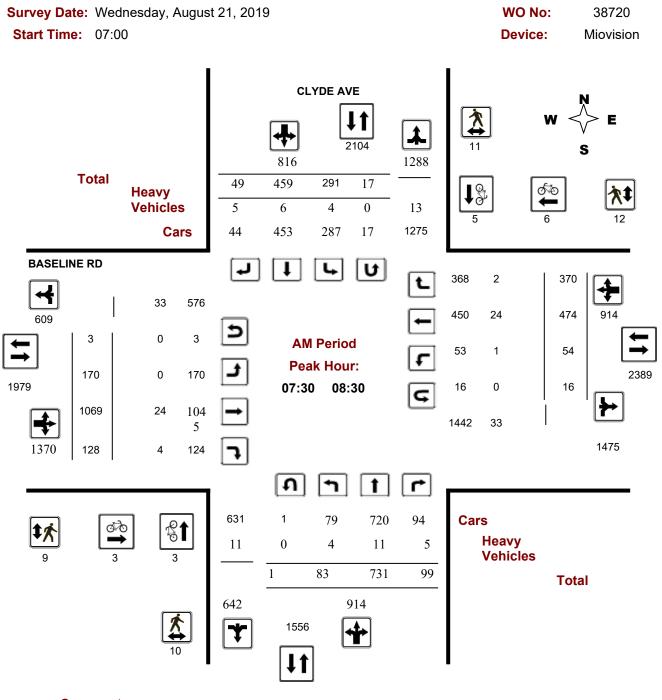


Turning Movement Count - Full Study Peak Hour Diagram BASELINE RD @ 207 E OF CLYDE AVE



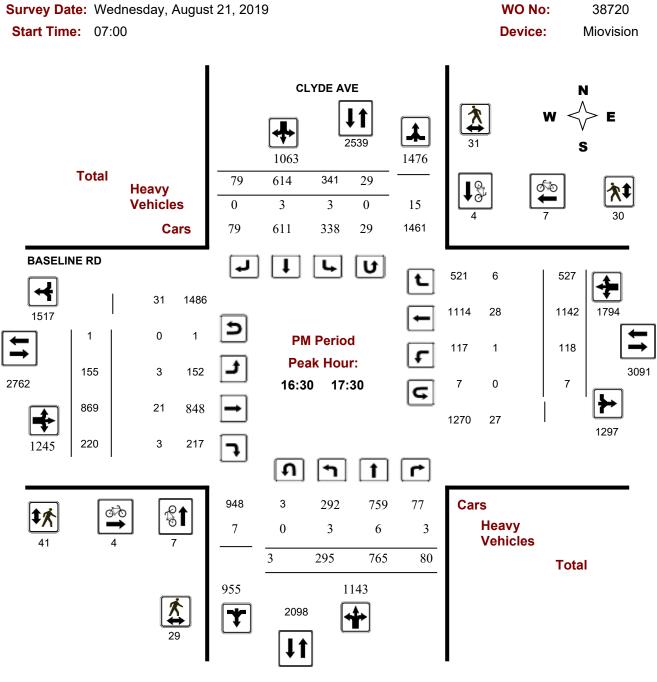


Turning Movement Count - Full Study Peak Hour Diagram BASELINE RD @ CLYDE AVE





Turning Movement Count - Full Study Peak Hour Diagram BASELINE RD @ CLYDE AVE





City Operations - Transportation Services Collision Details Report - Public Version

From: January 1, 2014 To: December 31, 2018

Traffic Control: Tra	ffic signal						Total Co	ollisions: 29	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver		First Event	No. Ped
2014-Jan-31, Fri,17:27	Clear	Turning movement	P.D. only	Wet	West	Going ahead	Passenger van	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2014-May-15, Thu,10:27	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Oct-01, Wed,15:06	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Sep-18, Thu,14:45	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Feb-23, Mon,16:26	Clear	Angle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Pick-up truck	Other motor vehicle	

2015-Jan-16, Fri,15:14	Clear	Rear end	Non-fatal injury	Slush	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Apr-07, Tue,17:24	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Jun-12, Fri,17:49	Rain	Angle	P.D. only	Wet	West		Automobile, station wagon	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2016-Feb-12, Fri,21:20	Snow	Turning movement	P.D. only	Slush	West		Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2016-Aug-15, Mon,15:58	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jun-15, Wed,09:59	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Dec-11, Fri,18:15	Rain	Rear end	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle

					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West		Automobile, station wagon	Other motor vehicle	
2015-Oct-24, Sat,23:01	Rain	Angle	Non-fatal injury	Wet	East	Turning left	Bicycle	Other motor vehicle	
					South	0	Automobile, station wagon	Cyclist	
2016-Mar-26, Sat,14:34	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Mar-31, Thu,18:09	Rain	Rear end	P.D. only	Wet	East		Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	-	Other motor vehicle	
2016-Jul-21, Thu,15:23	Clear	Turning movement	Non-fatal injury	Dry	East	•	Automobile, station wagon	Other motor vehicle	
					West		Municipal transit bus	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Oct-14, Fri,18:40	Clear	Rear end	P.D. only	Dry	West	0	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Sep-29, Thu,08:30	Clear	SMV other	Non-fatal injury	Dry	South		Automobile, station wagon	Pedestrian	1
2016-Oct-21, Fri,15:03	Rain	SMV other	Non-fatal injury	Wet	East	Going ahead	Delivery van	Pedestrian	1

2017-Jul-04, Tue,17:29	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	
2017-Oct-02, Mon,10:35	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Pedestrian	1
2017-Nov-30, Thu,17:58	Snow	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-28, Tue,17:13	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
					West	Stopped	Passenger van	Other motor vehicle	
2017-Sep-30, Sat,11:10	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Jan-30, Tue,15:20	Clear	SMV other	Non-fatal injury	Dry	West	Unknown	Automobile, station wagon	Pedestrian	1
2017-Dec-23, Sat,12:20	Snow	Turning movement	P.D. only	Loose snow	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Passenger van	Other motor vehicle	
2018-Jul-13, Fri,18:18	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	

					East	Stopped	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2018-May-24, Thu,18:47	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Dec-10, Mon,18:02	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: BASELINE RD @ CLYDE AVE

Traffic Control: Tra	iffic signal	Total C	ollisions: 12	3					
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2014-Jan-26, Sun,13:56	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2014-Feb-22, Sat,12:45	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Feb-14, Fri,18:27	Clear	Rear end	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	

					East		Automobile, station wagon	Other motor vehicle
2014-Mar-05, Wed,21:06	Clear	Turning movement	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
					North	•	Automobile, station wagon	Other motor vehicle
2014-Apr-03, Thu,21:25	Clear	SMV other	Non-fatal injury	Dry	West	•	Automobile, station wagon	Pole (utility, power)
2014-Mar-07, Fri,17:24	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Mar-24, Mon,09:33	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Passenger van	Other motor vehicle
					East	•	Automobile, station wagon	Other motor vehicle
2014-May-07, Wed,17:16	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2014-Jun-05, Thu,19:46	Clear	Rear end	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
					South	Slowing or stopping	Pick-up truck	Other motor vehicle
2014-Jul-27, Sun,16:39	Clear	Rear end	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle

					North S	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2014-Jul-02, Wed,10:25	Clear	Rear end	P.D. only	Dry	South	Going ahead	Delivery van	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2014-Jul-22, Tue,17:40	Clear	Rear end	Non-fatal injury	Dry	South		Automobile, station wagon	Other motor vehicle
					South	•	Automobile, station wagon	Other motor vehicle
2014-Jul-03, Thu,08:20	Clear	Rear end	P.D. only	Dry	East	•	Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2014-Aug-24, Sun,09:50	Clear	Rear end	Non-fatal injury	Dry	East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2014-Aug-19, Tue,18:14	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2014-Oct-09, Thu,16:20	Rain	Rear end	P.D. only	Wet	West	Turning right	Delivery van	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2014-Dec-14, Sun,20:12	Fog, mist, smoke, dust	, Rear end	P.D. only	Wet	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle

2015-Jan-20, Tue,11:00	Clear	Rear end	Non-fatal injury	lce	North	Slowing or stopping	Pick-up truck	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2014-Jul-03, Thu,06:05	Clear	Angle	Non-fatal injury	Dry	West		Automobile, station wagon	Other motor vehicle
					South		Pick-up truck	Other motor vehicle
2014-Oct-29, Wed,16:30	Clear	Rear end	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle
					North	00	Automobile, station wagon	Other motor vehicle
2014-Nov-28, Fri,16:58	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	0	Automobile, station wagon	Other motor vehicle
2014-Dec-19, Fri,14:40	Clear	Turning movement	P.D. only	Dry	East		Municipal transit bus	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2014-Sep-25, Thu,16:46	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Jan-25, Sun,20:25	Clear	Rear end	P.D. only	lce	South	Slowing or stopping	Pick-up truck	Other motor vehicle
					South	Slowing or stopping	Pick-up truck	Other motor vehicle
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle

2014-Dec-26, Fri,16:27	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Motorcycle	Skidding/sliding
					East	Turning left	Automobile, station wagon	Other motor vehicle
2015-Mar-20, Fri,09:15	Clear	Rear end	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2015-Mar-31, Tue,16:21	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Passenger van	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Feb-06, Fri,09:35	Clear	Angle	P.D. only	Loose snow	West	Slowing or stopping	Passenger van	Other motor vehicle
					North	Going ahead	Passenger van	Other motor vehicle
2015-Jan-28, Wed,13:45	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Unknown	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2015-Mar-11, Wed,00:00	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2015-Jan-02, Fri,10:30	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle

2015-Feb-08, Sun,13:06	Clear	Rear end	P.D. only	Ice	South	Turning left	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2014-Dec-25, Thu,15:09	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile,	Other motor
					Couth	Oping should	station wagon	vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Mar-14, Sat, 19:17	Freezing Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile,	Other motor
							station wagon	vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2015-Apr-15, Wed,09:58	Clear	Rear end	P.D. only	Dry	West	Turning right	Automobile,	Other motor
2010-Api-10, Wea,00.00	olcai		T.D. only	Diy	West	r arning right	station wagon	vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
					0 "			01
2015-Mar-03, Tue,18:27	Snow	Angle	P.D. only	Loose snow	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2015-May-08, Fri,19:52	Clear	Rear end	Non-fatal injury	Dry	West	Unknown	Unknown	Other motor
								vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Aug-31, Mon,12:09	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile,	Other motor
2010 Aug 01, Mon, 12.00	Sidai			Diy	Court		station wagon	vehicle
					South	Stopped	Passenger van	Other motor vehicle
2015-Jul-03, Fri,16:04	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor
2010 001 00, 111, 10.04		Clacompo	i .D. only	Diy	HOIUT			vehicle
								Dawa 40 - 6

					North	•	Automobile, station wagon	Other motor vehicle
2015-Jun-20, Sat,17:55	Clear	Turning movement	P.D. only	Dry	West	•	Automobile, station wagon	Other motor vehicle
					East	00	Automobile, station wagon	Other motor vehicle
2015-Mar-17, Tue,17:11	Clear	Sideswipe	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle
					South	Turning left	Pick-up truck	Other motor vehicle
2015-Jun-08, Mon,17:47	Clear	Rear end	P.D. only	Dry	West	•	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2015-Jun-20, Sat,15:50	Clear	Turning movement	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle
					North	•	Automobile, station wagon	Other motor vehicle
2016-May-07, Sat,14:45	Clear	Turning movement	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Jan-16, Sat,22:50	Snow	Turning movement	P.D. only	Loose snow	North	Going ahead	Passenger van	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2016-Mar-26, Sat,20:29	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Passenger van	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle

					North	Turning left	Passenger van	Other motor vehicle
					East	•	Automobile, station wagon	Other motor vehicle
2016-Oct-26, Wed,20:00	Clear	Rear end	P.D. only	Dry	North	Turning right	Police vehicle	Other motor vehicle
					North	Turning right	Police vehicle	Other motor vehicle
2015-Oct-29, Thu,12:54	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Truck - open	Other motor vehicle
_					North	Stopped	Pick-up truck	Other motor vehicle
2015-Dec-11, Fri,18:00	Rain	Rear end	P.D. only	Wet	North	•	Automobile, station wagon	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2015-Dec-05, Sat,23:12	Clear	Rear end	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2016-Jan-09, Sat,09:45	Rain	Rear end	P.D. only	Wet	North		Automobile, station wagon	Other motor vehicle
					North	Turning right	Pick-up truck	Other motor vehicle
2016-Apr-25, Mon,17:13	Clear	Rear end	P.D. only	Dry	East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2016-Mar-26, Sat,21:04	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Aug-24, Wed,15:30	Clear	Sideswipe	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Mar-29, Tue, 12:53	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jun-30, Thu,15:45	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Apr-13, Wed,17:19	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Pick-up truck	Other motor vehicle
					West	Stopped	Tow truck	Other motor vehicle
2016-May-25, Wed,19:33	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Sep-03, Sat,11:50	Clear	Rear end	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle

					North	Stopped	Pick-up truck	Other motor vehicle
2016-Apr-10, Sun,10:40	Clear	Rear end	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning left	Pick-up truck	Other motor vehicle
2016-Jul-28, Thu,14:05	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	g Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Nov-09, Wed,17:55	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2016-Oct-11, Tue,13:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Pick-up truck	Other motor vehicle
2016-Oct-19, Wed,16:55	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2016-Jun-30, Thu,17:02	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2016-Sep-30, Fri,08:20	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle

2016-Oct-14, Fri,17:30	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	Going ahead		Other motor vehicle
2017-Aug-24, Thu,14:02	Clear	Rear end	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle
					North	Slowing or stopping		Other motor vehicle
2017-Aug-14, Mon,20:00	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	•	Automobile, station wagon	Other motor vehicle
2017-Feb-13, Mon,20:44	Clear	Rear end	Non-fatal injury	Wet	West			Other motor vehicle
					West	Turning right	Municipal transit	Other motor vehicle
2017-Feb-10, Fri,08:51	Clear	Rear end	P.D. only	lce	North	Slowing or stopping	Automobile, station wagon	Skidding/sliding
					North		Automobile, station wagon	Other motor vehicle
2017-Feb-11, Sat,14:30	Clear	Rear end	P.D. only	Packed snow	East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2017-Feb-16, Thu,16:49	Clear	Rear end	Non-fatal injury	Packed snow	West	Slowing or stopping	Passenger van	Skidding/sliding
					West			Other motor vehicle

2017-Feb-16, Thu,08:30	Snow	Rear end	P.D. only	Ice	West	Slowing or stopping	Pick-up truck	Skidding/sliding
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2017-Feb-16, Thu,08:45	Clear	Rear end	P.D. only	Slush	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2017-Feb-24, Fri,12:07	Clear	Rear end	P.D. only	Dry	East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2017-Feb-16, Thu,07:00	Snow	Sideswipe	P.D. only	Packed snow	West	Changing lanes	Passenger van	Skidding/sliding
					West	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Dec-20, Tue,19:35	Clear	Angle	P.D. only	Slush	South		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Nov-30, Wed,16:22	Rain	Sideswipe	P.D. only	Wet	West		Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Nov-28, Mon,17:17	Clear	SMV other	P.D. only	Dry	North		Automobile, station wagon	Concrete guide rail
2016-Dec-10, Sat,11:35	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Passenger van	Other motor vehicle

					North	Stopped	Passenger van	Other motor vehicle
2016-Dec-11, Sun,16:05	Snow	Rear end	Non-fatal injury	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2017-May-22, Mon,14:46	Rain	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2017-May-30, Tue,23:52	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Curb
2017-May-05, Fri,09:22	Rain	Angle	P.D. only	Wet	East	Slowing or stopping	g Pick-up truck	Skidding/sliding
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-May-30, Tue,12:01	Clear	Turning movement	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle
					East	Turning left	Pick-up truck	Other motor vehicle
2017-Jul-11, Tue,15:20	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2017-Sep-24, Sun,14:04	Clear	Rear end	P.D. only	Dry	East	Merging	Unknown	Other motor vehicle
					East	Going ahead	Municipal transit bus	Other motor vehicle

2017-Jul-20, Thu,12:40	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2017-Nov-08, Wed,23:06	Clear	Turning movement	P.D. only	Dry	South	Going ahead	Unknown	Other motor vehicle
					North	Turning left	Automobile, station wagon	Other motor vehicle
2017-Sep-18, Mon,08:55	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2017-Nov-17, Fri,13:00	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Unknown	Other motor vehicle
2017-Dec-23, Sat,22:24	Snow	Turning movement	Non-fatal injury	Packed snow	East	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2017-Dec-27, Wed,13:20	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2017-Sep-21, Thu,13:45	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Unknown	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-06, Wed,16:29	Clear	Rear end	P.D. only	Dry	East	Changing lanes	Passenger van	Other motor vehicle

					East	•	Automobile, station wagon	Other motor vehicle
2017-Dec-11, Mon,17:19	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Dec-11, Mon,15:06	Clear	Rear end	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2017-Dec-10, Sun,01:28	Snow	Sideswipe	P.D. only	Slush	West		Automobile, station wagon	Skidding/sliding
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Feb-01, Thu,11:08	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2017-Sep-14, Thu,14:22	Clear	Angle	Non-fatal injury	Dry	West	Turning right	Passenger van	Cyclist
					South	Going ahead	Bicycle	Other motor vehicle
2018-Mar-25, Sun,12:25	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2018-Apr-03, Tue,22:01	Freezing Rain	Rear end	P.D. only	Wet	North		Automobile, station wagon	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle

2018-Mar-21, Wed,16:21	Clear	Rear end	P.D. only	Dry	East East	Slowing or stopping Slowing or stopping	station wagon	Other motor vehicle Other motor vehicle
2018-Jan-18, Thu,19:44	Clear	Sideswipe	Non-fatal injury	Dry	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2018-Mar-01, Thu,13:45	Clear	Rear end	P.D. only	Dry	North		Automobile, station wagon	Other motor vehicle
					North	Stopped	Police vehicle	Other motor vehicle
2018-Apr-16, Mon,09:47	Freezing Rain	Sideswipe	P.D. only	Wet	South		Automobile, station wagon	Other motor vehicle
					South	v	Automobile, station wagon	Other motor vehicle
2018-May-13, Sun,11:17	Clear	Rear end	Non-fatal injury	Dry	East	•	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-May-15, Tue,12:25	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2018-Jul-11, Wed,21:31	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2018-Jun-11, Mon,09:30	Clear	Rear end	P.D. only	Dry	North	Going ahead	Motorcycle	Other motor vehicle

					North	Stopped	Automobile, station wagon	Other motor vehicle
2018-Jun-25, Mon,16:11	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
_					North	Stopped	Automobile, station wagon	Other motor vehicle
2018-Sep-28, Fri,13:54	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Nov-17, Sat,14:35	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2018-Nov-05, Mon,14:36	Rain	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2018-Nov-22, Thu,19:11	Snow	Rear end	P.D. only	Slush	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2018-Dec-12, Wed,15:28	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jul-21, Sat,17:59	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle

					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2018-Aug-03, Fri,15:43	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2018-Oct-29, Mon,11:03	Clear	Sideswipe	P.D. only	Wet	East	Changing lanes	Passenger van	Other motor vehicle
					East	•	Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2018-Nov-01, Thu,08:05	Rain	Rear end	P.D. only	Wet	West	•	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2018-Aug-31, Fri,12:20	Clear	Sideswipe	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2018-Nov-09, Fri,12:47	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

Location: BASELINE RD btwn 207 E OF CLYDE AVE & LOBLAWS SC

Traffic Control: No	o control			Total Collisions: 13						
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Vehicle type	First Event	No. Ped		

2014-Jul-18, Fri,14:58	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Oct-10, Fri,17:20	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile,	Other motor vehicle
					West	Going ahead	station wagon Automobile, station wagon	Other motor vehicle
2015-Jan-06, Tue,06:20	Clear	Rear end	Non-fatal injury	Ice	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2015-Mar-23, Mon,09:10	Clear	Angle	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jan-16, Fri,07:52	Snow	SMV other	P.D. only	Loose snow	North	Turning left	Construction equipment	Pole (utility, power)
2015-Jul-14, Tue,17:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
_					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Aug-11, Tue,16:05	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2016-Aug-11, Thu,16:45	Clear	Rear end	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
Enidous Assessed 00.00							-	Dama 22 of 20

					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Aug-11, Tue,15:48	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Sep-22, Tue, 15:45	Clear	Angle	P.D. only	Dry	West	Going ahead	Bicycle	Other motor vehicle
					North	Turning right	Automobile, station wagon	Cyclist
2015-Nov-19, Thu, 17:45	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Dec-06, Wed,16:38	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Jan-29, Mon,16:25	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

Location: BASELINE RD btwn CLYDE AVE & 207 E OF CLYDE AVE

Traffic	Control	: No control
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Total Collisions: 22

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Apr-09, Wed,15:20	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Apr-13, Sun,14:24	Rain	Rear end	P.D. only	Wet	East	•	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Municipal transit bus	Other motor vehicle	
2014-Sep-29, Mon,14:45	Clear	Sideswipe	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Tow truck	Other motor vehicle	
2015-Jun-19, Fri,16:52	Clear	Rear end	Non-fatal injury	Dry	East		Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Mar-12, Thu,07:51	Clear	Sideswipe	P.D. only	Dry	East	Pulling away from shoulder or curb		Other motor vehicle	
					East	•	Automobile, station wagon	Other motor vehicle	
2015-Feb-02, Mon,12:19	Snow	Rear end	P.D. only	Packed snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	

2015-Feb-01, Sun,20:05	Clear	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2015-Jun-19, Fri,19:08	Clear	Rear end	P.D. only	Dry	East	•	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Jun-04, Sat,15:55	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2015-Nov-19, Thu,18:00	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Sep-28, Mon,15:15	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Passenger van	Other motor vehicle
2015-Nov-12, Thu,16:24	Rain	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding
					West	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Jan-03, Sun,18:14	Clear	SMV other	P.D. only	Dry	West	U U	Automobile, station wagon	Ran off road

2016-Jul-29, Fri,16:16	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile,	Other motor vehicle
2016-Jun-04, Sat,15:50	Clear	Rear end	P.D. only	Dry	East S	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Turning right	Automobile,	Other motor vehicle
2016-Dec-08, Thu,15:53	Snow	Rear end	Non-fatal injury	Wet	East S	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East S	Slowing or stopping		Other motor vehicle
					East S	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2016-Dec-08, Thu,16:14	Snow	Sideswipe	P.D. only	Wet	East		Municipal transit bus	Other motor vehicle
					East	•	Automobile, station wagon	Other motor vehicle
2017-May-23, Tue,10:05	Clear	Rear end	P.D. only	Dry	West	•	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2017-Apr-11, Tue,13:07	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Going ahead	Passenger van	Other motor vehicle
					East		Automobile, station wagon	Other motor vehicle
2017-Sep-21, Thu,20:50	Clear	Sideswipe	Non-fatal injury	Dry	East	•	Automobile, station wagon	Other motor vehicle

					East		Automobile, station wagon	Other motor vehicle	
					East		Automobile, station wagon	Other motor vehicle	
2017-Dec-14, Thu,15:14	Clear	Rear end	P.D. only	Slush	West	•	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Aug-17, Fri,16:38	Clear	SMV other	Non-fatal injury	Dry	East	Unknown	Unknown	Pedestrian	1
Location: CLYDE	AVE btwn MA	ITLAND AVE & BA	ASELINE RD						
Traffic Control: No	control						Total Co	ollisions: 12	
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Sep-17, Wed,08:50	Clear	Angle	Non-fatal injury	Dry	East	Turning right	Unknown	Cyclist	
					South	Going ahead	Bicycle	Other motor vehicle	
2014-Dec-08, Mon,12:44	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Unknown	Other motor vehicle	
					North	Going ahead	Passenger van	Other motor vehicle	
2016-Aug-12, Fri,16:32	Rain	Rear end	P.D. only	Wet	North		Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	-	Other motor vehicle	
2016-Feb-17, Wed,18:08	Snow	Turning movement	P.D. only	Slush	North		Automobile, station wagon	Other motor vehicle	
					South		Pick-up truck	Other motor vehicle	

2015-Aug-14, Fri,09:45	Clear	Sideswipe	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
					South		Pick-up truck	Other motor vehicle
2015-Nov-13, Fri,12:29	Rain	Angle	P.D. only	Wet	East	Turning right	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Sep-10, Sat,15:00	Clear	SMV other	P.D. only	Wet	North	Turning right	Automobile, station wagon	Skidding/sliding
2017-Nov-14, Tue,21:25	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2017-Sep-24, Sun,01:30	Clear	SMV other	Fatal injury	Dry	South	Going ahead	Automobile, station wagon	Pedestrian 1
2018-Feb-07, Wed,11:18	Snow	Turning movement	P.D. only	Loose snow	South		Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2018-Feb-11, Sun,17:34	Snow	Rear end	P.D. only	Slush	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2018-Oct-04, Thu,19:15	Clear	Sideswipe	P.D. only	Wet	North		Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

Appendix B Correspondance May 13, 2020

Appendix B CORRESPONDANCE

Lauren,

The City staff have reviewed your response and have no further comments. Please proceed with the TIA Step 4 – Strategy report and submit the report with the Site Plan Application.

Thank you,

Wally Dubyk Project Manager - Transportation Approvals Development Review, Central & South Branches 613-580-2424 x13783

From: O'Grady, Lauren <Lauren.OGrady@stantec.com>
Sent: November 28, 2019 9:04 AM
To: Dubyk, Wally <Wally.Dubyk@ottawa.ca>
Cc: Moore, Sean <Sean.Moore@ottawa.ca>; Giampa, Mike <Mike.Giampa@ottawa.ca>
Subject: RE: 1357 Baseline Rd - Forecasting Comments

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Hi Wally,

Thank you for providing your comments on the Step 3 TIA. Please see my responses in green below. Can you please circulate my responses to the appropriate City staff to receive concurrence so I can proceed with the Step 4 TIA?

Thank you,

Lauren O'Grady P.Eng. Transportation Engineer

Direct: 613-784-2264 lauren.o'grady@stantec.com

Stantec 400 - 1331 Clyde Avenue Ottawa ON K2C 3G4

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From: Dubyk, Wally <<u>Wally.Dubyk@ottawa.ca</u>>
Sent: Wednesday, November 27, 2019 7:13 AM
To: O'Grady, Lauren <<u>Lauren.OGrady@stantec.com</u>>
Cc: Moore, Sean <<u>Sean.Moore@ottawa.ca</u>>
Subject: 1357 Baseline Rd - Forecasting Comments

Lauren,

1357 Baseline Road TIA Forecasting Report

Please review the following Forecasting comments;

Transportation Engineering

Use TRANS to forecast trips for Land Use Code 222. Using ITE underestimates trips generated by the development. Noted. The LUC 222 will use the TRANS rates in the Step 4 TIA.

Separate the walking and cycling mode shares. Noted. The walking and cycling mode shares will be separated in the Step 4 TIA.

Consider increasing the future transit mode share target. The Baseline BRT will front this development directly, and Stage 2 of LRT will be in place at Baseline Station a few kilometers away. Review the TDM strategies to support the transition to higher transit mode share. Reducing the available parking should be considered. As outlined in Section 3.1.1, the transit modal shares that were used in the subject TIA were agreed upon by the City prior to the submission of the Step 3 TIA. The TDM strategies will be reviewed as part of the Step 4 TIA.

Monitoring of mode share may be required if site design does not support the projected mode shares. Please refer to comment #1 from Traffic Signal Operations below.

Consider internalization or pass-by reductions for the shopping centre. Due to the negligible traffic the commercial land use is anticipated to generate (i.e. maximum of 14 two-way trips during the PM peak hour), internal capture and pass-by were not applied. Applying these two reductions would have a negligible impact on the number of trips the proposed development is anticipated to generate.

Justify the volume distribution at accesses. Since this development is adjacent to the intersection of Baseline and Clyde, the westbound traffic is directly connected to Private Access 2. Adjust Figures 8-10 if changes are made. Section 3.1.2 contained an error. The distribution of traffic at the site accesses was not based on the 2019 existing volumes as stated in Step 3, but rather, it was based on the Trans OD Survey for the Merivale district. Section 3.1.2 will be revised as part of the Step 4 TIA and will

provide clarification.

Include traffic projections from developments at 1375 Clyde, 1454 Merivale and 300 Central Park in Section 3.2.3. The proposed developments at 1375 Clyde and 300 Central Park will be included in the Step 4 TIA. It is our understanding that the development at 1454 Merivale is currently constructed and fully operational, therefore, the trips associated with this development has already been captured in the turning movement counts that were collected in the summer of 2019.

Traffic Signal Operations

The 332 vehicle parking spaces being proposed as part of development do not align with the transit modal share targets (40%). Baseline Road is already at capacity and further lane reductions as part of the bus rapid transit will add more pressure to an already congested corridor. The 40% modal share once the BRT is operational was agreed upon by the City of Ottawa during the preparation of the Step 3 TIA. The ITE and TRANS trip generation rates are based on the number of residential units and not on the number of parking spaces. The tenants that will be occupying the seniors portion of the proposed development are not likely to drive during the AM and PM peak hours (AM trip gen rate is 0.20 and PM trip gen rate is 0.26). However, based on market research, the developer wishes to provide options for parking spaces so that the seniors can keep their cars and use them as they wish (likely off peak, according to the trip generation rates). We don't anticipate the transit modal share being anything less than 40%, even with the proposed number of parking spaces. Referring to the third comment from TES above, the transit modal share might in fact be higher than 40%. Based on the zoning, providing 322 parking spaces is closer to the minimum rather than the maximum allowable parking spaces (min is appx 180 and max is appx 800). Furthermore, out of the proposed 322 parking spaces, appx 60 of them are reserved for visitors. We recommend keeping the transit modal share at 40% once the BRT is operational.

Demand Rationalization will be required if the VLOS indicates that the boundary intersections are at capacity. Noted.

Wally Dubyk Project Manager - Transportation Approvals Development Review, Central & South Branches 613-580-2424 x13783

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Stantec

To:	Wally Dubyk	From:	Lauren O'Grady, P.Eng.
	110 Laurier Avenue West, 4th Floor Ottawa, ON K1P 1J1		400 – 1331 Clyde Avenue Ottawa, ON K2C 3G4
File:	1357 Baseline Road	Date:	May 15, 2020

Reference: 163601304 – 1357 Baseline Road

In January 2020 Stantec Consulting Ltd. prepared the 1357 Baseline Road Transportation Impact Assessment Strategy Report on behalf of Selection Groupe International Inc. for a proposed development. In April 2020 Stantec received comments from the City of Ottawa. **Table 1** below includes the transportation comments from the City of Ottawa along with the accompanying responses by Stantec.

City	of Ottawa Comment	Stantec Response
Ger	neral	
1	Baseline Road is designated as an Arterial road within the City's Official Plan with a ROW protection limit of 44.5 metres. The ROW protection limit and the offset distance (22.25 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings.	Noted. The appropriate drawings will be revised.
2	Clyde Avenue is designated as an Arterial road within the City's Official Plan with a ROW protection limit of 34.0 metres. The ROW protection limit and the offset distance (17.0 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings.	Noted. The appropriate drawings will be revised.
3	ROW interpretation – Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the City. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.	Noted. The appropriate drawings will be revised.
4	A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Baseline Road and Clyde Avenue and is to be shown on all drawings. The sight triangle dimensions are to be measured from the protected ROW limits.	Noted. The appropriate drawings will be revised.
5	The City does not recommend a proposed right-out movement from the existing access on Baseline Road. Note Section 24(1) & (2) of the By-Law No. 2003-447, which prohibits the construction of a private approach that will create hazardous conditions. Vehicles exiting the facility and wishing to access Baseline Road using westbound left- turn lane will have great difficulty during most times of the day as they will have to cross four lanes of traffic to access it. Please refer to the TAC manual Fig. 3.2.8.2 for the suggested minimum corner clearances.	The current development application does not propose implementing a right-out at the existing right-in on Baseline Road. Per the outcome from the meeting with the City of Ottawa and the developer, held on September 18 th , 2019, a Monitoring Plan will be prepared as part of the Step 5 TIA which will outline areas that should be monitored in the future to determine if a right-out can be accommodated at the existing right-in access to Baseline Road once the BRT is in place.
6	The Traffic Management Plan is to be submitted for approval.	Should a Traffic Management Plan be required, the developer's contractor will prepare one to submit to the City.

May 15, 2020

Wally Dubyk Page 2 of 3

Reference: 163601304 – 1357 Baseline Road

7	A Transit System is being proposed along Baseline Road within the next 1 to 2 years.	Noted.			
Transportation Engineering					
1	Attach the Certification Form for TIA Study PM.	The certification form will be included as part of the Step 5 TIA.			
2	Correct Table 11. While the provided vehicular parking spaces is adequate, more visitor and residential parking spaces are required as per the parking by-law.	Per Section 4.2 of the TIA, the subject site is located within 'Area X' of the Schedule 1A due to the proximity to the future BRT along Baseline Road. Per Area X, the by-law states that 101 vehicle parking spaces are required for the residential component, 7 vehicle parking spaces are required for the retail component, and 37 vehicle parking spaces are required for visitors.			
		The proposed site plan includes 324 vehicle parking spaces (267 for residents, 20 for retail, and 37 for visitors) which meets the minimum by-law requirements.			
3	Revise section 4.5. Given that the BRT is to be implemented after the proposed occupancy of the development, more TDM Measures should be provided to incentive early adoption of transit. The need to achieve the 40% transit mode share is high given that the affected network intersections already have failing levels of service for some movements. Consider appointing an internal coordinator to monitor initial as well as post-BRT modal shares. If the mode shares are not achieved, we suggest providing pre-paid PRESTO cards to all tenants.	Noted. The developer will take this into consideration and determine the most appropriate course of action regarding implementing TDM measures.			
4	Review sight lines from private access 2 onto Baseline Road. There is currently a rear end collision issue on the westbound approach to Clyde Avenue that is aggravated by a vertical sight line problem. Egress from this access is strongly discouraged especially considering that motorists will wish to cross all lanes to travel southbound on Clyde Avenue.	Refer to the response to 'General' comment #5 above.			
5	Revise intersection PLOS. The number of lanes crossed should be the total crossing distance divided by 3.5 m when there is a large discrepancy.	As the intersection PLOS at both signalized intersections within the study area were found to operate at a PLOS F under all horizons, increasing the crossing distance for pedestrians will not change the results of the PLOS analysis. In addition, changing the PLOS analysis to include 10+ lanes of traffic results in a 'N/A' for the PLOS per the City's provided MMLOS spreadsheet. As the PLOS will result in an F regardless, the PLOS analysis was left as is.			
6	Correct the Baseline Road / Clyde Avenue existing BLOS; two lanes are crossed to turn left.	Noted. This will be revised in the Step 5 TIA.			
7	As construction and road works begin, the proponent should consult with the City to ensure that the design along the frontage does not conflict with the BRT design and to minimize disruption to pedestrians.	Noted.			

May 15, 2020

Wally Dubyk Page 3 of 3

Reference: 163601304 – 1357 Baseline Road

8	Ensure that the adequate ROW and setbacks are incorporated into the design along the north side of the frontage.	Noted.	
Traffic Signal Operations			
1	This particular segment of Baseline Road is congested and is not pedestrian friendly. There is insufficient vehicular capacity along Baseline Road and when Baseline BRT is constructed the vehicular capacity will be further reduced.	Noted.	
2	There is little that can be done from a timing perspective to improve LOS for driving public and pedestrians, i.e. long crossing distances, long wait times.	Noted.	
3	Private Access 2 when BRT is built will only have 1 WBTR lane and 1 WBT lane. Synchro model shows 1 WBTR and 2 WBT lanes.	Noted. As this intersection operates as a 'free-flow' condition, the operations were not analyzed. However, the lane configuration in the Synchro files were revised and will be provided to the City as part of the Step 5 TIA.	

We trust that the above addresses the City's outstanding comments and concerns. Should you have any further questions or concerns related to the above please feel free to contact the undersigned at your earliest convenience.

Regards,

Stantec Consulting Ltd.

Hady

Lauren O'Grady P.Eng. Transportation Engineer Phone: 613-784-2264 lauren.o'grady@stantec.com

Appendix C Monitoring Plan May 13, 2020

Appendix C MONITORING PLAN



1357 Baseline Road

Monitoring Plan

May 13, 2020

Prepared for:

Selection Groupe International Inc.

Prepared by:

Stantec Consulting Ltd.



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1.0 INTRODUCTION

A Transportation Impact Assessment has been prepared to support a development application at 1357 Baseline Road in the City of Ottawa. The site is located at the northeast quadrant of the Baseline Road at Clyde Avenue intersection. The proposed site includes 228 senior housing units, 174 apartment units, and approximately 5,500 ft² of retail space.

Under the current conditions, the City does not support altering the right-in only access on Baseline Road to accommodate the right-out movement due to the wide cross-section of Baseline Road and proximity to the Baseline Road at Clyde Avenue intersection. Should a motorist wish to exit this access and then proceed south along Clyde Avenue, they would have to cross three lanes of traffic in order to enter the westbound left turn lane at the intersection of Baseline Road at Clyde Avenue, all within the span of approximately 100m.

The City indicated they might be open to reconfiguring this access to allow right-out movements to occur once the Baseline Road Bus Rapid Transit (BRT) is in place. Reconfiguring the access is expected to take place following the monitoring of future traffic conditions after the implementation of the Baseline Road BRT. As such, the subject Monitoring Plan addresses the following three items:

- Monitoring of future traffic volumes;
- Monitoring of future intersection operations; and
- Monitoring of future sightlines.

2.0 MONITORING PROGRAM

2.1 MONITORING OF FUTURE TRAFFIC VOLUMES

2.1.1 Rationale

As outlined in the *Baseline Road Bus Rapid Transit Planning and Environmental Assessment Study* (July 2017), the Baseline Road BRT is anticipated to reduce the traffic volumes on Baseline Road by approximately 10% when comparing 2010 volumes to 2031 projected volumes. Considering that the BRT will be constructed by 2023, this 10% reduction in traffic equates to roughly 1.25% reduction per annum between 2023 and the 2031.

It is recommended to monitor the future traffic volumes at the intersections of Baseline Road at Clyde Avenue and Baseline Road at Private Access 2 once the BRT is implemented and fully operational.



2.1.2 Monitoring Activities

Traffic volumes will be collected at both subject intersections once the BRT is fully operational. This will determine whether or not the volumes have decreased as a result of the BRT. It is recommended to wait a period of time (i.e. several months) after the BRT opens to conduct these traffic counts as it may take some time for traffic patterns to adjust to the new facility.

It is recommended to collect traffic counts at both intersections (Baseline Road at Clyde Avenue and Baseline Road at Private Access 2) over the course of two days to account for any potential fluctuations in traffic. In addition, it is recommended to conduct these traffic counts between Tuesday and Thursday to avoid potential traffic fluctuations that may occur on Mondays or Fridays. It is also recommended to ensure the BRT is operating at full capacity during the count collection days.

These counts should be collected over the span of 8 hours (7AM – 10AM, 11:30AM – 1:30PM, and 3PM – 6PM), which corresponds to typical City of Ottawa turning movement counts.

2.1.3 Evaluation

This part of the monitoring plan will feed into evaluating the future intersection operations. As such, there's no specific evaluation as part of the collection of future traffic volumes.

2.1.4 Outcome

A memo will be prepared documenting the future traffic volumes at the intersection of Baseline Road at Clyde Avenue and Baseline Road at Private Access 2 once the Baseline Road Bus Rapid Transit is fully operational.

2.2 MONITORING OF FUTURE INTERSECTION OPERATIONS

2.2.1 Rationale

As the Baseline Road BRT will alter the traffic volumes and traffic patterns in the vicinity of the subject site, it is recommended to analyze the future intersection operations once the BRT is implemented. The intersection operations will include metrics such as volume to capacity ratios (v/c), delay, and 95th percentile queues.

The intersections of particular interest include the following:

- Baseline Road at Clyde Avenue; and
- Baseline Road at Private Access 2.

Table 1 outlines the existing intersection operations at the above noted intersections. It should be noted that under existing conditions, the Baseline Road at Private Access 2 intersection was not assessed as it is currently a right-in only intersection.



Intersection	Intersection Control	Approach / Movement		LOS	V/C	Delay (s)	Queue 95 th (m)
			Left	F (F)	1.17 (1.16)	177.1 (182.0)	120.4 (114.1)
		EB	Through	F (D)	1.02 (0.84)	72.0 (46.6)	221.9 (159.6)
			Right	A* (A*)	0.24* (0.41*)	5.1* (15.4*)	11.2* (37.8*)
			Left	C (D)	0.78 (0.87)	72.6 (97.1)	28.0 (70.7)
Baseline Road	Traffic Signals	WB	Through	A (F)	0.56 (1.10)	38.1 (<mark>101.8</mark>)	83.3 (282.1)
at Clyde			Right	B* (E)	0.70* (0.94*)	22.6* (50.6*)	69.1* (#164.7)
Avenue		NB	Left	B (D)	0.64 (0.90)	61.1 (80.9)	19.6 (77.0)
			Through / Right	E (F)	0.99 (1.08)	81.8 (113.9)	186.9 (224.0)
		SB	Left	D (F)	0.86 (1.04)	68.4 (114.8)	69.3 (100.8)
			Through / Right	A (D)	0.47 (0.88)	31.3 (<mark>64.5</mark>)	79.8 (147.7)
		Ove	erall Intersection	-	-	62.1 (82.7)	-
Notes: 1. Table format: AM (PM) 2. v/c - represents the anticipated volume divided by the predicted capacity 3. * Estimated using Synchro's Percentile Method 4. # for v/c < 1, queue requires multiple cycles to be cleared							

Table 1 - 2019 Existing Intersection Operations

for v/c <1, queue requires multiple cycles to be cleared
 Red highlight: Movement operating at or above capacity; Orange Highlight: Movement operating near capacity.

The Baseline Road BRT will increase the transit capacity along Baseline Road, thus likely reducing the number of vehicles.

2.2.2 Monitoring Activities

Traffic volumes will be collected at both subject intersections once the BRT is fully operational. This will determine whether or not the volumes have decreased as a result of the BRT. It is recommended to wait a period of time (i.e. several months) after the BRT opens to conduct these traffic counts as it may take some time for traffic patterns to adjust to the new facility.

It is recommended to collect traffic counts at both intersections over the course of two days to account for any potential fluctuations in traffic. It is recommended to conduct these traffic counts between Tuesday and Thursday to avoid potential traffic fluctuations that may occur on Mondays or Fridays. It is also recommended to ensure the BRT is operating at full capacity during the count collection days.

These counts should be collected over the span of 8 hours (7AM – 10AM, 11:30AM – 1:30PM, and 3PM – 6PM), which corresponds to typical City of Ottawa turning movement counts.

2.2.3 Evaluation

The future traffic volumes will be used to assess both subject intersections using Synchro software during the AM and PM weekday peak hours. The following metrics will be applied:

- Volume to capacity ratios (v/c);
- Delays; and
- 95th percentile queues.



These metrics will be used to determine the viability of allowing right-out movements at the Baseline Road at Private Access 2 intersection. Of particular interest will be the westbound queue spillback from the Baseline Road at Clyde Avenue intersection to see if it has the potential to block the Private Access 2 intersection. Furthermore, future forecasted delays during the peak hours at Private Access 2 will be assessed. Extreme delays may result in a lower gap acceptance for motorists and may increase the risk for collisions.

It should be noted that the future operations at the intersection of Baseline Road at Clyde Avenue is expected to operate under Transit Signal Priority (TSP) measures. The future intersection performance at this intersection should be analyzed carefully as basic traffic capacity analysis software do not explicitly capture the impacts of TSP operations.

2.2.4 Outcome

A memo will be prepared documenting the results of the future intersection analysis at the intersections of Private Access 2 and Clyde Avenue with Baseline Road.

2.3 MONITORING OF FUTURE SIGHTLINES

2.3.1 Rationale

To determine if future sightlines at the Baseline Road at Private Access 2 intersection are sufficient, once the Baseline Road BRT is implemented.

As part of the TIA that was prepared in support of the development application at 1357 Baseline Road, the City of Ottawa requested that the sightlines be evaluated at the intersection of Baseline Road at Private Access 2 should the developer wish to proceed with requesting that a right-out be permitted at this location.

2.3.2 Monitoring Activities

Using the methodology outlined in the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads (2017)* (TAC Manual), the sightlines will be evaluated at the Baseline Road at Private Access 2 intersection. This analysis will be performed using the latest mapping that includes the new Baseline Road BRT, which will likely have to be provided by the City of Ottawa.

2.3.3 Evaluation

Based on the outcome from the sightline assessment, it will be determined if the right-out movements at the Baseline Road at Private Access 2 intersection will have sufficient sightlines in order to merge into traffic onto Baseline Road.

2.3.4 Outcome

A memo will be prepared documenting the results of the future sightlines at the intersection of Baseline Road at Private Access 2.



Appendix D Multi-Modal Level of Service Assessments May 13, 2020

Appendix D MULTI-MODAL LEVEL OF SERVICE ASSESSMENTS

Multi-Modal Level of Service - Segments Form

Consultant Scenario	Stantec Existing Conditions		1357 Baseline Rd 10-Jan-20	
SEGMENTS		LOS	Baseline Road Across Frontage	Clyde Avenue Across Frontage
Pedestrian	Sidewalk Width Boulevard Width Avg Daily Curb Lane Traffic Volume Operating Speed On-Street Parking	F	1.8 m < 0.5 m > 3000 > 60 km/h no	1.8 m < 0.5 m > 3000 > 60 km/h no
	Level of Service		F	F
	Type of Cycling Facility		Curbside Bike Lane	Mixed Traffic
	Number of Travel Lanes		≥ 3 each direction	≥ 6 lanes total
	Operating Speed		>50 to 70 km/h	≥ 50 to 60 km/h
	# of Lanes & Operating Speed LoS		D	F
Bicycle	Bike Lane (+ Parking Lane) Width		≥1.5 to <1.8 m	
cy	Bike Lane Width LoS	F	В	-
B	Bike Lane Blockages		Rare	
	Blockage LoS		А	-
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		A	A
	Level of Service		D	F
Transit	Facility Type	_	Bus lane	Mixed Traffic
rar	Friction or Ratio Transit:Posted Speed	F	Cf ≤ 60	Vt/Vp ≤ 0.6
F	Level of Service		В	E
×	Truck Lane Width		≤ 3.5 m	≤ 3.5 m
Truck	Travel Lanes per Direction	Α	> 1	> 1
Ē	Level of Service		Α	Α

Multi-Modal Level of Service - Segments Form

Consultant Scenario	Stantec Ultimate Conditions		1357 Baseline Rd 10-Jan-20	
SEGMENTS			Baseline Road Across Frontage	Clyde Avenue Across Frontage
an	Sidewalk Width Boulevard Width		≥ 2 m > 2 m	1.8 m < 0.5 m
Pedestrian	Avg Daily Curb Lane Traffic Volume Operating Speed On-Street Parking	F	> 3000 > 50 to 60 km/h no	> 3000 > 60 km/h no
Ре	Exposure to Traffic PLoS		С	F
	Level of Service		С	-
	Type of Cycling Facility		Physically Separated	Mixed Traffic
	Number of Travel Lanes			≥ 6 lanes total
	Operating Speed			≥ 50 to 60 km/h
Bicycle	# of Lanes & Operating Speed LoS Bike Lane (+ Parking Lane) Width	_	-	F
cy	Bike Lane Width LoS	F	-	-
<u>ia</u>	Bike Lane Blockages			
	Blockage LoS		-	-
	Median Refuge Width (no median = < 1.8 m)			< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing Sidestreet Operating Speed			≤ 3 lanes ≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		Α	A
	Level of Service		А	F
Transit	Facility Type	_	Segregated ROW	Mixed Traffic
Lai	Friction or Ratio Transit:Posted Speed	F	<u>Cf ≤ 60</u>	Vt/Vp ≤ 0.6
F	Level of Service		Α	E
×	Truck Lane Width		≤ 3.5 m	≤ 3.5 m
Truck	Travel Lanes per Direction	Α	> 1	> 1
H	Level of Service		A	Α

Multi-Modal Level of Service - Intersections Form

Consultant Scenario	StantecProject1357 Baseline Rd2019 ExistingDate16-Apr-20		d					
	INTERSECTIONS		Baselin	e & Clyde		Basel	ine & Private Ac	cess 1
	Crossing Side	NORTH	SOUTH	EAST	WEST	NORTH	EAST	WEST
	Lanes	7	7	8	8	4	4	6
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Protected	Protected	Protected	Protected	Protected/ Permissive	Permissive	No left turn / Prohib.
	Conflicting Right Turns	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control
	Right Turns on Red (RToR) ?	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed
	Ped Signal Leading Interval?	No	No	No	No	No	No	No
ian	Right Turn Channel	Conv'tl without Receiving Lane	No Channel	Conv'tl without Receiving Lane	Smart Channel	No Channel	No Channel	No Channel
sti	Corner Radius	10-15m	10-15m	15-25m	15-25m	10-15m	10-15m	10-15m
Pedestrian	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
_	PETSI Score	16	12	-2	0	53	58	28
	Ped. Exposure to Traffic LoS	F	F	F	F	D	D	F
	Cycle Length	130	130	130	130	130	130	130
	Effective Walk Time Average Pedestrian Delay	7 58	7 58	7 58	7 58	7 58	7 58	7 58
	Pedestrian Delay LoS	E	E	E	E	E	E	E
		F	F	F	F	E	E	F
	Level of Service	•	<u> </u>	F	<u> </u>	E	F	<u> </u>
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	EAST	WEST
	Bicycle Lane Arrangement on Approach	Mixed Traffic	Mixed Traffic	Pocket Bike Lane	Pocket Bike Lane	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank></blank>			> 50 m Introduced right turn lane	≤ 50 m Introduced right turn lane	> 50 m	Not Applicable	
	Dedicated Right Turning Speed			≤ 25 km/h	≤ 25 km/h	≤ 25 km/h	Not Applicable	
<u>o</u>	Cyclist Through Movement			D	В	F	Not Applicable	
ycl	Separated or Mixed Traffic	Mixed Traffic	Mixed Traffic	Separated	Separated	Mixed Traffic	Separated	Mixed Traffic
Bicycle	Left Turn Approach	No lane crossed	No lane crossed	≥ 2 lanes crossed	≥ 2 lanes crossed	No lane crossed		One lane crossed
	Operating Speed	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≥ 60 km/h	≤ 40 km/h		≥ 60 km/h
	Left Turning Cyclist	С	С	F	F	В	-	F
	Level of Service	С	C	F F	F	F	- F	F
	Average Signal Delay	> 40 sec	> 40 sec	> 40 sec	> 40 sec	0.000	≤ 30 sec	≤ 40 sec
sit	Average Signal Delay	> 40 sec	> 40 sec	> 40 sec	> 40 sec	0 sec	≤ 30 sec	≤ 40 sec
Transit	Level of Service			F	<u>г</u>	A	E	<u> </u>
		40 45	40 45			40 45		
	Effective Corner Radius Number of Receiving Lanes on Departure	10 - 15 m ≥ 2	10 - 15 m ≥ 2	> 15 m ≥ 2	> 15 m ≥ 2	10 - 15 m ≥ 2	10 - 15 m ≥ 2	
Truck	from Intersection							
Ę	Level of Service	В	В	<u> </u>	Α	В	<u> </u>	-
				В			В	
Auto	Volume to Capacity Ratio		>	1.00			0.81 - 0.90	
Au	Level of Service			F			D	

Multi-Modal Level of Service - Intersections Form

Pedestrian	INTERSECTIONS Crossing Side Lanes Median Conflicting Left Turns Conflicting Right Turns Right Turns on Red (RToR) ? Ped Signal Leading Interval? Right Turn Channel	NORTH 6 No Median - 2.4 m Protected Permissive or yield control	Baselin SOUTH 6 No Median - 2.4 m Protected Permissive or yield control	e & Clyde EAST 8 Median > 2.4 m Protected Permissive or yield control	WEST 8 Median > 2.4 m Protected	Baseli NORTH 4 No Median - 2.4 m Protected	ine & Private Ac EAST 6 Median > 2.4 m	WEST 7
strian	Lanes Median Conflicting Left Turns Conflicting Right Turns Right Turns on Red (RToR) ? Ped Signal Leading Interval?	6 No Median - 2.4 m Protected Permissive or yield control	6 No Median - 2.4 m Protected Permissive or yield	8 Median > 2.4 m Protected Permissive or yield	8 Median > 2.4 m	4 No Median - 2.4 m	6	7
strian	Median Conflicting Left Turns Conflicting Right Turns Right Turns on Red (RToR) ? Ped Signal Leading Interval?	No Median - 2.4 m Protected Permissive or yield control	No Median - 2.4 m Protected Permissive or yield	Median > 2.4 m Protected Permissive or yield	Median > 2.4 m	No Median - 2.4 m		
strian	Conflicting Left Turns Conflicting Right Turns Right Turns on Red (RToR) ? Ped Signal Leading Interval?	Protected Permissive or yield control	Protected Permissive or yield	Protected Permissive or yield			Median > 2.4 m	
strian	Conflicting Right Turns Right Turns on Red (RToR) ? Ped Signal Leading Interval?	Permissive or yield control	Permissive or yield	Permissive or yield	Protected	Protected	B · · ·	Median > 2.4 m
strian	Right Turns on Red (RToR) ? Ped Signal Leading Interval?	control					Permissive	No left turn / Prohib.
strian	Ped Signal Leading Interval?	RTOR prohibited		CONTION	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn
strian	ů ů		RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited
strian	Right Turn Channel	No	No	No	No	No	No	No
str	-	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel
	Corner Radius	10-15m	10-15m	15-25m	15-25m	10-15m	10-15m	10-15m
ede	Crosswalk Type	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings
₽.	PETSI Score	31	31	4	4	64	28	26
	Ped. Exposure to Traffic LoS	E	E	F	F	С	F	F
	Cycle Length	130	130	130	130	130	130	130
	Effective Walk Time	7	7	7	7	7	7	7
	Average Pedestrian Delay	58	58	58	58	58	58	58
	Pedestrian Delay LoS	E	E	E	E	E	E	E
		E	E	F	F	E	F	F
	Level of Service			F			F	
	Approach From	NORTH	SOUTH	EAST	WEST	NORTH	EAST	WEST
	Bicycle Lane Arrangement on Approach	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP	Curb Bike Lane, Cycletrack or MUP
	IF Dedicated Right Turn Lane, THEN Right Turn Configuration, ELSE <blank></blank>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	> 50 m		
	Dedicated Right Turning Speed	Not Applicable	Not Applicable	Not Applicable	Not Applicable	≤ 25 km/h		
<u>o</u>	Cyclist Through Movement	Not Applicable	Not Applicable	Not Applicable	Not Applicable	F	Not Applicable	Not Applicable
yc	Separated or Mixed Traffic	Separated	Separated	Separated	Separated	Mixed Traffic	Separated	Separated
Bicycle	Left Turn Approach							
	Operating Speed Left Turning Cyclist	-				-		
			-	-	-		-	-
	Level of Service	-	-	-	-	-	-	-
	Average Signal Delay	> 40 sec	> 40 sec	≤ 30 sec	≤ 30 sec	0 sec	≤ 20 sec	≤ 20 sec
nsit		F	F	D	D	A	C	C
Transit	Level of Service			F			С	
	Effective Corner Radius	10 - 15 m	10 - 15 m	• > 15 m	> 15 m	10 - 15 m	10 - 15 m	
×	Number of Receiving Lanes on Departure from Intersection	≥2	≥2	≥ 2	≥ 2	≥2	≥2	
Truck		В	В	Α	Α	В	В	-
	Level of Service			B			B	
0	Volume to Capacity Ratio			1.00			0.81 - 0.90	
Auto	Level of Service			F			D	

Appendix E Transportation Demand Management May 13, 2020

Appendix E TRANSPORTATION DEMAND MANAGEMENT

TDM-Supportive Development Design and Infrastructure Checklist:

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

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

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	1.	WALKING & CYCLING: ROUTES	
	1.1	Building location & access points	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	\checkmark
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	\checkmark
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	\checkmark
	1.2	Facilities for walking & cycling	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)	
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official <i>Plan policy 4.3.12</i>)	

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on- road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	\mathbf{V}
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	
	1.3	Amenities for walking & cycling	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILI	TIES
	2.1	Bicycle parking	_
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well- used areas (see Zoning By-law Section 111)	
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored <i>(see Zoning By-law Section 111)</i>	
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	
	2.2	Secure bicycle parking	-
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)	
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	
	2.3	Shower & change facilities	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	
	2.4	Bicycle repair station	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	3.	TRANSIT	
	3.1	Customer amenities	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	
	4.	RIDESHARING	
	4.1	Pick-up & drop-off facilities	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	
	4.2	Carpool parking	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	
	5.	CARSHARING & BIKESHARING	
	5.1	Carshare parking spaces	
BETTER	5.1.1	Provide carshare parking spaces in permitted non- residential zones, occupying either required or provided parking spaces (see Zoning By-law Section 94)	
	5.2	Bikeshare station location	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	6.	PARKING	
	6.1	Number of parking spaces	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly <i>(see Zoning By-law</i> <i>Section 104)</i>	
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking <i>(see Zoning By-law Section 111)</i>	
	6.2	Separate long-term & short-term parking areas	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	
	7.	OTHER	
	7.1	On-site amenities to minimize off-site trips	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	

TDM Measures Checklist:

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

Legend

BASIC The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER The measure could maximize support for users of sustainable modes, and optimize development performance

The measure is one of the most dependably effective tools to encourage the use of sustainable modes

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

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	3.	TRANSIT	
	3.1	Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances	
BASIC	3.1.2	Provide online links to OC Transpo and STO information	
BETTER	3.1.3	Provide real-time arrival information display at entrances	
	3.2	Transit fare incentives	
		Commuter travel	
BETTER	3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	
BETTER	★ 3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	
		Visitor travel	
BETTER	3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	
	3.3	Enhanced public transit service	
		Commuter travel	
BETTER	3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	
	3.4	Private transit service	
		Commuter travel	
BETTER	3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	4.	RIDESHARING	
	4.1	Ridematching service	
		Commuter travel	
BASIC ★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	
	4.2	Carpool parking price incentives	
		Commuter travel	
BETTER	4.2.1	Provide discounts on parking costs for registered carpools	
	4.3	Vanpool service	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	
	5.	CARSHARING & BIKESHARING	
	5.1	Bikeshare stations & memberships	
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	
	5.2	Carshare vehicles & memberships	
		Commuter travel	
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	
	6.	PARKING	
	6.1	Priced parking	
		Commuter travel	
BASIC ★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	
		Visitor travel	1
BETTER	6.1.3	Charge for short-term parking (hourly)	

TDM Measures Checklist

Version 1.0 (30 June 2017)

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	7.	TDM MARKETING & COMMUNICATIONS	
	7.1	Multimodal travel information	
		Commuter travel	
BASIC ★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students <i>Visitor travel</i>	
BETTER ★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	
	7.2	Personalized trip planning	
		Commuter travel	
BETTER ★	7.2.1	Offer personalized trip planning to new/relocating employees	
	7.3	Promotions	
		Commuter travel	
BETTER	7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	
	8.	OTHER INCENTIVES & AMENITIES	
	8.1	Emergency ride home	
		Commuter travel	
BETTER ★	8.1.1	Provide emergency ride home service to non-driving commuters	
	8.2	Alternative work arrangements	
		Commuter travel	
BASIC ★	8.2.1	Encourage flexible work hours	
BETTER	8.2.2	Encourage compressed workweeks	
BETTER ★	8.2.3	Encourage telework	
	8.3	Local business travel options	
		Commuter travel	
BASIC ★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	
	8.4	Commuter incentives	
		Commuter travel	
BETTER	8.4.1	Offer employees a taxable, mode-neutral commuting allowance	
	8.5	On-site amenities	
		Commuter travel	
BETTER	8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	

TDM-Supportive Development Design and Infrastructure Checklist: *Residential Developments (multi-family or condominium)*

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

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references			
	1.	WALKING & CYCLING: ROUTES				
	1.1	Building location & access points				
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	\checkmark			
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	\checkmark			
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	\checkmark			
	1.2	Facilities for walking & cycling				
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)				
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible (see Official <i>Plan policy 4.3.12</i>)				

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on- road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	\checkmark
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	
	1.3	Amenities for walking & cycling	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	

	TDM-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILI	TIES
	2.1	Bicycle parking	_
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well- used areas (see Zoning By-law Section 111)	complies with ZBL; bicycle storage lockers at grade
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored <i>(see Zoning By-law Section 111)</i>	
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	
	2.2	Secure bicycle parking	~
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)	bicycle parking provided at grade in locker room
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi- family residential developments	
	2.3	Bicycle repair station	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	
	3.	TRANSIT	
	3.1	Customer amenities	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	

	TDM-s	upportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	4.	RIDESHARING	
	4.1	Pick-up & drop-off facilities	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	
	5.	CARSHARING & BIKESHARING	
	5.1	Carshare parking spaces	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses <i>(see Zoning By-law Section 94)</i>	
	5.2	Bikeshare station location	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	
	6.	PARKING	
	6.1	Number of parking spaces	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly <i>(see Zoning By-law</i> <i>Section 104)</i>	
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking <i>(see Zoning By-law Section 111)</i>	
	6.2	Separate long-term & short-term parking areas	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	

TDM Measures Checklist:

Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER The measure could maximize support for users of sustainable modes, and optimize development performance

The measure is one of the most dependably effective tools to encourage the use of sustainable modes

	TDM	measures: Residential developments	Check if proposed & add descriptions					
	1. TDM PROGRAM MANAGEMENT							
	1.1	Program coordinator						
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator						
	1.2	Travel surveys						
BETTER	TER 1.2.1 Conduct periodic surveys to identify travel-re behaviours, attitudes, challenges and solutio and to track progress							
	2.	WALKING AND CYCLING						
	2.1	Information on walking/cycling routes & des	tinations					
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances (multi-family, condominium)						
	2.2	Bicycle skills training						
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses						

	TDM	measures: Residential developments	Check if proposed & add descriptions
	3.	TRANSIT	
	3.1	Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances (multi-family, condominium)	
BETTER	3.1.2	Provide real-time arrival information display at entrances (multi-family, condominium)	
	3.2	Transit fare incentives	
BASIC ★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	
BETTER	3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	
	3.3	Enhanced public transit service	
BETTER ★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels <i>(subdivision)</i>	
	3.4	Private transit service	
BETTER	3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	
	4.	CARSHARING & BIKESHARING	
	4.1	Bikeshare stations & memberships	
BETTER	4.1.1	Contract with provider to install on-site bikeshare station (<i>multi-family</i>)	
BETTER	4.1.2	Provide residents with bikeshare memberships, either free or subsidized <i>(multi-family)</i>	
	4.2	Carshare vehicles & memberships	
BETTER	4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	
BETTER	4.2.2	Provide residents with carshare memberships, either free or subsidized	
	5.	PARKING	
	5.1	Priced parking	
BASIC ★	5.1.1	Unbundle parking cost from purchase price (condominium)	
BASIC ★	5.1.2	Unbundle parking cost from monthly rent (multi-family)	

	TDM	measures: Residential developments	Check if proposed & add descriptions					
6. TDM MARKETING & COMMUNICATIONS								
	6.1	Multimodal travel information						
BASIC ★	6.1.1	Provide a multimodal travel option information package to new residents						
	6.2	Personalized trip planning						
BETTER ★	6.2.1	Offer personalized trip planning to new residents						

Appendix F Intersection Performance Worksheets May 13, 2020

Appendix F INTERSECTION PERFORMANCE WORKSHEETS

Appendix F Intersection Performance Worksheets May 13, 2020

2019 Existing Conditions

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SB
ane Configurations	ň	^	1	٦	<u>†</u> †	1	ኘካ	≜ î≽			<u>ል</u> ካ	^
Fraffic Volume (veh/h)	173	1069	128	54	487	377	83	744	99	17	291	45
uture Volume (veh/h)	173	1069	128	54	487	377	83	744	99	17	291	45
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A pbT)	1.00		1.00	1.00		1.00	1.00		0.97		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach		No			No			No				Ν
Adj Sat Flow, veh/h/ln	1800	1772	1758	1772	1730	1786	1730	1786	1786		1786	178
Adj Flow Rate, veh/h	192	1188	0	60	541	0	92	827	101		323	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.9
Percent Heavy Veh, %	0	2	3	2	5	1	5	1	1		1	
Cap, veh/h	164	1160		77	967		143	837	102		377	108
Arrive On Green	0.10	0.34	0.00	0.05	0.29	0.00	0.04	0.28	0.28		0.11	0.3
Sat Flow, veh/h	1714	3367	1490	1688	3287	1514	3196	3033	370		3300	314
Grp Volume(v), veh/h	192	1188	0	60	541	0	92	463	465		323	27
Grp Sat Flow(s),veh/h/ln	1714	1683	1490	1688	1643	1514	1598	1697	1706		1650	169
Q Serve(q s), s	11.5	41.4	0.0	4.2	16.7	0.0	3.4	32.6	32.6		11.5	15
Cycle Q Clear(g_c), s	11.5	41.4	0.0	4.2	16.7	0.0	3.4	32.6	32.6		11.5	15
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22		1.00	
Lane Grp Cap(c), veh/h	164	1160		77	967		143	468	471		377	58
V/C Ratio(X)	1.17	1.02		0.78	0.56		0.64	0.99	0.99		0.86	0.4
Avail Cap(c a), veh/h	164	1160		162	967		384	468	471		396	58
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.0
Uniform Delay (d), s/veh	54.2	39.3	0.0	56.7	35.8	0.0	56.4	43.3	43.3		52.2	30.
Incr Delay (d2), s/veh	122.8	32.7	0.0	15.9	2.3	0.0	4.8	38.5	38.4		16.3	0.
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0
%ile BackOfQ(95%),veh/In	17.2	31.7	0.0	4.0	11.9	0.0	2.8	26.6	26.7		9.9	11
Unsig. Movement Delay, s/veh			5.10			22.60						
LnGrp Delay(d),s/veh	177.1	72.0	5.1	72.6	38.1	22.6	61.1	81.8	81.7		68.4	31.
LnGrp LOS	F	F	A	E	D	С	E	F	F		E	
Approach Vol, veh/h		1522	А		1020	А		1020				87
Approach Delay, s/veh		79.0			33.8			79.9				44.
Approach LOS		E			C			E				
					-		_					_
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	47.8	20.3	40.0	18.0	41.7	12.0	48.3				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	34.6	14.4	* 33	11.5	34.6	14.4	* 33				
Max Q Clear Time (g_c+I1), s	6.2	43.4	13.5	34.6	13.5	18.7	5.4	17.3				
Green Ext Time (p_c), s	0.1	0.0	0.2	0.0	0.0	6.8	0.2	7.0				
ntersection Summary												
HCM 6th Ctrl Delay			62.1									
HCM 6th LOS			E									
	_	_	-	_	_	_	_	_	_	_	_	
Notes												
User approved ignoring U-Turi												
* HCM 6th computational engine												
Unsignalized Delay for [EBR, \	WRK] is i	ncluded in	n caiculat	ions of th	e approad	ch delay a	ind inters	ection del	ay.			

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road ,

lovement	SBR
areconfigurations	
raffic Volume (veh/h)	49
uture Volume (veh/h)	49
nitial Q (Qb), veh	0
ed-Bike Adj(A_pbT)	0.98
arking Bus, Adj	1.00
Vork Zone On Approach	
dj Sat Flow, veh/h/ln	1786
dj Flow Rate, veh/h	46
eak Hour Factor	0.90
Percent Heavy Veh, %	1
Cap, veh/h	98
vrrive On Green	0.35
Sat Flow, veh/h	282
Grp Volume(v), veh/h	281
Grp Sat Flow(s),veh/h/ln	1728
Serve(g_s), s	15.3
Cycle Q Clear(g_c), s	15.3
Prop In Lane	0.16
ane Grp Cap(c), veh/h	597
//C Ratio(X)	0.47
wail Cap(c_a), veh/h	597
ICM Platoon Ratio	1.00
Jpstream Filter(I)	1.00
Iniform Delay (d), s/veh	30.7
nor Delay (d2), s/veh	0.6
nitial Q Delay(d3),s/veh	0.0
6ile BackOfQ(95%),veh/In	11.4
Insig. Movement Delay, s/ve	
nGrp Delay(d),s/veh	31.3
nGrp LOS	С
pproach Vol, veh/h	
pproach Delay, s/veh	
pproach LOS	
imer - Assigned Phs	

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HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Synchro 10 Report Page 2

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HCM 6th Signalized Intersection Summary

Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/In Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	0 1.00 1.00 ch 1772	EBT 1369 1369 0 1.00 No	WBT *1> 894 894 0	WBR 61 61 0	SBL 39 39	SBR
Lane Configurations Traffic Volume (veh/h) Future Volume (veh/h) Initial Q (Qb), veh Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/in Adj Stor Flow, veh/h/in Adj Flow Rate, veh/h Persent Heavy Veh, % Cap, veh/h	56 56 0 1.00 1.00 ch 1772	↑↑ 1369 1369 0	♣1> 894 894 0	61 61	5 39	1
Traffic Volume (veh/h) Future Volume (veh/h) Initial Q (Qb), veh Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/ln Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	56 56 0 1.00 1.00 ch 1772	1369 1369 0 1.00	894 894 0	61	39	
Future Volume (veh/h) Initial Q (Qb), veh Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/ln Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	56 0 1.00 1.00 ch 1772	1369 0 1.00	894 0	61		4.4
Initial Q (Qb), veh Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/In Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	0 1.00 1.00 ch 1772	0	0			44
Ped-Bike Adj(A_pbT) Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/In Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	1.00 1.00 ch 1772	1.00	-	U		44
Parking Bus, Adj Work Zone On Approa Adj Sat Flow, veh/h/In Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	1.00 ch 1772			0.00	0	0
Work Zone On Approa Adj Sat Flow, veh/h/ln Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	ch 1772			0.99	1.00	1.00
Adj Sat Flow, veh/h/ln Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h	1772	No	1.00	1.00	1.00	1.00
Adj Flow Rate, veh/h Peak Hour Factor Percent Heavy Veh, % Cap, veh/h			No		No	
Peak Hour Factor Percent Heavy Veh, % Cap, veh/h		1772	1772	1772	1772	1772
Percent Heavy Veh, % Cap, veh/h	62	1521	993	64	43	9
Cap, veh/h	0.90	0.90	0.90	0.90	0.90	0.90
	2	2	2	2	2	2
Arrive Ore Orean	458	2799	2391	154	116	103
Arrive On Green	0.04	0.83	0.74	0.74	0.07	0.07
Sat Flow, veh/h	1688	3455	3298	207	1688	1502
Grp Volume(v), veh/h	62	1521	521	536	43	9
Grp Sat Flow(s),veh/h/		1683	1683	1733	1688	1502
Q Serve(q s), s	0.9	16.7	13.7	13.7	2.9	0.7
Cycle Q Clear(g c), s	0.9	16.7	13.7	13.7	2.9	0.7
Prop In Lane	1.00	10.7	10.7	0.12	1.00	1.00
Lane Grp Cap(c), veh/		2799	1254	1291	116	103
V/C Ratio(X)	0.14	0.54	0.42	0.42	0.37	0.09
Avail Cap(c a), veh/h	523	2799	1254	1291	450	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	430	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/ve		3.1	5.6	5.6	53.4	52.4
Incr Delay (d2), s/veh	0.1	0.8	1.0	1.0	2.0	0.4
Initial Q Delay(d3),s/ve		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),ve		10.0	9.5	9.7	2.5	1.1
Unsig. Movement Dela	iy, s/veh					
LnGrp Delay(d),s/veh	3.8	3.9	6.7	6.6	55.4	52.7
LnGrp LOS	A	A	A	A	E	D
Approach Vol, veh/h		1583	1057		52	
Approach Delay, s/veh		3.9	6.6		54.9	
Approach LOS		A	Α		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Ro	2) 5	105.6		14.4	10.4	95.2
Change Period (Y+Rc)		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gr		* 76		* 32	9.0	* 61
Max Q Clear Time (g		18.7		4.9	2.9	15.7
Green Ext Time (p_c),		44.6		4.9	0.1	25.0
u = 7.	5	44.0		0.2	0.1	20.0
Intersection Summary						
HCM 6th Ctrl Delay			5.9			
HCM 6th LOS			A			
Notes						

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection Int Delay, s/veh 0.3
 Movement
 WBL
 WBR
 NBT
 NBR
 SBL
 SBT

 Lane Configurations
 7
 ↑ ↓ ↓ Movement WBL W

Heavy vehicles, %	2	2	1		2	1	
Mvmt Flow	0	48	1373	83	0	869	
MalandAliana	Maria		Mala at				
Major/Minor	Minor1		Major1	M	lajor2		
Conflicting Flow All	-	696	0			-	
Stage 1	-	-	-			-	
Stage 2	-	-	-	-		-	
Critical Hdwy	-	6.94	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	
Follow-up Hdwy	-	3.32	-	-	-	-	
Pot Cap-1 Maneuver	0	384	-	0	0	-	
Stage 1	0	-		0	0	-	
Stage 2	0	-	-	0	0	-	
Platoon blocked, %			-			-	
Mov Cap-1 Maneuver	r -	381	-	-	-	-	
Mov Cap-2 Maneuver	r -	-		-	-		
Stage 1	-	-	-	-	-	-	
Stage 2		-		-	-		
American	WB		NB		SB		
Approach							
HCM Control Delay, s			0		0		
HCM LOS	С						
Minor Lane/Major Mv	mt	NBT	VBLn1	SBT			
Capacity (veh/h)		-	381				
HCM Lane V/C Ratio			0.125				
HCM Control Delay (s		-	15.8	-			
HCM Lane LOS	,		C				
HCM 95th %tile Q(ve	h)		0.4	-			
	,						

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lovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SE
ane Configurations	٦	^	1	٦	<u>†</u> †	1	ሻሻ	≜ †≯			35	Ť
raffic Volume (veh/h)	156	869	220	118	1146	529	295	768	80	29	341	6
uture Volume (veh/h)	156	869	220	118	1146	529	295	768	80	29	341	6
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
ed-Bike Adj(A pbT)	1.00		1.00	1.00		1.00	1.00		0.95		1.00	
arking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.
Vork Zone On Approach		No			No			No				
dj Sat Flow, veh/h/ln	1772	1772	1786	1786	1772	1786	1786	1786	1786		1786	18
dj Flow Rate, veh/h	173	966	0	131	1273	0	328	853	82		379	6
eak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.9
ercent Heavy Veh, %	2	2	1	1	2	1	1	1	1		1	
Cap, veh/h	149	1155		150	1155		366	792	76		366	7
rrive On Green	0.09	0.34	0.00	0.09	0.34	0.00	0.11	0.25	0.25		0.11	0.2
at Flow, veh/h	1688	3367	1514	1701	3367	1514	3300	3111	299		3300	305
Grp Volume(v), veh/h	173	966	0	131	1273	0	328	465	470		379	3
Srp Sat Flow(s), veh/h/ln	1688	1683	1514	1701	1683	1514	1650	1697	1714		1650	17
Serve(g s), s	11.5	34.4	0.0	9.9	44.6	0.0	12.8	33.1	33.1		14.4	27
Cycle Q Clear(g c), s	11.5	34.4	0.0	9.9	44.6	0.0	12.0	33.1	33.1		14.4	27
rop In Lane	1.00	34.4	1.00	1.00	44.0	1.00	1.00	33.1	0.17		1.00	21
ane Grp Cap(c), veh/h	149	1155	1.00	150	1155	1.00	366	432	436		366	43
//C Ratio(X)	149	0.84		0.87	1.10		0.90	4.52	1.08		1.04	4.0
vail Cap(c a), veh/h	149	1155		150	1155		366	432	436		366	43
ICM Platoon Ratio	149	1.00	1.00	1.00	1.00	1.00	1.00	4.52	430		1.00	4.
lpstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.0
Iniform Delay (d), s/veh	59.2	39.3	0.00	58.5	42.7	0.00	57.1	48.5	48.5		57.8	46
	122.7		0.0	38.6	42.7	0.0	23.8	40.5	40.5		57.0	
ncr Delay (d2), s/veh		7.3										17
hitial Q Delay(d3),s/veh	0.0	0.0 22.8	0.0	0.0	0.0 40.3	0.0	0.0 11.0	0.0	0.0 32.0		0.0 14.4	0
6ile BackOfQ(95%), veh/In Insig. Movement Delay, s/veh		22.0	15.40	10.1	40.5	50.60	11.0	31.7	32.0		14.4	21
	182.0	46.6	15.40	97.1	101.8	50.60	80.9	113.9	113.7		114.8	64
nGrp Delay(d),s/veh	102.0 F	40.0 D		97.1 F	101.0 F		00.9 F	F	F		114.0 F	04
nGrp LOS	F		B	r		D	г		F		F	
pproach Vol, veh/h		1383	A		1992	А		1263				114
pproach Delay, s/veh		58.0			86.3			105.2				81
pproach LOS		E			F			F				
imer - Assigned Phs	1	2	3	4	5	6	7	8				
hs Duration (G+Y+Rc), s	18.0	51.0	21.0	40.0	18.0	51.0	21.0	40.0				_
change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
fax Green Setting (Gmax), s	11.5	44.6	14.4	* 33	11.5	44.6	14.4	* 33				
fax Q Clear Time (g c+11), s	11.9	36.4	16.4	35.1	13.5	46.6	14.8	29.9				
Green Ext Time (p_c), s	0.0	6.4	0.0	0.0	0.0	0.0	0.0	2.4				
ntersection Summary												
ICM 6th Ctrl Delay			82.7									_
ICM 6th LOS			F									
lotes	_	_	_		_	_		_	_		_	
Iser approved ignoring U-Turr HCM 6th computational engir Insignalized Delay for [EBR, V	ne requir	es equal										

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

12/20/2019

Movement	SBR
Laresonfigurations	JUN
Traffic Volume (veh/h)	79
Future Volume (veh/h)	79
Initial Q (Qb), veh	0
Ped-Bike Adj(A pbT)	0.94
Parking Bus, Adj	1.00
Work Zone On Approach	1.00
Adj Sat Flow, veh/h/ln	1800
Adj Flow Rate, veh/h	80
Peak Hour Factor	0.90
Percent Heavy Veh, %	0
Cap, veh/h	91
Arrive On Green	0.25
Sat Flow, veh/h	358
Grp Volume(v), veh/h	381
Grp Sat Flow(s),veh/h/ln	1706
Q Serve(q s), s	27.9
Cycle Q Clear(g c), s	27.9
Prop In Lane	0.21
Lane Grp Cap(c), veh/h	434
V/C Ratio(X)	0.88
Avail Cap(c_a), veh/h	434
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	46.5
Incr Delay (d2), s/veh	18.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	21.1
Unsig. Movement Delay, s/ve	
LnGrp Delay(d),s/veh	64.5
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Timer 7 bolghou The	

1357 Baseline Road 09/16/2019 2019 Existing PM

Synchro 10 Report Page 2

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HCM 6th Signalized Intersection Summary

					1	,
	/	-	-	~	*	*
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	44	≜ 1₀		1	1
Traffic Volume (veh/h)	107	1292	1651	156	167	165
Future Volume (veh/h)	107	1292	1651	156	167	165
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00		-	0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approact	h	No	No		No	
	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	119	1436	1834	167	186	84
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	169	2609	2155	193	224	199
Arrive On Green	0.04	0.78	0.69	0.69	0.13	0.13
Sat Flow, veh/h	1688	3455	3208	279	1688	1502
Grp Volume(v), veh/h	119	1436	975	1026	186	84
Grp Sat Flow(s), veh/h/ln		1683	1683	1715	1688	1502
Q Serve(g s), s	2.5	21.8	55.3	59.8	14.0	6.7
Cycle Q Clear(g c), s	2.5	21.8	55.3	59.8	14.0	6.7
Prop In Lane	1.00	21.0	00.0	0.16	1.00	1.00
Lane Grp Cap(c), veh/h		2609	1163	1185	224	199
V/C Ratio(X)	0.70	0.55	0.84	0.87	0.83	0.42
Avail Cap(c a), veh/h	209	2609	1163	1185	415	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		5.7	14.7	15.5	55.0	51.8
Incr Delay (d2), s/veh	7.8	0.8	7.3	8.6	7.8	1.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		13.3	32.7	35.9	11.1	9.7
Unsig. Movement Delay			02.1	00.0		5.1
LnGrp Delay(d),s/veh	38.5	6.6	22.0	24.0	62.7	53.2
LnGrp LOS	D	A	C	C	E	D
Approach Vol, veh/h		1555	2001		270	
Approach Delay, s/veh		9.0	23.1		59.8	
Approach LOS		A	C		E	
Here and						~
Timer - Assigned Phs		2 106.6		4	5 10.9	6 95.6
Phs Duration (G+Y+Rc)		* 5.8		23.4	6.0	* 5.8
Change Period (Y+Rc),						
Max Green Setting (Gm		* 86		* 32	8.0	* 72
Max Q Clear Time (g_c+				16.0	4.5	61.8
Green Ext Time (p_c), s		44.9		1.3	0.1	10.2
Intersection Summary						
HCM 6th Ctrl Delay			19.9			
HCM 6th Ctrl Delay HCM 6th LOS			19.9 B			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	^	1		^
Traffic Vol, veh/h	0	151	1331	150	0	1004
Future Vol, veh/h	0	151	1331	150	0	1004
Conflicting Peds, #/hr	0	31	0	31	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	None
Storage Length	-	0	-	450	-	-
Veh in Median Storag	e,# 0	-	0		-	0
Grade, %	0	-	0		-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	0	168	1479	167	0	1116
Major/Minor	Minor1	,	Major1	A	Aajor2	
		771				
Conflicting Flow All Stage 1			-		-	
Stage 1 Stage 2						-
	-	6.94		-	-	
Critical Hdwy	-		-	-		-
Critical Hdwy Stg 1	-	-	-		-	
Critical Hdwy Stg 2	-	-	-		-	-
Follow-up Hdwy	-	3.32			-	-
Pot Cap-1 Maneuver	0	343	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver		333	-	-		-
Mov Cap-2 Maneuver		-	-	-	-	-
Stage 1		-	-			-
Stage 2	-	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s			0		0	
HCM LOS	20.3 D		0		0	
HGWI LUS	U					
Minor Lane/Major Mvr	nt	NBTV	VBLn1	SBT		
Capacity (veh/h)		-	333	-		
HCM Lane V/C Ratio		-	0.504	-		
HCM Control Delay (s	;)	-	26.3	-		
HCM Lane LOS	,	-	D	-		
HCM 95th %tile Q(veh	1)	-	2.7	-		
	,					

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Appendix F Intersection Performance Worksheets May 13, 2020

2022 Future Background Conditions – Original Signal Timing Plans

Parking Bus, Adj 1.00 Verk Zone On Approach Work Zone On Approach Vaid Saf Flow, wehnlin 1800 Vaid Saf Flow, wehnlin 1800 Vaid Saf Flow, wehnlin 1840 Vaid Saf Flow, wehnlin 1840 Vaid Flow Rate, vehnlin 1840 Vaid Flow, wehnlin 164 Jan, vehnlin 164 Jan, vehnlin 164 Jan, Vehnlin 164 Jan Volume(v), vehnlin 1714 Jan Saf Flow, vehnlin 1714 Jan Soerveg (J.) S 11.5 Sperveg (J.) S 11.5 Vaid Cap(c, a), vehnlin 164 Vaid Cap(c), siveh 16	EBT 1166 1166 1166 1166 1166 1166 100 0 1772 1166 1.00 2 1166 1683 3367 1166 1683 41.5 41.5 1166 1166 106 106 106 106 106 1	EBR 136 0 1.00 1.00 1.00 1.00 1.00 1.00 0 0 0 0 0 0 0 0 0 0 0 1.490 0 0 0 0 1.00 0 1.00 0 1.00 0 1.00	WBL Y 60 60 60 0 1.00 1.00 1772 0 1.00 2 707 5 1688 60 1688 4.2 1.00 77 77 78 1.00 78 1.00 1.00	WBT ↑↑ 546 546 0 1.00 No 1730 546 1.00 57 972 0.30 3287 546 16.8 16.8 972 0.56 972 1.00	WBR 420 420 0 1.00 1.00 1786 0 1.00 1786 0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.514 0.0 1.00 1.00	NBL 91 91 91 91 0 1.00 1.00 1730 91 1.00 5 142 0.04 3196 91 1598 3.4 1.00 142 0.64 3.4 1.00 142 0.64 384	NBT ↑1> 795 795 795 0 1.00 No 1786 795 1.00 1 833 3021 446 1697 31.0 468 0.95	NBR 108 108 0 0.97 1.00 1786 100 1.00 1.00 1.00 1.00 1.00 1.01 0.28 380 449 1704 31.0 0.22 470	SBU 18 18	SBL 317 317 317 317 0 1.00 1786 317 1.00 1786 317 1.00 1 372 0.11.3 11.3 1.1.3 3.72	SE 48 48 1.0 178 48 1.0 107 0.3 313 20 107 0.3 313 20 169 14 14
Tarfic Volume (veh/h) 184 vuture Volume (veh/h) 184 vuture Volume (veh/h) 184 variang Bus, Adj 1.00 Vext-Bike, Adj(A, pbT) 1.00 Vork Zone On Approach 100 vigi Sat Flow, veh/hin 1800 vigi Sat Flow, veh/hin 1800 vigi Sat Flow, veh/hin 184 verk Hour Factor 1.00 vereen Heavy Veh, % 0 Jag, veh/h 164 vrive On Green 0.10 jag Sat Flow, veh/h 174 jags, veh/h 164 vrive On Green 0.10 jags Sat Flow, veh/h 174 vags, veh/h 164 vrive On Green 1.00 jags Sat Flow(s), veh/h 174 val Cap(c, a), veh/h 164 Volume(v), veh/h 184 UC Ratio(X) 1.12 val Cap(c, a), veh/h 164 UC Ratio(X) 1.12 val Cap(c, a), veh/h 164 UC Ratio(X) 1.00	1166 1166 1166 0 No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1166 1.00	136 136 0 1.00 1.00 1.00 3 0.00 1490 0 1490 0.0 0.0 0.0 1.00	60 60 1.00 1.00 1.00 1.00 1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	546 546 0 1.00 No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 16.8 972 0.56 972	420 420 0 1.00 1.00 1786 0 1.00 1 514 0 1514 0.0 1514 0.0 0.0 1.00	91 91 0 1.00 1.00 1.00 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 3.4 1.00 142 0.64	795 795 0 1.00 No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	108 0.97 1.00 1786 100 1.00 1 105 0.28 380 449 1704 31.0 31.0 31.0 0.22 470		317 317 0 1.00 1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	44 44 1.0 177 44 1.0 107 0.1 311 20 169 14
uture Volume (veh/h) 184 uture Volume (veh/h) 100 Yarking Bus, Adj 1.00 Yarking Kus, Yeh/h 184 Peak Hour Factor 1.00 Procent Heavy Veh, % 0 Or Green 0.10 Profile Mark 164 Yrive On Green 0.10 Yar Saf Erlow(yeh/hin 1714 Served(ys.), s 11.5 Yolg Calcard(y.), seh/hin 1.40 Yare Cap(c, a), weh/h 164 VCR Ratio (X) 1.12 Yare Cap(c, a), weh/h 164 UCR Ratio (X) 1.12 Yare Cap(c, a), weh/h 164	1166 0 1.00 No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	136 0 1.00 1.00 1758 0 1.00 3 0.00 1490 0 0 0 0.0 1490 0.0 1.00	60 0 1.00 1.00 1772 60 1.00 2 77 0.05 1688 60 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	546 546 0 1.00 No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 16.8 972 0.56 972	420 0 1.00 1786 0 1.00 1 1 0.00 1514 0 1514 0.0 0.0 1.00	91 91 0 1.00 1.00 1.00 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 3.4 1.00 142 0.64	795 795 0 1.00 No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	108 0.97 1.00 1786 100 1.00 1 105 0.28 380 449 1704 31.0 31.0 31.0 0.22 470		317 317 0 1.00 1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	4 4 1. 17 4 1. 10 0. 31: 2 16 14
nitial Q (Ob), veh 0 vet-Bite Adj(A, pbT) 1.00 varking Bus, Adj 1.00 vork Zene On Approach 1.00 vork Zene On Approach 1.00 vork Zene On Approach 1.00 vig Star How, vehrhin 1800 vig Star How, vehrhin 1800 vark and theavy Veh, % 0 agu, vehrh 164 vrive On Green 0.10 jar Elow, vehrh 1714 jar Sar Tiow(s), vehrh 184 spr Volume(v), vehrh 184 var Cap(c, a), vehrh 184 VCR rato(X) 1.12 varial Cap(c, a), vehrh 164 varial Cap(c, a), vehrh 164 varial Cap(c, a), vehrh 174 varial Cap(c, a), vehrh 164 varial Cap(c, b), vehrh 164 varial Cap(c, b), vehrh 164 varial Cap(c, b), vehrh 164 <tr< td=""><td>0 1.00 No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1166 1.00</td><td>0 1.00 1.00 1758 0 1.00 3 0.00 1490 0 0.0 1490 0.0 0.0 1.00</td><td>0 1.00 1.00 1772 60 1.00 2 77 0.055 1688 4.2 4.2 1.00 77 0.78 162 1.00</td><td>0 1.00 No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972</td><td>0 1.00 1.00 1786 0 1.00 1 1.00 1514 0 1514 0.0 1.00</td><td>0 1.00 1.00 1730 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 3.4 3.4 1.00 142 0.64</td><td>0 1.00 No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 468 0.95</td><td>0 0.97 1.00 1786 100 1.00 1.00 1.00 1.00 1.00 1.00 380 449 1704 31.0 31.0 31.0 0.22 470</td><td>18</td><td>0 1.00 1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00</td><td>1. 17 4 10 0. 31 2 16 14</td></tr<>	0 1.00 No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1166 1.00	0 1.00 1.00 1758 0 1.00 3 0.00 1490 0 0.0 1490 0.0 0.0 1.00	0 1.00 1.00 1772 60 1.00 2 77 0.055 1688 4.2 4.2 1.00 77 0.78 162 1.00	0 1.00 No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	0 1.00 1.00 1786 0 1.00 1 1.00 1514 0 1514 0.0 1.00	0 1.00 1.00 1730 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 3.4 3.4 1.00 142 0.64	0 1.00 No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 468 0.95	0 0.97 1.00 1786 100 1.00 1.00 1.00 1.00 1.00 1.00 380 449 1704 31.0 31.0 31.0 0.22 470	18	0 1.00 1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	1. 17 4 10 0. 31 2 16 14
Pet-Bick Adj(A, pbT) 1.00 Varking Bus, Adj 1.00 Vark Zone On Approach 1.00 Virk Zone On Approach 1.00 Vercent Heavy Veh, % 0 Jap, veh/h 164 Trive On Green 0.10 Typ Volume(v), veh/h 184 Sa FL Jow(syskeh/hin 1714 S Gor Capi(c), seh/h 164 Virk On Green 1.00 ane Gro Capi(c), veh/h 164 Virk On Graen 1.00 ane Gro Capi(c), veh/h 164 Virk On Ratio 1.00 ane Gro Capi(c), veh/h 164 Virk Old Ration Ratio 1.00 Jinform Delay (d), siveh 54.2 Torn Delay (d), siveh 54.2 Gro Calega, Si, siveh 0.01 Initial D Delay/d3), siveh 0.5	1.00 No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1100	1.00 1.00 1758 0 1.00 3 0.00 1490 0.0 1490 0.0 1.00	1.00 1.00 1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	1.00 No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 16.8 972 0.56 972	1.00 1.00 1786 0 1.00 1 0.00 1514 0.00 1514 0.0 0.0 1.00	1.00 1.00 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 3.4 3.4 1.00 142 0.64	1.00 No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	0.97 1.00 1786 100 1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		1.00 1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	17 4 1. 10 0. 31 2 16 14
Parking Bus, Adj 1.00 Work Zone On Approach 100 Work Zone On Approach 1800 Work Zone On Approach 1800 Mig Sat Flow, wehn/in 1800 Wark Zone On Approach 1840 Wark Zone On Approach 1840 Parking Bark Jour Factor 1.00 Percent Heavy Veh, % 0 Jag, weh/h 164 Yrive On Green 0.10 Sat Flow, weh/h 1714 Sip Volume(v), veh/h 1714 Sig Serve(g, s), s 11.5 Syde O Clear(g, c), s 11.5 Syde O Clear(g, c), s 11.5 Vail Cap(c, a), weh/h 164 Vail Cap(c), s/weh 164 Uch Platon Relio 1.00 Jniform Delay (d), s/weh 54 Lie BackXO(QUSK), weh/h 15	No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1.00 1758 0 1.00 3 0.00 1490 0 1490 0.0 1.00 1.00	1.00 1772 60 1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	1.00 1786 0 1.00 1 0.00 1514 0 1514 0.0 1.00 1.00	1.00 1730 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	1.00 1786 100 1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		1.00 1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	17 4 1. 10 0. 31 2 16 14
Work Zone On Ápproach Mark Zone Yonk May Sat Flow, vehnhin May Sat Hour, Yeshhin Marcon Heavy Veh, % Percent Heavy Veh, % Dage, vehnh Markow Kate, vehnh Sat Flow, vehnh Sat Flow, vehnh Sar Volume(v), vehnh Jag Sat Flow(s), vehnhin Valar Gap(c, c), s Valar Gap(c, c), s Valar Gap(c, c), vehnh Valar Gap(c, a), vehnh Valar Gap(c, b), vehnh Valar Gap(c), siveh	No 1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1758 0 1.00 3 0.00 1490 0 1490 0.0 0.0 1.00	1772 60 1.00 2 77 0.05 1688 60 1688 4.2 1.00 77 0.78 162 1.00	No 1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	1786 0 1.00 1 0.00 1514 0.0 1514 0.0 0.0 1.00	1730 91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	No 1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	1786 100 1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		1786 317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	17 4 1. 10 0. 31 2 16 14
Agi Filow Rate, veh/h 184 Parcent Heavy Veh, % 0 Sap, veh/h 164 Sip Volume(v), veh/h 184 Sip Volume(v), veh/h 184 Sip Volume(v), veh/h 184 Sip Volume(v), veh/h 184 Via Go (Clear(g, c), s 11.5 Via Cap(Cap), s 11.5 Via Cap(Cap), s 11.6 Via Cap(Cap), s 11.2 Varial Cap(C, a), veh/h 164 HOB/retarn Flation 100 Janter On Cap(c), veh/h 164 HOB/retarn Flation 100 Janter Delay (d3), s/veh 100.1 Initial O Delay(d3), s/veh 106.1 Initial BackOR(QPSN), veh/h 15.9	1772 1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	0 1.00 3 0.00 1490 0 1490 0.0 1.00 1.00	60 1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	1730 546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	0 1.00 1 0.00 1514 0 1514 0.0 0.0 1.00	91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	1786 795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	100 1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	17 4 1. 10 0. 31 2 16 14
Jackj Sat Flow, veh/hul 1800 Valj Sat Flow, veh/h 184 Paak Hour Factor 1.00 Parcent Heavy Veh, % 0 Parcent Heavy Veh, % 0 Sap, veh/h 164 Ymve On Green 0.10 Sar Flow, veh/h 174 Sry Volume(v), veh/h 174 Sar Flow, veh/h 174 Sar Sar Flow(g.), s) 11.5 Syde Q Clear(g. c), s 11.5 Syde Q Clear(g. c), s 11.5 Varial Cap(c, a), veh/h 164 Vi/C Rato(X) 1.12 Varial Cap(c, a), veh/h 164 Vi/C Rato(X) 1.12 Varial Cap(c, a), veh/h 164 To Diato Ratio 1.00 Jacrosen Filter(I) 1.00 Jacrosen Filter(I) 1.00 Jacrosen Filter(I) 1.00 Jacrosen Filter(I) 1.00 Inition Delay (d), siveh 54.2 Jacrosen Filter(I) 106.1 Jacrosen Filter(I) 1.01 Jacrosen Filter(I)	1166 1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00 1.00	0 1.00 3 0.00 1490 0 1490 0.0 1.00 1.00	60 1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	546 1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	0 1.00 1 0.00 1514 0 1514 0.0 0.0 1.00	91 1.00 5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	795 1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	100 1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		317 1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	17 4 1. 10 0. 31 2 16 14
"Paik Hour Factor 1.00 "Paik Houry Veh, % 0 Cap, vehih 164 Yurive On Green 0.10 Sat Flow, vehih 164 Stry Volmer(V), vehih 184 Say Sat Flow(s), vehihin 1714 Sar Volge, vehihin 1714 Sar Volge, vehihin 1714 Sar Sorgi, vehihin 1714 Sar Gregi, vehihin 1714 Sar Gregi, c), s 11.5 Orgo In Lane Cap Capic), vehihin Vi C Ratio (X) 1.12 Vaait Capic, a), vehih 164 Jurit C Ratio 1.00 Jarteram Filter(I) 1.00 Joinform Delay (d), s/veh 54.2 Arom Delay (d), s/veh 06.1 Initial Q Delay/d3), s/veh 0.01	1.00 2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1.00 3 0.00 1490 0 1490 0.0 0.0 1.00	1.00 2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	1.00 5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	1.00 1 0.00 1514 0 1514 0.0 0.0 1.00	1.00 5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	1.00 1 833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	1.00 1 105 0.28 380 449 1704 31.0 31.0 0.22 470		1.00 1 372 0.11 3300 317 1650 11.3 11.3 1.00	1. 10 0. 31 2 16 14
Percent Heavy Veh, % 0 Cap, veh/h 164 Arrive On Green 0.10 Sat Flow, veh/h 174 Gry Volume(v), veh/h 184 Gry Volume(v), veh/h 184 Gry Solume(v), veh/h 184 Gry Volume(v), veh/h 184 Gry Outme(v), veh/h 184 VG Rato(X), s 11.5 Cycle Q Clear(g, c), s 11.5 VC Rato(X) 1.12 Avail Carg(c, a), veh/h 164 HCM Platoon Ratio 1.00 Uniform Delay (d), siveh 1.00 Uniform Delay (d), siveh 1.00 Uniform Delay (d), siveh 1.00 Initial Q Delay(d3), siveh 1.00 Initial B abcXQUQS(95), veh/n 1.5	2 1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	3 0.00 1490 0 1490 0.0 0.0 1.00	2 77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	5 972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	1 0.00 1514 0 1514 0.0 0.0 1.00	5 142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	1 833 0.28 3021 446 1697 31.0 31.0 468 0.95	1 105 0.28 380 449 1704 31.0 31.0 0.22 470		1 372 0.11 3300 317 1650 11.3 11.3 1.00	10 0. 31 2 16 14
Cap, veh/h 164 Varive On Green 0.10 Varive On Green 0.10 Gry Volume(v), veh/h 1714 Gry Volume(v), veh/h 1744 Gry Volume(v), veh/h 1744 Q Serv(g, s), s 11.5 Cycle Q Clear(g, c), s 11.5 Cycle Q Clear(g, c), s 11.5 V/C Rato(X) 1.12 Varial Cap(c, a), veh/h 164 HAWI Control Ratio 1.00 Unform Delay (d), s/veh 164 Mile Back/Ol(Q/SK), veh/h 153	1166 0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	0.00 1490 0 1490 0.0 0.0 1.00	77 0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	972 0.30 3287 546 1643 16.8 16.8 16.8 972 0.56 972	0.00 1514 0 1514 0.0 0.0 1.00	142 0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	833 0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	105 0.28 380 449 1704 31.0 31.0 0.22 470		372 0.11 3300 317 1650 11.3 11.3 11.3 1.00	0. 31 2 16 14
Cap, veh/h 164 Cap, veh/h 161 Sat Flow, veh/h 1714 Gry Volume(v), veh/h 1714 Gry Volume(v), veh/h 1714 Gry Volume(v), veh/h 1714 Gry Volume(v), veh/h 1714 Q serve(g, s), s 11.5 Prop In Lane 100 U/C Ratio (X) 1.12 Avail Cap(c, a), veh/h 164 How Ratio 1.00 UroR Ratio (X) 1.12 Avail Cap(c, a), veh/h 164 Inform Delay (d), s/veh 54.2 Incr Delay (d), s/veh 0.61 Initial D Delay(d3), s/veh 0.61 Initial B ack/Ol(Q/SK)(s, henh/n 15.9	0.35 3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1490 0 1490 0.0 0.0 1.00	0.05 1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	0.30 3287 546 1643 16.8 16.8 972 0.56 972	1514 0 1514 0.0 0.0 1.00	0.04 3196 91 1598 3.4 3.4 1.00 142 0.64	0.28 3021 446 1697 31.0 31.0 31.0 468 0.95	0.28 380 449 1704 31.0 31.0 0.22 470		0.11 3300 317 1650 11.3 11.3 1.00	0. 31 2 16 14
Sat Flow, veh/h 1714 Sip Volume(v), veh/h 184 Sip Volume(v), veh/h 1714 Sgr Volume(v), veh/h 1714 Q Serve(q), veh/h 1714 Q Serve(q), veh/h 1714 Q Serve(q), veh/h 164 VCR Rato(X) 112 VVR Rato(X) 112 VVR Rato(X) 112 VVR Rato(X) 112 Vol Rato(X) 112 Vol Rato(X) 112 Uniform Delay (G), sveh/h 164 Inform Delay (G), sveh 160 Inform Delay (G), sveh 106.1 Initial Q Delay(d3), sveh 0.0 Mile BackOR(Q)GVS(N), veh/ln 15.9	3367 1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1490 0 1490 0.0 0.0 1.00	1688 60 1688 4.2 4.2 1.00 77 0.78 162 1.00	3287 546 1643 16.8 16.8 972 0.56 972	1514 0 1514 0.0 0.0 1.00	3196 91 1598 3.4 3.4 1.00 142 0.64	3021 446 1697 31.0 31.0 31.0 468 0.95	380 449 1704 31.0 31.0 0.22 470		3300 317 1650 11.3 11.3 1.00	31 2 16 14
Grp Volume(v), veh/h 184 Grp Sat Flow(s), veh/h/ln 1714 Grp Sat Flow(s), veh/h/ln 1715 Screv(z, s), s 11.5 Cycle Q Clear(g, c), s 11.5 Cycle Q Clear(g, c), s 11.5 Cycle Q Clear(g, c), s 11.5 VC Rato(V) 1.12 Avail Cap(c, a), veh/h 164 HOM Platon Ratio 1.00 Uniform Delay (d), siveh 54.2 Mile BackOl(Q)(26%), veh/ln 15.9	1166 1683 41.5 41.5 1166 1.00 1166 1.00 1.00	0 1490 0.0 0.0 1.00	60 1688 4.2 1.00 77 0.78 162 1.00	546 1643 16.8 16.8 972 0.56 972	0 1514 0.0 0.0 1.00	91 1598 3.4 3.4 1.00 142 0.64	446 1697 31.0 31.0 468 0.95	449 1704 31.0 31.0 0.22 470		317 1650 11.3 11.3 1.00	2 16 14
Grp Sat Flow(s), veh/h/ln 1714 Q Serve(g, s), s 11.5 Orgele Q Clear(g, c), s 11.5 Prop In Lane 11.0 Lane Grp Cap(c), veh/h 164 V/C Rato(X) 1.12 Avail Cap(c, a), veh/h 164 U/C Rato(X) 1.12 Unform Delay (d), veh/h 164 Inform Delay (d), slveh 1.00 Upstream Filter(I) 1.00 Unform Delay (d), slveh 166.1 Initial Q Delay(d3), slveh 0.61 Initial Q Delay(d3), slveh 15.3	1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1490 0.0 0.0 1.00	1688 4.2 4.2 1.00 77 0.78 162 1.00	1643 16.8 16.8 972 0.56 972	1514 0.0 0.0 1.00	1598 3.4 3.4 1.00 142 0.64	1697 31.0 31.0 468 0.95	1704 31.0 31.0 0.22 470		1650 11.3 11.3 1.00	16 14
Grp Sat Flow(s), veh/h/ln 1714 Q Serve(g, s), s 11.5 Orgele Q Clear(g, c), s 11.5 Prop In Lane 11.0 Lane Grp Cap(c), veh/h 164 V/C Rato(X) 1.12 Avail Cap(c, a), veh/h 164 U/C Rato(X) 1.12 Unform Delay (d), veh/h 164 Inform Delay (d), slveh 1.00 Upstream Filter(I) 1.00 Unform Delay (d), slveh 166.1 Initial Q Delay(d3), slveh 0.61 Initial Q Delay(d3), slveh 15.3	1683 41.5 41.5 1166 1.00 1166 1.00 1.00	1490 0.0 0.0 1.00	1688 4.2 4.2 1.00 77 0.78 162 1.00	1643 16.8 16.8 972 0.56 972	1514 0.0 0.0 1.00	1598 3.4 3.4 1.00 142 0.64	1697 31.0 31.0 468 0.95	1704 31.0 31.0 0.22 470		1650 11.3 11.3 1.00	16 14
Q Serve(g, s), ś 11,5 Cycle Q Clear(g, c), s 11,5 Cycle Q Clear(g, c), s 11,5 Trop In Lane (Trop In Lane (Trop In Lane (Trop Cap(c), veh/h 164 V/C Rato(X) 1.12 V/C Rato(X) 1.12	41.5 41.5 1166 1.00 1166 1.00 1.00	0.0 0.0 1.00	4.2 4.2 1.00 77 0.78 162 1.00	16.8 16.8 972 0.56 972	0.0 0.0 1.00	3.4 3.4 1.00 142 0.64	31.0 31.0 468 0.95	31.0 31.0 0.22 470		11.3 11.3 1.00	14
Cycle Q Clear(g.c), s 11.5 Prop In Lane 1.00 Lane Gry Cap(c), veh/h 164 V/C Rato(X) 1.12 Avail Cap(c, a), veh/h 164 V/C Rato(X) 1.12 Avail Cap(c, a), veh/h 164 Unform Delay (d), sveh 164 Inoff Delay (d), sveh 54.2 Inor Delay (d2), slveh 106.1 Initial Q Delay (d3), slveh 0.0 Mile BackQIQ(QS%), veh/ln 15.9	41.5 1166 1.00 1166 1.00 1.00	0.0 1.00	4.2 1.00 77 0.78 162 1.00	16.8 972 0.56 972	0.0	3.4 1.00 142 0.64	31.0 468 0.95	31.0 0.22 470		11.3 1.00	
Prop In Lane 1.00 Lane Grp Cap(c), veh/h 164 ViC Ratio(X) 1.12 Vical Log(c, a), veh/h 164 Vical Log(c, a), veh/h 164 Undorn Ratio 1.00 Upstream Filter(I) 1.00 Unform Delay (d), slveh 54.2 Incr Delay (d2), slveh 106.1 Initial Q Delay(d3), slveh 0.5	1166 1.00 1166 1.00 1.00	1.00	1.00 77 0.78 162 1.00	972 0.56 972	1.00	1.00 142 0.64	468 0.95	0.22 470		1.00	
Lane Grp Cap(c), veh/h 164 V/C Rato(X) 1.12 V/C Rato(X) 1.12 Maril Cap(c, a), veh/h 164 HCM Platoon Ratio 1.00 Upstream Filter(I) 1.00 Unform Delay (d), siveh 54.2 Inno Delay (d2), siveh 106.1 Initial Q Delay(d3), siveh 0.0 Wile Back/OR(Q5%), veh/ln 15.9	1.00 1166 1.00 1.00	1.00	77 0.78 162 1.00	0.56 972		142 0.64	0.95	470			
V/C Ratio(X) 1.12 Avail Cap(c, a), veh/h 164 HCM Platoon Ratio 1.00 Upstream Filter(I) 1.00 Upstream Filter(I) 1.00 Uniform Delay (d), slveh 54.2 Incr Delay (d2), slveh 106.1 Initial Q Delay(d3), slveh 0.0 Wile BackOTQ(95%), veh/ln 15.9	1.00 1166 1.00 1.00		0.78 162 1.00	0.56 972		0.64	0.95				5
Avail Cap(o_a), veh/h 164 HCM Platoon Ratio 1.00 Upstream Filter(I) 1.00 Uniform Delay (d), s/veh 54.2 Incr Delay (d2), s/veh 106.1 Initial Q Delay(d3), s/veh 0.0 %ile BackOfQ(95%), veh/in 15.9	1166 1.00 1.00		162 1.00	972						0.85	0.
HCM Platoon Ratio 1.00 Upstream Filter(I) 1.00 Uniform Delay (d), s/veh 54.2 Incr Delay (d2), s/veh 106.1 Initial Q Delay(d3), s/veh 0.0 ‰ile BackOfQ(95%),veh/In 15.9	1.00 1.00		1.00				468	470		396	5
Upstream Filter(I) 1.00 Uniform Delay (d), s/veh 54.2 Incr Delay (d2), s/veh 106.1 Initial Q Delay(d3), s/veh 0.0 %ile BackOfQ(95%), veh/ln 15.9	1.00				1.00	1.00	1.00	1.00		1.00	1.
Uniform Delay (d), s/veh 54.2 Incr Delay (d2), s/veh 106.1 Initial Q Delay(d3),s/veh 0.0 %ile BackOfQ(95%),veh/ln 15.9			1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.
Incr Delay (d2), s/veh 106.1 Initial Q Delay(d3),s/veh 0.0 %ile BackOfQ(95%),veh/ln 15.9		0.0	56.7	35.7	0.0	56.4	42.7	42.7		52.3	30
Initial Q Delay(d3),s/veh 0.0 %ile BackOfQ(95%),veh/ln 15.9	26.4	0.0	15.9	2.3	0.0	4.8	30.2	30.2		15.6	(
%ile BackOfQ(95%),veh/In 15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	Ċ
	30.1	0.0	4.0	12.0	0.0	2.7	24.5	24.6		9.7	10
Unsig. Movement Delay, s/veh		4.60			22.00						
LnGrp Delay(d),s/veh 160.3	65.7	4.6	72.6	38.0	22.0	61.2	72.9	72.9		67.8	31
LnGrp LOS F	F	A	E	D	C	E	E	E		E	
Approach Vol, veh/h	1486	A		1026	A		986				8
Approach Delay, s/veh	71.8	~~~~		33.5			71.8				44
Approach LOS	E			C			71.0 E				
Timer - Assigned Phs 1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s 11.9	47.9	20.1	40.0	18.0	41.9	11.9	48.2				
Change Period (Y+Rc), s 6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s 11.5	34.6	14.4	* 33	11.5	34.6	14.4	* 33				
Max Q Clear Time (g_c+I1), s 6.2	43.5	13.3	33.0	13.5	18.8	5.4	16.5				
Green Ext Time (p_c), s 0.1	0.0	0.2	0.0	0.0	6.9	0.2	6.9				
Intersection Summary											
HCM 6th Ctrl Delay		57.5									
HCM 6th LOS		E									
Notos	_		_		_			_			
Notes											
User approved ignoring U-Turning move * HCM 6th computational engine require Unsignalized Delay for [EBR, WBR] is in	es equal (av.			

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

12/20/2019

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Movement	SBR
Lanconfigurations	0011
Traffic Volume (veh/h)	52
Future Volume (veh/h)	52
Initial Q (Qb), veh	0
Ped-Bike Adj(A pbT)	0.98
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1786
Adj Flow Rate, veh/h	45
Peak Hour Factor	1.00
Percent Heavy Veh, %	1
Cap, veh/h	99
Arrive On Green	0.34
Sat Flow, veh/h	289
Grp Volume(v), veh/h	269
Grp Sat Flow(s),veh/h/ln	1726
Q Serve(g_s), s	14.5
Cycle Q Clear(g_c), s	14.5
Prop In Lane	0.17
Lane Grp Cap(c), veh/h	594
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	594
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.6
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	10.9
Unsig. Movement Delay, s/v	
LnGrp Delay(d),s/veh	31.1
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Timer - Assigned Fills	

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HCM 6th Signalized Intersection Summary 2: Baseline Road & Private Access 1

	1	→	+	~	1	1
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	44	1		1	1
Traffic Volume (veh/h)	56	1503	997	61	39	44
Future Volume (veh/h)	56	1503	997	61	39	44
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00	0	0	0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No	1.00	No	1.00
	1772	1772	1772	1772	1772	1772
Adj Sat How, venninn Adj Flow Rate, veh/h	56	1503	997	57	39	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
		1.00		1.00		1.00
Percent Heavy Veh, %	2 460		2 2423	139	2	99
Cap, veh/h		2808				
Arrive On Green	0.04	0.83	0.75	0.75	0.07	0.07
	1688	3455	3324	185	1688	1502
Grp Volume(v), veh/h	56	1503	519	535	39	8
Grp Sat Flow(s),veh/h/In		1683	1683	1737	1688	1502
Q Serve(g_s), s	0.8	16.1	13.4	13.4	2.7	0.6
Cycle Q Clear(g_c), s	0.8	16.1	13.4	13.4	2.7	0.6
Prop In Lane	1.00			0.11	1.00	1.00
Lane Grp Cap(c), veh/h	460	2808	1261	1301	111	99
V/C Ratio(X)	0.12	0.54	0.41	0.41	0.35	0.08
Avail Cap(c a), veh/h	527	2808	1261	1301	450	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	3.6	3.0	5.5	5.5	53.6	52.6
Incr Delay (d2), s/veh	0.1	0.7	1.0	1.0	1.9	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%).veh		9.6	9.3	9.5	2.3	0.9
Unsig. Movement Delay			5.5	5.3	2.3	0.3
LnGrp Delay(d),s/veh	, siver 3.7	3.7	6.5	6.4	55.5	53.0
LnGrp LOS	3.7 A	3.7 A	6.0 A	0.4 A	55.5 E	53.0 D
	A			A		U
Approach Vol, veh/h		1559	1054		47	
Approach Delay, s/veh		3.7	6.4		55.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc),	s	105.9		14.1	10.2	95.7
Change Period (Y+Rc),		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gm		* 76		* 32	9.0	* 61
Max Q Clear Time (g_c+		18.1		4.7	2.8	15.4
Green Ext Time (p c), s		44.5		0.2	0.1	25.0
Intersection Summary						
Intersection Summary HCM 6th Ctrl Delay HCM 6th LOS			5.7 A			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection	_	_	_	_		_
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TUDL	1		NDI	UDL	^
Traffic Vol. veh/h	0	43	1342	75	0	838
Future Vol. veh/h	0	43	1342	75	0	838
Conflicting Peds, #/hr	0	43	1342	9	0	0.00
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -	Stop	Free -	Free	Free -	
Storage Length		Stop 0		450		None -
Veh in Median Storage		-	0	450		0
	e, # 0 0		0			0
Grade, %		-		-	-	
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	2	1
Mvmt Flow	0	43	1342	75	0	838
Major/Minor	Minor1	1	Major1	1	Major2	
Conflicting Flow All		680	0		-	
Stage 1					-	
Stage 2						
Critical Hdwy	-	6.94	-			
Critical Hdwy Stg 1		-				
Critical Hdwy Stg 2	-	-				
Follow-up Hdwy		3.32				
Pot Cap-1 Maneuver	0	393		0	0	
		393				-
Stage 1	0			0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver		390	-			
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	15.4		0		0	
HCM LOS	1J.4		0		0	
	U					
Minor Lane/Major Mvr	nt	NBTV	VBLn1	SBT		
Capacity (veh/h)		-	390	-		
HCM Lane V/C Ratio			0.11			
HCM Control Delay (s)	-	15.4	-		
HCM Lane LOS	,		C			
HCM 95th %tile Q(veh	0	-	0.4			
How Sour Mile Q(ven	,		0.4			

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	۶	-	$\mathbf{\hat{v}}$	1	-	*	1	Ť	1	L#	1	ŧ
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SB
ane Configurations	ň	^	1	٦	<u>†</u> †	1	ኘካ	≜ î≽			<u>ል</u> ካ	† 1
Fraffic Volume (veh/h)	165	956	233	129	1260	578	326	840	88	31	375	65
uture Volume (veh/h)	165	956	233	129	1260	578	326	840	88	31	375	65
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A pbT)	1.00	-	1.00	1.00	-	1.00	1.00	-	0.95		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach	1.00	No	1.00	1.00	No	1.00	1.00	No	1.00		1.00	N
Adj Sat Flow, veh/h/ln	1772	1772	1786	1786	1772	1786	1786	1786	1786		1786	180
Adi Flow Rate, veh/h	165	956	0	129	1260	0	326	840	82		375	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Percent Heavy Veh, %	2	2	1.00	1	2	1.00	1.00	1.00	1.00		1.00	
Cap, veh/h	149	1155		150	1155		366	791	77		366	77
Arrive On Green	0.09	0.34	0.00	0.09	0.34	0.00	0.11	0.25	0.25		0.11	0.2
Sat Flow, veh/h	1688	3367	1514	1701	3367	1514	3300	3106	303		3300	305
Grp Volume(v), veh/h	165	956	0	129	1260	0	326	459	463		375	36
Grp Sat Flow(s), veh/h/ln	1688	1683	1514	1701	1683	1514	1650	1697	1713		1650	171
Q Serve(q s), s	11.5	33.9	0.0	9.7	44.6	0.0	12.7	33.1	33.1		14.4	26.
Cycle Q Clear(g_c), s	11.5	33.9	0.0	9.7	44.6	0.0	12.7	33.1	33.1		14.4	26
Prop In Lane	1.00	33.9	1.00	1.00	44.0	1.00	1.00	33.1	0.18		14.4	20.
ane Grp Cap(c), veh/h	149	1155	1.00	150	1155	1.00	366	432	436		366	43
//C Ratio(X)	1.11	0.83		0.86	1.09		0.89	4.52	430		1.03	43
Avail Cap(c a), veh/h	149	1155		150	1155		366	432	436		366	43
CM Platoon Ratio	149	1.00	1.00	1.00	1.00	1.00	1.00	4.52	430		1.00	43
Jpstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.0
Jniform Delay (d), s/veh	59.2	39.2	0.00	58.4	42.7	0.0	57.0	48.5	48.5		57.8	45.
ncr Delay (d2), s/veh	104.7	6.9	0.0	35.8	42.7 54.8	0.0	22.9	40.5	40.5		53.9	45.
nitial Q Delay(d3),s/veh	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.
%ile BackOfQ(95%),veh/ln	15.1	22.4	0.0	9.8	39.2	0.0	10.9	30.8	31.0		14.2	19.
Jnsig. Movement Delay, s/ver		22.4	14.50	5.0	JJ.2	46.70	10.5	30.0	31.0		14.2	13.
.nGrp Delay(d),s/veh	163.9	46.1	14.50	94.3	97.5	46.7	80.0	109.2	109.0		111.7	59.
InGrp LOS	105.9 F	40.1 D	14.5 B	94.5 F	97.5 F	40.7 D	60.0 E	109.2 F	109.0 F		F	09.
						A	L					
Approach Vol, veh/h		1354	A		1967 82.4	A		1248 101.5				110
Approach Delay, s/veh		55.0										77.
Approach LOS		D			F			F				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	51.0	21.0	40.0	18.0	51.0	21.0	40.0				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	44.6	14.4	* 33	11.5	44.6	14.4	* 33				
Max Q Clear Time (g c+l1), s	11.7	35.9	16.4	35.1	13.5	46.6	14.7	28.3				
Green Ext Time (p_c), s	0.0	6.7	0.0	0.0	0.0	0.0	0.0	3.3				
ntersection Summary			79.0									
HCM 6th Ctrl Delay												
HCM 6th LOS			E									
lotes												
Jser approved ignoring U-Tur	ning mov	ement.										
HCM 6th computational engi			clearance	times for	r the phas	es crossi	ng the ba	irrier.				
Insignalized Delay for [EBR, 1									lay.			
												_

Movement Lange Configurations Traffic Volume (veh/h) Future Volume (veh/h) SBR 84

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road

4

Future Volume (veh/h)	84
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.94
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1800
Adj Flow Rate, veh/h	77
Peak Hour Factor	1.00
Percent Heavy Veh, %	0
Cap, veh/h	92
Arrive On Green	0.25
Sat Flow, veh/h	361
Grp Volume(v), veh/h	364
Grp Sat Flow(s),veh/h/ln	1706
Q Serve(g s), s	26.3
Cycle Q Clear(g c), s	26.3
Prop In Lane	0.21
Lane Grp Cap(c), veh/h	434
V/C Ratio(X)	0.84
Avail Cap(c a), veh/h	434
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	45.9
Incr Delay (d2), s/veh	13.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	19.6
Unsig. Movement Delay, s/ve	h
LnGrp Delay(d),s/veh	59.5
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Times Assisted Dis	
Timer - Assigned Phs	

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HCM 6th Signalized Intersection Summary 2: Baseline Boad & Private Access 1

					1	,
	1	-	-	~	*	*
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	**	≜î ≽		1	1
Traffic Volume (veh/h)	107	1449	1815	156	167	165
Future Volume (veh/h)	107	1449	1815	156	167	165
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00		v	0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approact		No	No	1.00	No	1.00
	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	107	1449	1815	151	167	76
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap. veh/h	182	2649	2211	181	204	182
Arrive On Green	0.04	0.79	0.70	0.70	0.12	0.12
Sat Flow, veh/h	1688	3455	3234	258	1688	1502
Grp Volume(v), veh/h	107	1449	958	1008	167	76
Grp Sat Flow(s),veh/h/lr		1683	1683	1720	1688	1502
Q Serve(g_s), s	2.1	20.9	51.0	54.7	12.6	6.1
Cycle Q Clear(g_c), s	2.1	20.9	51.0	54.7	12.6	6.1
Prop In Lane	1.00	0040	4400	0.15	1.00	1.00
Lane Grp Cap(c), veh/h		2649	1183	1209	204	182
V/C Ratio(X)	0.59	0.55	0.81	0.83	0.82	0.42
Avail Cap(c_a), veh/h	222	2649	1183	1209	415	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		5.2	13.3	13.9	55.8	52.9
Incr Delay (d2), s/veh	3.0	0.8	6.0	6.8	7.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		12.8	30.2	32.8	10.2	9.0
Unsig. Movement Delay		1				
LnGrp Delay(d),s/veh	29.9	6.0	19.3	20.7	63.6	54.4
LnGrp LOS	C	A	B	C	E	D
Approach Vol, veh/h		1556	1966		243	
Approach Delay, s/veh		7.6	20.0		60.7	
Approach LOS		7.0 A	20.0 C		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc)		108.1		21.9	10.9	97.2
Change Period (Y+Rc),		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gm		* 86		* 32	8.0	* 72
Max Q Clear Time (g_c+		22.9		14.6	4.1	56.7
Green Ext Time (p_c), s	1	45.7		1.2	0.1	15.2
Intersection Summary						
			17.5			
Intersection Summary HCM 6th Ctrl Delay HCM 6th LOS			17.5 B			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	11	1		^
Traffic Vol. veh/h	0	151	1464	150	0	1078
Future Vol. veh/h	0	151	1464	150	0	1078
Conflicting Peds. #/hr		31	0	31	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -	Stop	-	Free	-	
Storage Length		0		450		NONE
Veh in Median Storage		-	0	400	- 1	0
Grade, %	e,# 0 0		0			0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	0	151	1464	150	0	1078
Major/Minor	Minor1	1	Major1	1	Major2	
Conflicting Flow All		763	0			
Stage 1	-		-			
Stage 2						
Critical Hdwy		6.94				
			-			-
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-			-
Follow-up Hdwy	-	3.32	-	-	-	
Pot Cap-1 Maneuver	0	347	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	-	337	-	-	-	-
Mov Cap-2 Maneuver		-	-			
Stage 1	-	-	-	-	-	-
Stage 2						
Oldge 2						
Approach	WB		NB		SB	
HCM Control Delay, s			0		0	
HCM LOS	С					
Minor Lane/Major Mvr	nt	NBTV	VBI n1	SBT		
Capacity (veh/h)	in	NDT	337	001		
			0.448	-		
HCM Lane V/C Ratio						
HCM Control Delay (s)					
HCM Lane LOS			С	-		
HCM 95th %tile Q(veh	1)	-	2.2	-		

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Appendix F Intersection Performance Worksheets May 13, 2020

2022 Future Background Conditions – Optimized Signal Timing Plans

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SB
ane Configurations	ň	^	1	٦	<u>†</u> †	1	ኘካ	≜ î≽			<u>ል</u> ካ	†
Fraffic Volume (veh/h)	184	1166	136	60	546	420	91	795	108	18	317	48
uture Volume (veh/h)	184	1166	136	60	546	420	91	795	108	18	317	48
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A pbT)	1.00		1.00	1.00		1.00	1.00		0.97		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach		No			No			No				N
Adj Sat Flow, veh/h/ln	1800	1772	1758	1772	1730	1786	1730	1786	1786		1786	178
di Flow Rate, veh/h	184	1166	0	60	546	0	91	795	100		317	48
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Percent Heavy Veh, %	0	2	3	2	5	1	5	1	1		1	
Cap, veh/h	212	1166		77	881		142	833	105		372	107
Arrive On Green	0.12	0.35	0.00	0.05	0.27	0.00	0.04	0.28	0.28		0.11	0.3
Sat Flow, veh/h	1714	3367	1490	1688	3287	1514	3196	3021	380		3300	313
Grp Volume(v), veh/h	184	1166	0	60	546	0	91	446	449		317	26
Grp Sat Flow(s),veh/h/ln	1714	1683	1490	1688	1643	1514	1598	1697	1704		1650	169
Q Serve(g s), s	12.6	41.5	0.0	4.2	17.5	0.0	3.4	31.0	31.0		11.3	14
Cycle Q Clear(g_c), s	12.6	41.5	0.0	4.2	17.5	0.0	3.4	31.0	31.0		11.3	14
Prop In Lane	1.00	11.0	1.00	1.00		1.00	1.00	01.0	0.22		1.00	
ane Grp Cap(c), veh/h	212	1166	1.00	77	881	1.00	142	468	470		372	58
//C Ratio(X)	0.87	1.00		0.78	0.62		0.64	0.95	0.95		0.85	0.4
Avail Cap(c a), veh/h	250	1166		162	881		384	468	470		396	58
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Jpstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00		1.00	1.0
Jniform Delay (d), s/veh	51.6	39.2	0.0	56.7	38.6	0.0	56.4	42.7	42.7		52.3	30.
ncr Delay (d2), s/veh	23.5	26.4	0.0	15.9	3.3	0.0	4.8	30.2	30.2		15.6	0.
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.
%ile BackOfQ(95%),veh/In	11.4	30.1	0.0	4.0	12.5	0.0	2.7	24.5	24.6		9.7	10.
Jnsig. Movement Delay, s/veh			4.60			23.00						
_nGrp Delay(d),s/veh	75.2	65.7	4.6	72.6	41.8	23.0	61.2	72.9	72.9		67.8	31.
InGrp LOS	E	F	A	E	D	С	E	E	E		E	
Approach Vol, veh/h		1486	А		1026	A		986				84
Approach Delay, s/veh		61.3			35.9			71.8				44.
Approach LOS		E			D			E				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	47.9	20.1	40.0	21.3	38.6	11.9	48.2				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	34.6	14.4	* 33	17.5	28.6	14.4	* 33				
Max Q Clear Time (g_c+I1), s	6.2	43.5	13.3	33.0	14.6	19.5	5.4	16.5				
Green Ext Time (p_c), s	0.1	0.0	0.2	0.0	0.2	4.6	0.2	6.9				
ntersection Summary												
HCM 6th Ctrl Delay			54.5									
HCM 6th LOS			D									
	_		5			_	_			_	_	
Votes												
Jser approved ignoring U-Turr HCM 6th computational engin			learance	times for	r the nhas	es crossi	na the ha	rrier				
Insignalized Delay for [EBR, V									ay.			
	1.0.				11 200							

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road

	1
Movement	SBR
a Configurations	
Traffic Volume (veh/h)	52
Future Volume (veh/h)	52
nitial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1786
Adj Flow Rate, veh/h	45
Peak Hour Factor	1.00
Percent Heavy Veh, %	1
Cap, veh/h	99
Arrive On Green	0.34
Sat Flow, veh/h	289
Grp Volume(v), veh/h	269
Grp Sat Flow(s),veh/h/ln	1726
Q Serve(g_s), s	14.5
Cycle Q Clear(g_c), s	14.5
Prop In Lane	0.17
Lane Grp Cap(c), veh/h	594
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	594
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.6 0.5
Incr Delay (d2), s/veh Initial Q Delay(d3),s/veh	0.5
%ile BackOfQ(95%),veh/ln	10.9
Wile BackOrQ(95%),ven/in Unsig. Movement Delay, s/vel	
Unsig. Movement Delay, s/vel LnGrp Delay(d),s/veh	n 31.1
LIGID Delay(d), siven	01.1 C
	U
Approach Vol, veh/h	
Approach Delay, s/veh Approach LOS	
Approach 200	

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HCM 6th TWSC 4: Clyde Avenue & Private Access 3

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HCM 6th Signalized Intersection Summary 2: Baseline Boad & Private Access 1

						,
	1	→	+	~	1	*
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	44	≜ 1₀		N.	1
Traffic Volume (veh/h)	56	1503	997	61	39	44
Future Volume (veh/h)	56	1503	997	61	39	44
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00	0	0	0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approact		No	No	1.00	No	1.00
	1772	1772	1772	1772		1772
	56	1503	997	57	39	8
Adj Flow Rate, veh/h	1.00				1.00	
Peak Hour Factor		1.00	1.00	1.00		1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	460	2808	2423	139	111	99
Arrive On Green	0.04	0.83	0.75	0.75	0.07	0.07
Sat Flow, veh/h	1688	3455	3324	185	1688	1502
Grp Volume(v), veh/h	56	1503	519	535	39	8
Grp Sat Flow(s),veh/h/lr		1683	1683	1737	1688	1502
Q Serve(g_s), s	0.8	16.1	13.4	13.4	2.7	0.6
Cycle Q Clear(g_c), s	0.8	16.1	13.4	13.4	2.7	0.6
Prop In Lane	1.00			0.11	1.00	1.00
Lane Grp Cap(c), veh/h	460	2808	1261	1301	111	99
V/C Ratio(X)	0.12	0.54	0.41	0.41	0.35	0.08
Avail Cap(c a), veh/h	527	2808	1261	1301	450	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		3.0	5.5	5.5	53.6	52.6
Incr Delay (d2), s/veh	0.1	0.7	1.0	1.0	1.9	0.3
Initial Q Delay(d3), s/veh		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		9.6	9.3	9.5	2.3	0.9
Unsig. Movement Delay			0.5			50.5
LnGrp Delay(d),s/veh	3.7	3.7	6.5	6.4	55.5	53.0
LnGrp LOS	A	A	A	A	E	D
Approach Vol, veh/h		1559	1054		47	
Approach Delay, s/veh		3.7	6.4		55.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc)	s	105.9		14.1	10.2	95.7
Change Period (Y+Rc),		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gm		* 76		* 32	9.0	* 61
Max Q Clear Time (g c+		18.1		4.7	2.8	15.4
		44.5		0.2	0.1	25.0
		44.0		0.2	0.1	20.0
Green Ext Time (p_c), s						
Green Ext Time (p_c), s Intersection Summary			5.7			
Green Ext Time (p_c), s			5.7 A			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection Int Delay, s/veh

Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	^	1		^
Traffic Vol, veh/h	0	43	1342	75	0	838
Future Vol. veh/h	0	43	1342	75	0	838
Conflicting Peds, #/hr	0		0	9	0	000
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -	Stop	-	Free	-	
Storage Length		Stop 0		450		NUTIE -
Veh in Median Storage		-	0	450		0
Grade, %	,# U 0		0			0
Peak Hour Factor	100	100	100	100	100	100
		2			2	100
Heavy Vehicles, %	2		1	1		838
Mvmt Flow	0	43	1342	75	0	638
Major/Minor I	Minor1	N	Major1	N	/lajor2	
Conflicting Flow All		680	0		-	
Stage 1		-	-			
Stage 2						
Critical Hdwy		6.94	-			-
Critical Hdwy Stg 1		0.34		- 2		
Critical Hdwy Stg 2	- 1	- 1		- 1		
Follow-up Hdwy		3.32				
	0	393		0		
Pot Cap-1 Maneuver		393			0	-
Stage 1	0			0		
Stage 2	0			0	0	
Platoon blocked, %		0.05				
Mov Cap-1 Maneuver		390	-			-
Mov Cap-2 Maneuver			-		-	
Stage 1	1.1	-	-	1.1		
Stage 2	-	-	-		-	-
Approach	WB		NB		SB	
HCM Control Delay, s	15.4		0		0	
			U		0	
HCM LOS	С					
Minor Lane/Major Mvm	ıt	NBTV	VBLn1	SBT		
Capacity (veh/h)	_		390			_
HCM Lane V/C Ratio			0.11			
HCM Control Delay (s)		-	15.4			
HCM Lane LOS			C			
HCM 95th %tile Q(veh)			0.4	- 1		
now sour %tile Q(ven)			0.4			

12/20/2019

Appendix F Intersection Performance Worksheets May 13, 2020

2022 Total Future Conditions

ane Configurations N An 7 N An 7 N An 7 N An 7 N An N N An N </th <th>γ ≠ + + + + + + + + + + + + + + + + + + +</th> <th>+</th> <th>1</th> <th>\mathbf{r}</th> <th></th> <th>۶</th> <th></th>	γ ≠ + + + + + + + + + + + + + + + + + + +	+	1	\mathbf{r}		۶	
Traffic Volume (vehh) 194 1168 136 80 549 423 91 795 116 19 322 nital Q(Q), veh) 0		WBT		EBR	EBT	EBL	Novement
'Liture Volume', Vehn') 184 1168 136 80 549 423 91 'P55 116 19 423 Neid Q (Qb), veh 0 100 <td>ሾ ሽ ቶቶ ሾ ሽሽ ቶቡ 🛛 🕈 ሽ</td> <td>††</td> <td></td> <td>1</td> <td>††</td> <td>7</td> <td>ane Configurations</td>	ሾ ሽ ቶቶ ሾ ሽሽ ቶቡ 🛛 🕈 ሽ	††		1	††	7	ane Configurations
nihal Q (Qb), veh 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		549	80		1168	184	Fraffic Volume (veh/h)
Det-Bisk adj(A, pDT) 1.00<	136 80 549 423 91 795 116 19 329	549	80	136	1168	184	uture Volume (veh/h)
Parking Bas, Arg 100		0	0	0	0	0	nitial Q (Qb), veh
Not. Zone On Ágorosch No No No No Adj Sa Flow, vehhin 1800 1772 1786 1730 1786 1730 1786 1730 1786 1780 1785 1730 1786 1730 1786 1780 1785 1785 1730 1786 1780 1785 1785 1785 1785 1785 1785 187 188 108 322 5 1 5 1 1 772 1786 1786 1786 1786 1786 1787 101 100 100 100 100 100 100 100 100 100 100 100 100 100 100 128 1712 1337 1490 1688 1643 1514 1581 1597 1639 155 17.7 10 3.4 31.5 11.1 150 156 17.7 10.3 3.15 11.1 170 136 11.6 1300 1300 156 1				1.00			Ped-Bike Adj(A_pbT)
Add Sat Flow, vehi/him 1800 1727 1730 1786 1730 1786 1786 Add Flow Rate, wehi 144 1168 0 80 549 0 91 795 108 328 Peak Hour Factor 1.00 3.00 0.66 0.62 0.00 0.4 0.28 0.02 0.80 3.01 0.03 3.01 1.01 3.00 0.06 0.63 1.64 0.60 3.03 3.01 3.01 3.01 3.01 3.01 3.01 <t< td=""><td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td>1.00</td><td>Parking Bus, Adj</td></t<>	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00	1.00	1.00	1.00	1.00	Parking Bus, Adj
Varian Description 104 1168 0 80 549 0 91 795 108 322 Seak Hour Eack Hour Each 100	No No	No			No		Nork Zone On Approach
Peak Hour Factor 100	758 1772 1730 1786 1730 1786 1786 1786	1730	1772	1758	1772	1800	Adj Sat Flow, veh/h/ln
Percent Heavy Veh, % 0 2 3 2 5 1 5 1 1 1 1 1 1 2 2 2 2 107 101 871 142 825 112 382 4714 396 1289 446 3196 289 446 3196 289 446 3196 289 446 3196 298 449 318 315 115 115 116 2970 11 10 1 0 10 0 100 100 100 100 100 10	0 80 549 0 91 795 108 329	549	80	0	1168	184	Adj Flow Rate, veh/h
Cap, vehh 212 1107 101 871 142 825 112 383 Arwe On Green 0.12 0.33 0.00 0.06 0.26 0.00 0.40 0.28 0.11 Sat Flow, wehh 1714 3367 1490 1688 3287 1514 3196 2989 406 3300 Cip Volume(V), vehh 1741 1683 1683 1631 1514 1584 154 154 355 252 355 0.0 5.6 17.7 0.0 3.4 31.5 31.5 11.1 Orgo Clare(c), s) 1.26 39.5 0.0 5.6 17.7 0.0 3.4 31.5 11.1 Projen Clare(c), s) 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00	1.00	1.00	1.00	1.00	Peak Hour Factor
Arme On Green 0.12 0.33 0.00 0.06 0.26 0.00 0.40 0.28 0.28 0.12 Sat Flow, wehn 1714 3367 1490 1688 3287 1514 3196 2289 406 3300 Sat Flow, wehn 1714 1681 1490 1688 3287 1514 3196 2289 406 3300 Sign Sat Flow(s), wehn'n 1714 1683 1490 1688 1843 1514 1518 151 151 315 116 0.0 0.0 0.0 1.00 100 100 100 100 100 100 100 100 100 100 100 100	3 2 5 1 5 1 1 1	5	2	3	2	0	Percent Heavy Veh, %
Sat Flow, web/h 1714 3367 1490 1688 3287 1514 3196 2889 406 3300 Gry Volume(v), web/h 174 1168 0 80 549 0 91 451 452 451 1581 111 1163 1163 111 1163 1163 111 1162 431 315 111 117 100 56 17.7 0.0 3.4 315 111 1102 100 1.00<	101 871 142 825 112 382	871	101		1107	212	Cap, veh/h
Gry Volume(v), vehn 184 1168 0 80 549 0 91 451 452 323 Gry Sat Flow(s), vehn 114 1683 1490 1683 1643 1514 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1584 1585 116 0 <td< td=""><td>0.00 0.06 0.26 0.00 0.04 0.28 0.28 0.12</td><td>0.26</td><td>0.06</td><td>0.00</td><td>0.33</td><td>0.12</td><td>Arrive On Green</td></td<>	0.00 0.06 0.26 0.00 0.04 0.28 0.28 0.12	0.26	0.06	0.00	0.33	0.12	Arrive On Green
Carr Sat Founds) vehnlin 1714 1683 1490 1684 1643 1514 1569 1677 1669 1650 Sorve(g, s), s 126 395 0.0 56 177 0.0 34 31.5 31.5 111 Cycle Q Clear(g, c), s 126 39.5 0.0 56 177 0.0 34 31.5 31.5 111 Prop In Lane 1.00	490 1688 3287 1514 3196 2989 406 3300	3287	1688	1490	3367	1714	Sat Flow, veh/h
Carr Sat Founds) vehnlin 1714 1683 1490 1684 1643 1514 1569 1677 1669 1650 Sorve(g, s), s 126 395 0.0 56 177 0.0 34 31.5 31.5 111 Cycle Q Clear(g, c), s 126 39.5 0.0 56 177 0.0 34 31.5 31.5 111 Prop In Lane 1.00	0 80 549 0 91 451 452 329	549	80	0	1168	184	Grp Volume(v), veh/h
2 Serve(a), s 126 39.5 0.0 6.6 17.7 0.0 3.4 31.5 31.5 11.1 Cycled O(Sar(a, c), s 12.6 39.5 0.0 5.6 17.7 0.0 3.4 31.5 31.5 11.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 1.00 0.24 1.00 Lane Gin Cap(d), wehh 212 1107 101 871 142 468 469 382 VC Ratic (X) 0.67 1.00							
Cycle Q Clear(q, c), s 12.6 39.5 0.0 5.6 17.7 0.0 3.4 31.5 31.5 11.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 1.00 2.4 1.00 Prop In Lane 1.00 1.00 1.00 1.00 1.00 2.4 1.00 VIC Ratic(X) 0.63 1.06 0.79 0.63 0.64 0.96 0.96 0.96 VIC Ratic(X) 0.63 1.06 0.79 0.63 0.64 0.96							
Prop Intage 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.024 1.01 Lane Gro Cap(c), velh 1.21 1.07 1.01 8.71 1.42 4.88 4.89 3.83 VIC Ratic/X) 0.87 1.05 0.79 0.63 0.64 0.96 0.96 0.88 Avail Cap(c), velh 210 1107 112 8.71 3.84 4.88 4.89 3.98 Avail Cap(c, a), velh 250 1107 1.02 8.71 0.84 4.84 4.89 3.98 Michael Deblay, State 1.00 1.							
Lame Gro Cap(c), wehh 212 107 101 871 142 468 469 382 VIC Ratio(X) 0.87 1.06 0.79 0.63 0.64 0.96 0.88 VIC Ratio(X) 0.87 1.06 0.79 0.63 0.64 0.96 0.88 VIC Ratio(X) 0.87 1.06 0.79 0.63 0.64 0.96 0.88 VIC Ratio(X) 0.87 1.00					00.0		
VIC Ratio(x) 0.87 1.06 0.79 0.63 0.64 0.96 0.96 0.96 Avail Cap(c, g), vehh 250 1107 162 871 384 468 469 398 Avail Cap(c, g), vehh 250 1107 122 871 384 468 469 398 Avail Cap(c, g), vehh 1.00 <td></td> <td>871</td> <td></td> <td>1.00</td> <td>1107</td> <td></td> <td></td>		871		1.00	1107		
Avail Cap(*a), which 250 1107 162 871 384 468 469 398 HeM Pilaton R140 100 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
HCM Placen Ratio 100							
Upstream Filter(I) 100 100 000 100 <				1.00			
Uniform Delay (d), siveh 51.6 40.3 0.0 55.7 38.9 0.0 56.4 42.9 42.9 52.1 Inribe Delay (d), siveh 23.5 42.9 0.0 13.1 35.00 48.32.4 32.4 17.7 Inribe Delay (d), siveh 0.0							
Inder Delay (xd), siveh 23,5 42,9 0.0 13,1 3,5 0.0 4,8 32,4 32,4 17,7 Initial Q Delay(3), siveh 0.0							
Initial C Delay(d3) siveh 0.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Naie BackOd(265), vehin 11.4 32.9 0.0 52 12.6 0.0 2.7 25.1 25.1 10.1 Unsig Movement Delay, Sveh 4.60 23.70 23.70 51.1 25.1 10.1 Unsig Movement Delay, Sveh 75.2 83.1 4.6 68.8 42.4 23.7 61.2 75.3 75.3 69.1 LnGrp Delay(d), Sveh 75.0 F A E D C E							
Unsig Movement Delay, siveh 4.60 23.70 LnGrp Delay(d)s/veh 75.2 83.1 4.6 68.8 42.4 23.7 61.2 75.3 69.1 LnGrp Delay(d)s/veh 75.2 83.1 4.6 68.8 42.4 23.7 61.2 75.3 69.1 Approach Vol, veh/h 1488 A 1052 A 994 E							
Indrin Delay(d) sheh 75.2 83.1 4.6 68.8 42.4 23.7 61.2 75.3 75.3 69.3 LnGrp LOS E F A E D C E		12.0	0.2		02.0	11.4	
LnGrp LOS E F A E D C E E E E P Approach Vol, veh/h 1488 A 1052 A 994 Approach Delvs, sveh 75.0 36.9 74.0 Approach Delvs, sveh 75.0 36.9 74.0 Approach LOS E D E D E </td <td></td> <td>12.4</td> <td>68.8</td> <td></td> <td>83.1</td> <td>75.2</td> <td></td>		12.4	68.8		83.1	75.2	
Approach Vol. ve/h 1488 A 1052 A 994 Approach Vol. ve/h 75.0 36.9 74.0 Approach Delay, siveh 75.0 E D E E D E E D E E D E Characteria Approach DS 56.7 8 Phs Duration (G+Y-Rc), s 6.5 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Green Setting (Gmax), s 11.5 34.6 14.4 *33 T/5 28.6 14.4 *33 Max Clear Time (g_c-rt), s 0.1 0.0 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HCM 6th LOS E E E E E							
Approach LoBy, siveh 75.0 36.9 74.0 Approach LOS E D E Timer - Assigned Phs 1 2 3 4 5 6 7 8 Thes Duration (6+V+RC), s 13.7 45.9 20.5 40.0 21.3 38.2 11.9 48.6 Change Period (Y+RC), s 6.1 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Orear Time (Q-rel), s 0.1 34.6 14.4 *33 17.5 28.6 14.4 *33 Max O Clear Time (q_c-rtl), s 7.0 0.1 0.0 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HCM 6th LOS E E E						L.	
Approach LOS E D E Immer - Assigned Phs 1 2 3 4 5 6 7 8 Phe Duratin (C+Y+Rc), s 13 45 0 71 88 8 Phe Duratin (C+Y+Rc), s 6.5 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Green Time (g-crit), s 1.5 34.6 14.4 *33 17.5 28.6 14.4 *33 Max C Quer Time (g-crit), s 0.1 0.0 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HE/M 61/L CH Belly 59.8 HCM 6th LOS E E				A			
Immer - Assigned Phis 1 2 3 4 5 6 7 8 Phis Duration (6+V+Rc), s 13.7 45.9 20.5 40.0 21.3 38.2 11.9 48.6 Change Preiod (V+Rc), s 6.5 6.4 6.6 *6.9 5.6.4 6.6 *6.9 Max Cleren Setting (Gmax), s 11.5 34.6 14.4 *33 17.5 28.6 14.4 *33 Max Cleran Time (g,c)+1), s 7.6 41.5 13.8 33.5 14.6 19.7 5.4 16.5 Green Exit Time (p,c), s 0.1 0.0 0.1 0.0 2.4 5 0.2 6.9 Intersection Summary HCM 6th LOS E E 4.5 18.8 14.4 13.5 14.6 11.5 13.6 14.6 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Phs Duration (G-Y+Rc), s 13.7 45.9 20.5 40.0 21.3 38.2 11.9 48.6 Change Period (Y+Rc), s 6.5 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Oreno Stelling (Granx), s 15.3 34.6 14.4 *33 75.28.6 14.4 *33 Max O Clear Time (g.c+11), s 7.6 41.5 13.8 33.5 14.6 19.7 5.4 16.5 Green Exit Time (p, c), s 0.1 0.0 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HCM 6th LOS 59.8 E F F	D E	U			E		Approach LOS
Change Period (Y-Rc), s 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 11.5 34.6 14.4 * 33 17.5 28.6 14.4 * 33 Max Clear Time (g,c)+1), s 7.6 41.5 13.8 33.5 14.6 19.7 5.4 16.5 Green Ext Time (g,c), s 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HCM 6th LOS 59.8 HCM 6th LOS E E	3 4 5 6 7 8	5	4	3	2	1	Timer - Assigned Phs
Max Orean Time (Grinax), s 11,5 34,6 14,4 *33 17,5 28,6 14,4 *33 Max Orean Time (g.c-H),s 7,6 41,5 13,8 33,5 14,6 19,7 5,4 16,5 Green Ext Time (g.c.),s 0,1 0,0 0,1 0,0 0,2 4,5 0,2 6,9 Intersection Summary HCM 6th LOD Belay 59,8 HCM 6th LODS E	20.5 40.0 21.3 38.2 11.9 48.6	21.3	40.0	20.5	45.9	13.7	Phs Duration (G+Y+Rc), s
Max Q Clear Time (g.c+11), s 7.6 41.5 13.8 33.5 14.6 19.7 5.4 16.5 Green EX Time (p. c), s 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary 4.06 10.7 5.4 16.5 10.2 6.9 HCM 6th LOB 59.8 4.6 4.6 10.7 6.9 10.4	6.6 * 6.9 6.5 6.4 6.6 * 6.9	6.5	* 6.9	6.6	6.4	6.5	Change Period (Y+Rc), s
Green Ext Time (p. c), s 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary	14.4 * 33 17.5 28.6 14.4 * 33	17.5	* 33	14.4	34.6	11.5	Max Green Setting (Gmax), s
Green Ext Time (p. c), s 0.1 0.0 0.1 0.0 0.2 4.5 0.2 6.9 Intersection Summary HCM 6th CH Delay 59.8 HCM 6th LOS E	13.8 33.5 14.6 19.7 5.4 16.5	14.6	33.5	13.8	41.5	7.6	Max Q Clear Time (g c+I1), s
HCM 6th Ctrl Delay 59.8 HCM 6th LOS E	0.1 0.0 0.2 4.5 0.2 6.9	0.2	0.0	0.1	0.0	0.1	
HCM 6th Ctrl Delay 59.8 HCM 6th LOS E							Intersection Summary
HCM 6th LOS E	59.8			59.8			
Notes	E			E			
		_					Votes
User approved ignoring U-Turning movement.					omont	ina mov	
The approved growing or tarining inversion in the second					es equal o	e requir	* HCM 6th computational engin

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

12/20/2019

Manager	000
Movement	SBR
LanesConfigurations	50
Traffic Volume (veh/h)	52
Future Volume (veh/h)	52
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1786
Adj Flow Rate, veh/h	45
Peak Hour Factor	1.00
Percent Heavy Veh, %	1
Cap, veh/h	100
Arrive On Green	0.35
Sat Flow, veh/h	289
Grp Volume(v), veh/h	269
Grp Sat Flow(s),veh/h/ln	1727
Q Serve(g_s), s	14.5
Cycle Q Clear(g_c), s	14.5
Prop In Lane	0.17
Lane Grp Cap(c), veh/h	599
V/C Ratio(X)	0.45
Avail Cap(c_a), veh/h	599
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.3
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	10.9
Unsig. Movement Delay, s/ve	
LnGrp Delay(d),s/veh	30.8
LnGrp LOS	С
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	

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HCM 6th Signalized Intersection Summary

					1	,
	1	-	-	~	*	*
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	44	≜ 1₀		1	1
Traffic Volume (veh/h)	78	1503	997	65	48	70
Future Volume (veh/h)	78	1503	997	65	48	70
Initial Q (Qb), veh	0	0	0	0		0
Ped-Bike Adj(A pbT)	1.00	0	0	0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
	1772	1772	1772	1772	1772	1772
Adj Flow Rate, veh/h	78	1503	997	61	48	34
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
	2	2	2	2	2	2
Percent Heavy Veh, %						
Cap, veh/h	452	2768	2363	145	131	117
Arrive On Green	0.04	0.82	0.73	0.73	0.08	0.08
	1688	3455	3310	197	1688	1502
Grp Volume(v), veh/h	78	1503	521	537	48	34
Grp Sat Flow(s),veh/h/ln	1688	1683	1683	1735	1688	1502
Q Serve(g_s), s	1.2	17.2	14.3	14.3	3.2	2.6
Cycle Q Clear(g_c), s	1.2	17.2	14.3	14.3	3.2	2.6
Prop In Lane	1.00			0.11	1.00	1.00
Lane Grp Cap(c), veh/h	452	2768	1235	1273	131	117
V/C Ratio(X)	0.17	0.54	0.42	0.42	0.37	0.29
Avail Cap(c a), veh/h	514	2768	1235	1273	450	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	4.1	3.4	6.2	6.2	52.5	52.2
Incr Delay (d2), s/veh	0.2	0.8	1.1	1.0	1.7	1.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		10.3	9.9	10.1	2.7	4.0
Unsig. Movement Delay			5.9	10.1	2.1	4.0
	, s/ver 4.3	4.2	7.2	7.2	54.2	53.6
LnGrp Delay(d),s/veh			7.2 A			
LnGrp LOS	A	A		A	D 82	D
Approach Vol, veh/h		1581	1058			
Approach Delay, s/veh		4.2	7.2		53.9	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc).	. S	104.5		15.5	10.6	93.8
Change Period (Y+Rc),		* 5.8		*6.2	6.0	* 5.8
Max Green Setting (Gm		* 76		* 32	9.0	* 61
Max Q Clear Time (g c+		19.2		5.2	3.2	16.3
Green Ext Time (p c), s		43.8		0.4	0.1	24.8
<i>u</i> = <i>1</i> .		.5.0		3.4	0.1	21.0
Intersection Summary						
			6.9			
HCM 6th Ctrl Delay						
HCM 6th Ctrl Delay HCM 6th LOS			0.5 A			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue

venue & Private	e Access 3

Intersection		_	_		_	_
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	THUE	1 I		TNDIX 7	ODL	^
Traffic Vol. veh/h	0	72	1345	76	0	851
Future Vol. veh/h	0	72	1345	76	0	851
Conflicting Peds, #/hr	0	9	1345	9	0	0.01
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -	Stop	- 1166	Free	-	
Storage Length		0.00		450	-	-
Veh in Median Storage		-	0		-	0
Grade, %	0, 0		0	- 2		0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	100	100	2	100
Mymt Flow	0	72	1345	76	0	851
WINTEL FIOW	U	12	1343	10	0	001
Major/Minor I	Minor1	1	Major1	. N	/lajor2	
Conflicting Flow All		682	0		-	
Stage 1					-	
Stage 2						
Critical Hdwy		6.94				
Critical Hdwy Stg 1		-				
Critical Hdwy Stg 2	-	-				
Follow-up Hdwy		3.32			-	
Pot Cap-1 Maneuver	0	392	- 1	0	0	
Stage 1	0	- 352		0	0	
Stage 2	0			0	0	
Platoon blocked. %	0			0	0	
Mov Cap-1 Maneuver		389				
Mov Cap-2 Maneuver	-					
Stage 1		-	-		-	-
Stage 2		-	-		-	-
Approach	WB	_	NB	_	SB	_
HCM Control Delay, s	16.3		0		0	
HCM LOS	10.5 C		0		0	
HOW LOG	U					
Minor Lane/Major Mvm	it	NBTV	VBLn1	SBT		
Capacity (veh/h)		-	389			
HCM Lane V/C Ratio			0.185			
HCM Control Delay (s)		-	16.3			
HCM Lane LOS			C			
HCM 95th %tile Q(veh)			0.7			
in the second second			2.1			

1357 Baseline Road 09/16/2019 2022 TF_OP_AM

Ped-Bike Adj(A, pbT) 1.00 <th1.00< th=""> 1.00 1.00<!--</th--><th>5.53 C</th><th>•</th></th1.00<>	5.53 C	•
Tarffic Volume (vehn) 166 959 233 144 1262 580 326 840 108 33 nital Q (Ob), veh 0		
uture Volume (veh/h) 165 959 233 144 1262 580 326 840 108 33 Niada (Qb), wh 0	ង។	٢
nial of (Ob), when 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4 404	Ļ .
Pet-Bike Adj(A, pbT) 1.00<	4 404	Ļ
Parking Das, Arg 1.00 No No <td>0</td> <td>)</td>	0)
No. No No No No No Arg Sat Flow, webh1n 1772 1776 1786 <	1.00)
Add Sat Flow, weinhin 1772 1786	1.00) '
high Flow Rate, wehh 165 959 0 144 1262 0 326 Buf and		
Peak Hour Factor 1.00 0.00 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.02 0.25 0.26 0.26	1786	5 1
Percent Heavy Veh, % 2 2 1 1 2 1	404	ļ.
Cap, vehh 149 1155 150 1155 366 771 94 Arw Po Green 0.09 0.34 0.00 0.09 0.34 0.00 302 0.25 Sat Flow, vehh 168 3367 1514 1701 3367 1514 3000 3026 367 Gry Volume(V, vehh 165 959 0 144 1262 0 326 471 471 Gry Sat Flow(yehhn 168 1683 1514 1701 1680 1514 1600 1600 1607 1697 2 Serve(g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 1.00	1.00) '
Arrive On Green 0.09 0.34 0.00 0.09 0.34 0.00 0.11 0.25 0.25 Sat Flow, wehn 1688 3367 1514 1701 3367 1514 3000 3026 367 Sat Flow, wehn 1688 3367 1514 1701 3367 1514 3000 3026 367 Sp Volume(v), wehn 165 959 0 144 1262 0 326 471 471 Sp Sat Flow(s), wehn 1688 1514 1701 1683 1514 1600 197 197 331 331 Oclear(g.c), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 331 331 Orgo In Lane 100 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00<	1	1
Sat Flow, wehn 1688 3367 1514 3300 3302 367 Grp Volume(v), vehn 165 959 0 144 1262 0 326 471 471 Grp Volume(v), vehn 1688 1683 1514 1701 1683 1514 1500 1697 Qs ene (q, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Opclea Clearg(c), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.022 432.2 V/C Rato(X) 1.11 0.83 0.96 1.09 0.08 1.09 1.09 V/C Rato(X) 1.11 0.83 0.96 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	366	6
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0.11	
Carry Sat Forw(g) webhitin 1688 1634 1574 1701 1683 1514 1600 1607 1697 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.02 33.1 33.1 VIC Ratic X) 1.11 0.83 0.96 1.09 0.88 1.09 1.09 VIC Ratic X) 1.11 0.83 0.96 1.09 0.86 432 432 VIC Ratic X) 1.11 0.83 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	3300) 3
Carry Sat Forw(g) webhitin 1688 1634 1574 1701 1683 1514 1600 1607 1697 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Cycle Q, Clear (g, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.02 33.1 33.1 VIC Ratic X) 1.11 0.83 0.96 1.09 0.88 1.09 1.09 VIC Ratic X) 1.11 0.83 0.96 1.09 0.86 432 432 VIC Ratic X) 1.11 0.83 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	404	ļ.
Ω Serve(q, s), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Cycle Q Clear(g, c), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 100 1.00 1.00 1.00 1.00 1.00 0.22 Lane Gin Cap(c), veh/h 149 1155 155 366 43.2 43.2 VC Ratic (X) 1.11 0.83 0.56 1.09 0.89 1.09 1.09 Wall Cap(c, a), veh/h 149 1155 155 366 43.2 43.2 VC Ratic (X) 1.11 0.83 0.56 1.09 0.08 1.09 1.00 1.0	1650	
Opele Clear(g, c), s 11.5 34.0 0.0 11.0 44.6 0.0 12.7 33.1 33.1 Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.022 Lane Gry Cap(c), veh/h 149 1155 150 1155 366 432 432 VIC Ratic(X) 1.11 0.83 0.96 1.09 0.89 1.09 1.09 VIC Ratic(X) 1.11 0.83 0.96 1.00 0.06 432 432 VIC Ratic(X) 1.11 0.83 0.96 1.00 0.00 1.00	14.4	
Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.22 Lane Gro Cap(C), with 149 1155 156 1155 366 432 432 ViC Ratic(X) 1.11 0.83 0.08 1.09 0.08 1.09 1.09 Avail Cap(c, a), with 1.49 1155 150 1155 366 432 432 ViC Ratic(X) 1.00 </td <td>14.4</td> <td></td>	14.4	
Laine Gro Cap(c), vehih 149 1155 150 1155 366 432 432 V/C Ratic(X) 1.11 0.83 0.96 1.09 0.88 1.09 1.09 V/C Ratic(X) 1.11 0.83 0.96 1.09 0.88 1.09 1.09 V/C Ratic(X) 1.01 0.08 1.09 1.00 0.08 1.09 1.00 HCM Platon Ratio 1.00<	1.00	
VIC RainOV 1.11 0.83 0.96 1.09 0.89 1.09 1.09 MaxII Capic 0, VIC vahin 149 1155 156 1155 366 432 432 HCM Plabon Ratio 1.00 0.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	366	
Avail Capit'(a), weh/n 149 1155 156 1155 366 432 432 HCM Platoon Ratio 1.00 <t< td=""><td>1.11</td><td></td></t<>	1.11	
HCM Plakon Ratio 1.00	366	
Upstream Filter(I) 1.00 1.00 0.00 1.00 50.0 55.5 0.0 22.9 69.8 7 69.8 69.8 7 69.8 69.8 69.8 69.8 69.8 69.8	1.00	
Uniform Delay (d), siveh 59.2 39.2 0.0 59.0 42.7 0.0 57.0 48.5 48.5 Initial Q Delay (d), siveh 0.47 7.0 0.0 60.3 55.5 0.0 2.29 69.8 69.8 Initial Q Delay (d), siveh 0.0	1.00	
Ind: Delay (d2) System 104.7 7.0 0.0 60.3 55.5 0.0 22.9 69.8 69.8 Ind: Q Delay(3), sheh 0.0	57.8	
Initial O Celeryid3) siven 0.0 </td <td>78.6</td> <td></td>	78.6	
Skie BackOlÓgósý, velvin 151 22.5 0.0 11.9 39.4 0.0 10.9 32.6 32.6 Unörg, Dovement Delay, siveh 14.50 48.70 48.70 48.70 118.3 118.3 Lnörg, Delay(d), siveh 163.9 46.2 14.5 119.3 98.2 48.7 80.0 118.3 118.3 Lnörg, Delay(d), siveh 163.9 46.2 14.5 119.3 98.2 48.7 80.0 118.3 118.3 Lnörg, Delay(d), siveh 15.1 85.3 108.4 Approach Delay, siveh 55.1 85.3 108.4 Approach Delay, siveh 5.1 2.3 4 5 6 7 8 Pris Duration (G+Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Change Prind (Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.9 40.0 Max C Otear Time (ye.c), s 0.0 6.6 5.9 5.6 6.6 *6.9	0.0	
Unsig Novement Delay, siveh 14.50 48.70 LnGrp Delay(d), siveh 163.9 46.2 14.5 119.3 98.2 48.7 80.0 118.3 LnGrp Delay(d), siveh 163.9 46.2 14.5 119.3 98.2 48.7 80.0 118.3 118.3 Approach Nol, veh/h 1337 A 1986 A 1268 Approach Delay, siveh 55.1 85.3 108.4 Approach Delay, siveh 5 1 2 3 4 5 6 7 8 Timer - Assigned Phis 1 2 3 4 5 6 7 8 Pres Duration (G+Y+Rc), s 81.0 51.0 10.0 10.0 10.0 0.0	16.3	
Indrip Delay(d), siveh 163.9 46.2 14.5 113.3 98.2 48.7 80.0 118.3 118.3 Indrip LOS F D B F F D E F Approach Vol, vehih 1357 A 1986 A 1268 Approach Delay, siveh 55.1 . 85.3 . 108.4 Approach Delay, siveh 55.1 . 85.3 . 108.4 Approach DOS E F F F F . 8 Phis Duration (G+Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Dange Period (Y+Rc), s 5.5 6.4 6.6 6.5 6.9 . <td< td=""><td>10.0</td><td>, </td></td<>	10.0	,
LnGrp LOS F D B F F D E F D E F D E F D E F D E F D B F T D B T D B F D E F D E F D B T 1086 A 1268 Approach Dels, siveh 55.1 85.3 108.4 T Approach Dels, siveh F S S <td>136.4</td> <td>1</td>	136.4	1
Approach Vol. velvh 1337 A 1986 A 1228 Approach Delay, siveh 55.1 85.3 108.4 Approach Delay, siveh 55.1 F F Timer - Assigned Phs 1 2 3 4 5 6 7 8 Phs Duration (G-Y+Rc), s 16.5 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Change Period (Y-Rc), s 6.5 6.4 6.6 * 5.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 11.5 44.6 14.4 * 33 11.5 44.6 14.4 * 33 Green Ext Time (p_c, e), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary 83.6 83.6 54.6 54.6 54.6 54.6 54.6 54.6 54.6 54.7 54.6 54.7 54.6 54.7 54.6 54.7 54.6 54.7 54.6 54.7 54.7	F	
Approach Delay, siveh 55.1 85.3 108.4 Approach Dolay, siveh 55.1 F F F Timer - Assigned Phs 1 2 3 4 5 6 7 8 Timer - Assigned Phs 1 2 3 4 5 6 7 8 Pres Duration (G*Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Change Period (Y+Rc), s 6.5 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Green Setting (grax), s 13.0 36.0 16.4 *33 13.5 46.6 14.4 *33 Green Exit Time (p_c), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary 83.6 83.6 83.6 83.6 83.6		1
Approach LOS E F F Timer - Assigned Phis 1 2 3 4 5 6 7 8 Phe Duration (G+Y+Rc), s 18.0 51.0 21.0 40.0 150.0 21.0 40.0 Change Period (Y+Rc), s 6.5 6.4 6.6 *6.9 6.5 6.4 6.6 *6.9 Max Green Setting (Gmax), s 11.5 44.6 14.4 *33 11.5 44.6 14.4 *33 Green Ext Time (p, c), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary KOM th Crit Delay 83.6 13.6 14.7 14.7		
Immer - Assigned Phs 1 2 3 4 5 6 7 8 Phs Duration (G+Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Change Period (Y+Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 15. 44.6 14.4 * 33 11.5 44.6 14.4 * 33 Max Q Clear Time (g_c-if), s 13.0 36.0 16.4 35.1 13.5 46.6 14.7 28.3 Green Ext Time (g_c-if), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary K		
Phs Duration (G+Y+Rc), s 18.0 51.0 21.0 40.0 18.0 51.0 21.0 40.0 Change Period (Y+Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 15.4 6.1 * 3.3 11.5 44.6 14.4 * 3.3 Max O Clear Time (g_c-H), s 13.0 36.0 16.4 35.1 13.5 46.6 14.7 28.3 Green Ext Time (p_c), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary K14 63.6 K3.6 K3.6 K3.6 K3.6		
Change Period (Y-Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 11.5 44.6 14.4 * 33 11.5 44.6 14.4 * 33 Max Q Clear Time (g_c+1), s 13.0 3.60 16.4 35.1 13.5 46.6 14.4 * 33 Sreen Ext Time (g_c, e), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary CM 6th Chr Delay 83.6 13.6 14.7		
Max Green Setting (Gmax), s 11.5 44.6 14.4 * 33 11.5 44.6 14.4 * 33 Vax Q Clear Time (g_c-rl), s 13.0 36.0 16.4 35.1 13.5 46.6 14.7 28.3 Green Ext Time (p_c), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary 45.0 66.6 43.6 46.6 14.7 28.3 HCM 6th Ctt Delay 83.6 6 6.6 <td< td=""><td></td><td></td></td<>		
Max Q Clear Time (g_c-11), s 13.0 36.0 16.4 35.1 13.5 46.6 14.7 28.3 Green Ext Time (g_c_1), s 0.0 6.6 0.0 0.0 0.0 0.0 0.0 3.3 Intersection Summary CM 6th Crit Delay 83.6		
Green Ext Time (p_c), s 0.0 6.6 0.0 0.0 0.0 0.0 3.3 Intersection Summary HCM 6th Ctrl Delay 83.6		
Intersection Summary HCM 6th Ctrl Delay 83.6		
HCM 6th Ctrl Delay 83.6		
Votes		
User approved ignoring U-Turning movement.		
user approved ignoring of unring movement. * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. Unsignalized Delay for [EBR, WBR] is included in calculations of the approach delay and intersection delay.		

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

12/20/2019

Movement	SBR
Laresconfigurations	JDR
Traffic Volume (veh/h)	84
Future Volume (veh/h)	84
Initial Q (Qb), veh	04
Ped-Bike Adj(A pbT)	0.94
Parking Bus, Adj	1.00
Work Zone On Approach	1.00
Adj Sat Flow, veh/h/ln	1800
Adj Flow Rate, veh/h	77
Peak Hour Factor	1.00
Percent Heavy Veh, %	0.1
Cap, veh/h	92
Arrive On Green	0.25
Sat Flow, veh/h	361
	364
Grp Volume(v), veh/h Grp Sat Flow(s),veh/h/ln	1706
	26.3
Q Serve(g_s), s Cycle Q Clear(g_c), s	26.3
Prop In Lane	0.21
Lane Grp Cap(c), veh/h	434
V/C Ratio(X)	0.84
Avail Cap(c a), veh/h	434
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	45.9
Incr Delay (d2), s/veh	13.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	19.6
Unsig. Movement Delay, s/ve	
LnGrp Delay(d),s/veh	59.5
LnGrp LOS	55.5 E
Approach Vol, veh/h	
Approach Vol, ven/n Approach Delay, s/veh	
Approach Delay, s/ven Approach LOS	
Approach LOS	
Timer - Assigned Phs	

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Synchro 10 Report Page 2

12/20/2019

HCM 6th Signalized Intersection Summary

2: Baseline Road						,
	1	→	+	~	*	*
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	44	≜ î,		1	1
Traffic Volume (veh/h)	159	1449	1815	166	174	184
Future Volume (veh/h)	159	1449	1815	166	174	184
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00		Ŭ	0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No	1.00	No	1.00
	1772	1772	1772	1772	1772	1772
Adj Sat How, venninn Adj Flow Rate, veh/h	159	1449	1815	161	174	95
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap. veh/h	184	2632	2163	189	212	189
Arrive On Green	0.04	2032	2163	0.69	0.13	0.13
						1502
	1688	3455	3216	273	1688	
Grp Volume(v), veh/h	159	1449	963	1013	174	95
Grp Sat Flow(s),veh/h/In		1683	1683	1717	1688	1502
Q Serve(g_s), s	3.6	21.4	53.5	57.7	13.1	7.7
Cycle Q Clear(g_c), s	3.6	21.4	53.5	57.7	13.1	7.7
Prop In Lane	1.00			0.16	1.00	1.00
Lane Grp Cap(c), veh/h		2632	1164	1187	212	189
V/C Ratio(X)	0.86	0.55	0.83	0.85	0.82	0.50
Avail Cap(c_a), veh/h	214	2632	1164	1187	415	370
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	5.4	14.4	15.1	55.4	53.0
Incr Delay (d2), s/veh	26.0	0.8	6.8	7.9	7.6	2.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%).veh		13.1	31.7	34.7	10.5	10.7
Unsig. Movement Delay			01.7	01.1	.0.0	
LnGrp Delay(d),s/veh	58.0	6.3	21.2	23.0	63.0	55.1
LnGrp LOS	30.0 E	0.3 A	21.2 C	23.0 C	63.0 E	55.T
Approach Vol. veh/h	6	1608	1976	0	269	6
		11.4	22.1		60.2	
Approach Delay, s/veh			22.1 C		60.2 E	
Approach LOS		В	U		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc),		107.4		22.6	11.7	95.7
Change Period (Y+Rc),	s	* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gma	ax), s	* 86		* 32	8.0	* 72
Max Q Clear Time (g_c+		23.4		15.1	5.6	59.7
Green Ext Time (p_c), s		45.5		1.3	0.2	12.2
Intersection Summary						
		_	20.3	_	_	_
HCM 6th Ctrl Delay						
HCM 6th LOS			С			
otes			_			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection	_	_	_	_	_	_
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TTDL	1	1	1 I	UDL	^
Traffic Vol. veh/h	0	173	1466	153	٥	1110
Future Vol. veh/h	0	173	1400	153	0	1110
	0			31		
Conflicting Peds, #/hr		31	0		0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	Free	-	None
Storage Length	-	0	-	450		-
Veh in Median Storage			0	-		0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	0	173	1466	153	0	1110
Major/Minor	Minor1		Major1		Major2	
		764			viajuiz	
Conflicting Flow All			0	-		
Stage 1		-	-		-	-
Stage 2		-	-			-
Critical Hdwy		6.94	-			-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2		-	-		-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	346	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %	-			-	-	
Mov Cap-1 Maneuver	-	336				
Mov Cap-2 Maneuver						
Stage 1		-			-	
			-			-
Stage 2				-		
Approach	WB		NB		SB	
HCM Control Delay, s	26.5		0		0	
HCM LOS	D					
Minor Lane/Major Mvn	at	NDTU	VBLn1	SBT		
	nu –					
Capacity (veh/h)		-	336			
HCM Lane V/C Ratio			0.515			
HCM Control Delay (s)	-		-		
HCM Lane LOS		-	D	-		
HCM 95th %tile Q(veh)	-	2.8	-		
	,					

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Appendix F Intersection Performance Worksheets May 13, 2020

2027 Ultimate Conditions – No Transit Signal Priority

	۶	-	\mathbf{r}	1	-		1	Ť	p	U.	1	ŧ
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SB
ane Configurations	٦	^	1	٦	<u>†</u> †	1	ኘኘ	≜ î≽			35	ŧ'
Traffic Volume (veh/h)	178	1130	131	69	532	408	88	781	110	18	314	47
uture Volume (veh/h)	178	1130	131	69	532	408	88	781	110	18	314	47
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A pbT)	1.00		0.98	1.00		0.97	1.00		0.97		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach		No			No			No				N
Adj Sat Flow, veh/h/ln	1800	1772	1758	1772	1730	1786	1730	1786	1786		1786	178
Adi Flow Rate, veh/h	178	1130	131	69	532	408	88	781	110		314	47
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Percent Heavy Veh, %	0	2	3	2	5	1	5	1	1		1	
Cap, veh/h	206	1146	496	88	895	400	138	820	115		369	106
Arrive On Green	0.12	0.34	0.34	0.05	0.27	0.27	0.04	0.28	0.28		0.11	0.3
Sat Flow, veh/h	1714	3367	1456	1688	3287	1470	3196	2974	419		3300	308
Grp Volume(v), veh/h	178	1130	131	69	532	408	88	446	445		314	25
Grp Sat Flow(s),veh/h/ln	1714	1683	1456	1688	1643	1470	1598	1697	1696		1650	169
Q Serve(g s), s	12.2	40.0	7.8	4.9	16.9	32.7	3.3	31.0	31.0		11.2	14
Cycle Q Clear(g_c), s	12.2	40.0	7.8	4.9	16.9	32.7	3.3	31.0	31.0		11.2	14
Prop In Lane	1.00	10.0	1.00	1.00	10.0	1.00	1.00	01.0	0.25		1.00	
ane Grp Cap(c), veh/h	206	1146	496	88	895	400	138	468	467		369	58
//C Ratio(X)	0.86	0.99	0.26	0.79	0.59	1.02	0.64	0.95	0.95		0.85	0.4
Avail Cap(c a), veh/h	250	1146	496	162	895	400	384	468	468		396	58
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Jpstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Jniform Delay (d), s/veh	51.8	39.3	28.7	56.2	37.9	43.7	56.5	42.7	42.7		52.3	30.
ncr Delay (d2), s/veh	22.3	23.4	1.3	14.3	2.9	50.0	4.8	29.8	29.9		15.2	0.
nitial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.
%ile BackOfQ(95%),veh/In	11.1	28.6	5.7	4.5	12.1	25.6	2.6	24.4	24.4		9.6	10.
Jnsig. Movement Delay, s/veh												
_nGrp Delay(d),s/veh	74.1	62.7	30.0	70.5	40.8	93.7	61.3	72.5	72.6		67.5	30.
InGrp LOS	E	E	С	E	D	F	E	E	E		E	
Approach Vol, veh/h		1439			1009			979				83
Approach Delay, s/veh		61.1			64.2			71.6				44.
Approach LOS		E			E			E				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.7	47.3	20.0	40.0	20.9	39.1	11.8	48.2				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	34.6	14.4	* 33	17.5	28.6	14.4	* 33				
Max Q Clear Time (g_c+I1), s	6.9	42.0	13.2	33.0	14.2	34.7	5.3	16.2				
Green Ext Time (p_c), s	0.1	0.0	0.2	0.1	0.2	0.0	0.2	6.8				
ntersection Summary												
HCM 6th Ctrl Delay			61.0									
ICM 6th LOS			E									
			-									
Votes												
Jser approved ignoring U-Turr												
HCM 6th computational engin	ne requir	es equal (clearance	times for	r the phas	es crossi	ng the ba	rrier.				

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

	-
Movement	SBR
Lanconfigurations	
Traffic Volume (veh/h)	50
Future Volume (veh/h)	50
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1786
Adj Flow Rate, veh/h	50
Peak Hour Factor	1.00
Percent Heavy Veh, %	1
Cap, veh/h	112
Arrive On Green	0.34
Sat Flow, veh/h	326
Grp Volume(v), veh/h	263
Grp Sat Flow(s),veh/h/ln	1719
Q Serve(g_s), s	14.2
Cycle Q Clear(g_c), s	14.2
Prop In Lane	0.19
Lane Grp Cap(c), veh/h	592
V/C Ratio(X)	0.44
Avail Cap(c_a), veh/h	592
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	30.5
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	10.7
Unsig. Movement Delay, s/ve	
LnGrp Delay(d),s/veh	31.0
LnGrp LOS	С
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

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HCM 6th Signalized Intersection Summary

2: Baseline Road						-,-
	1	-	+	~	>	
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	3	44	≜ 1₀		1	1
Traffic Volume (veh/h)	66	1454	966	60	43	57
Future Volume (veh/h)	66	1454	966	60	43	57
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00			0.99	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approact	h	No	No		No	
	1772	1772	1772	1772	1772	1772
Adi Flow Rate, veh/h	66	1454	966	60	43	57
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap. veh/h	84	2759	2317	144	136	121
Arrive On Green	0.05	0.82	0.72	0.72	0.08	0.08
Sat Flow, veh/h	1688	3455	3307	200	1688	1502
	66	1454	505	521	43	57
Grp Volume(v), veh/h						
Grp Sat Flow(s),veh/h/ln		1683	1683	1734	1688	1502
Q Serve(g_s), s	4.6	16.5	14.4	14.4	2.9	4.4
Cycle Q Clear(g_c), s	4.6	16.5	14.4	14.4	2.9	4.4
Prop In Lane	1.00	0750	1010	0.12	1.00	1.00
Lane Grp Cap(c), veh/h		2759	1212	1249	136	121
V/C Ratio(X)	0.79	0.53	0.42	0.42	0.32	0.47
Avail Cap(c_a), veh/h	127	2759	1212		450	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		3.4	6.7	6.7	52.1	52.7
Incr Delay (d2), s/veh	17.1	0.7	1.1	1.0	1.3	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/In4.4	10.0	10.0	10.2	2.4	6.7
Unsig. Movement Delay	, s/veh	1				
LnGrp Delay(d),s/veh	73.6	4.2	7.8	7.7	53.4	55.6
LnGrp LOS	E	A	A	A	D	E
Approach Vol. veh/h		1520	1026		100	_
Approach Delay, s/veh		7.2	7.8		54.7	
Approach LOS		A	7.0 A		D	
			A	_		
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc)		104.2		15.8	11.9	92.2
Change Period (Y+Rc),		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gm	ax), s	* 76		* 32	9.0	* 61
Max Q Clear Time (g_c+		18.5		6.4	6.6	16.4
Green Ext Time (p_c), s		42.9		0.5	0.0	23.9
Intersection Summary						
HCM 6th Ctrl Delay			9.2			-
HCM 6th LOS			9.2 A			
HOW BUILUS			A			
es						

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TTDL	1	^	NDI	UDL	111
Traffic Vol, veh/h	0				٥	
	0	58 58	1313 1313	72	0	819
Future Vol, veh/h	0			72	0	819
Conflicting Peds, #/hr	0	9	0	9	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		Stop	-	Free	-	
Storage Length	-	0		450		-
Veh in Median Storage			0			0
Grade, %	0		0		-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	2	1
Mvmt Flow	0	58	1313	72	0	819
Major/Minor	Minor1	,	Major1		laia n	
			Major1		Major2	
Conflicting Flow All	-	666	0	-		
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-		-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	402	-	0	0	-
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	
Platoon blocked, %	-			-	-	
Mov Cap-1 Maneuver	-	399		-	-	
Mov Cap-2 Maneuver		- 355				
Stage 1				-		
		-	-			
Stage 2				-		
Approach	WB		NB		SB	
HCM Control Delay, s	15.6		0		0	
HCM LOS	10.0 C		0		0	
LOO LOO	U					
Minor Lane/Major Mvm	nt	NBTV	VBLn1	SBT		
Capacity (veh/h)			399	-		
HCM Lane V/C Ratio			0.145			
HCM Control Delay (s)			15.6			
HCM Lane LOS			C			
HCM 95th %tile Q(veh)	\		0.5			

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Novement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SE
ane Configurations	٦	<u>†</u> †	1	٦	<u>†</u> †	1	ሻሻ	≜ î≽			31	t t
raffic Volume (veh/h)	160	926	226	133	1221	561	315	830	96	30	381	63
Future Volume (veh/h)	160	926	226	133	1221	561	315	830	96	30	381	63
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach		No			No			No				Ν
Adj Sat Flow, veh/h/ln	1772	1772	1786	1786	1772	1786	1786	1786	1786		1786	180
Adj Flow Rate, veh/h	160	926	226	133	1221	561	315	830	96		381	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Percent Heavy Veh, %	2	2	1	1	2	1	1	1	1		1	
Cap, veh/h	149	1155	499	150	1155	497	362	775	90		366	77
Arrive On Green	0.09	0.34	0.34	0.09	0.34	0.34	0.11	0.25	0.25		0.11	0.2
Sat Flow, veh/h	1688	3367	1454	1701	3367	1449	3300	3045	352		3300	302
Grp Volume(v), veh/h	160	926	226	133	1221	561	315	462	464		381	35
Grp Sat Flow(s), veh/h/ln	1688	1683	1454	1701	1683	1449	1650	1697	1701		1650	171
Q Serve(g s), s	11.5	32.4	15.7	10.1	44.6	44.6	12.2	33.1	33.1		14.4	25
Cycle Q Clear(q c), s	11.5	32.4	15.7	10.1	44.6	44.6	12.2	33.1	33.1		14.4	25
Prop In Lane	1.00	JZ.4	1.00	1.00	44.0	1.00	1.00	33.1	0.21		1.00	20
Lane Grp Cap(c), veh/h	149	1155	499	150	1155	497	362	432	433		366	43
V/C Ratio(X)	1.07	0.80	0.45	0.88	1.06	1.13	0.87	1.07	1.07		1.04	0.8
Avail Cap(c a), veh/h	149	1155	499	150	1155	497	366	432	433		366	43
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	4.52	433		1.00	43
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Uniform Delay (d), s/veh	59.2	38.7	33.2	58.6	42.7	42.7	57.0	48.5	48.5		57.8	45
	94.1	5.9	3.0	41.5	42.7	42.7	19.6	63.4	63.4		58.5	40
Incr Delay (d2), s/veh												
Initial Q Delay(d3),s/veh	0.0 14.3	0.0	0.0	0.0 10.4	0.0	0.0 40.0	0.0	0.0 31.3	0.0 31.4		0.0	0
%ile BackOfQ(95%),veh/In Unsig. Movement Delay, s/veh		21.5	10.0	10.4	36.1	40.0	10.4	31.3	31.4		14.6	18
	153.4	44.6	36.2	100.1	85.7	123.4	76.6	111.8	111.8		116.3	56
LnGrp Delay(d),s/veh	100.4 F	44.0 D	30.2 D	100.1 F	00.7 F	123.4 F	70.0 E	F	F		F	
LnGrp LOS	г		U	г		F	E		F		F	
Approach Vol, veh/h		1312			1915			1241				109
Approach Delay, s/veh		56.4			97.7			102.9				77
Approach LOS		E			F			F				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	51.0	21.0	40.0	18.0	51.0	20.9	40.1				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	44.6	14.4	* 33	11.5	44.6	14.4	* 33				
Max Q Clear Time (g c+11), s	12.1	34.4	16.4	35.1	13.5	46.6	14.2	27.6				
Green Ext Time (p c), s	0.0	8.0	0.0	0.0	0.0	0.0	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			85.2									_
HCM 6th LOS			F									
Votes												
User approved ignoring U-Turr												
* HCM 6th computational engir	ne requir	es equal (clearance	e times foi	r the phas	ses crossi	ng the ba	irrier.				
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HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

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Movement	SBR
Land Configurations	0011
Traffic Volume (veh/h)	81
Future Volume (veh/h)	81
Initial Q (Qb), veh	0
Ped-Bike Adj(A pbT)	0.94
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1800
Adj Flow Rate, veh/h	81
Peak Hour Factor	1.00
Percent Heavy Veh, %	0
Cap, veh/h	99
Arrive On Green	0.26
Sat Flow, veh/h	388
Grp Volume(v), veh/h	355
Grp Sat Flow(s),veh/h/ln	1699
Q Serve(q s), s	25.6
Cycle Q Clear(g_c), s	25.6
Prop In Lane	0.23
Lane Grp Cap(c), veh/h	434
V/C Ratio(X)	0.82
Avail Cap(c_a), veh/h	434
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	45.5
Incr Delay (d2), s/veh	11.6
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	18.8
Unsig. Movement Delay, s/ve	
LnGrp Delay(d),s/veh	57.1
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
rinici - Adaigneu Filis	

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HCM 6th Signalized Intersection Summary

ane Configurations M M M M Traffic Volume (vehh) 132 1400 1758 154 163 169 Uture Volume (vehh) 132 1400 1758 154 163 169 Inite O (Ud), veh 0 0 0 0 0 0 Parking Bus, Adj 100 100 100 100 100 Verk Zno Ch Approch No No No No Velg Sat Flow, vehhnin 172 1772 1772 1772 Velg Sat Flow, vehhnin 158 154 163 169 *eak Hour Factor 100 100 100 100 *eact Heavy Veh, % 2 2 2 2 2 Say Vehhn 158 2593 1974 170 232 206 vrine On Green 0.09 0.77 0.63 0.63 0.14 0.14 333 379 163 169 332 202 206 77 700 100 103 205 206 77 0.63 <t< th=""><th>2: Baseline Roa</th><th>id & F</th><th>Privat</th><th>ie Ac</th><th>cess</th><th>1</th><th></th></t<>	2: Baseline Roa	id & F	Privat	ie Ac	cess	1	
ane Configurations M M M M Traffic Volume (vehh) 132 1400 1758 154 163 169 Uture Volume (vehh) 132 1400 1758 154 163 169 Inite O (Ud), veh 0 0 0 0 0 0 Parking Bus, Adj 100 100 100 100 100 Verk Zno Ch Approch No No No No Velg Sat Flow, vehhnin 172 1772 1772 1772 Velg Sat Flow, vehhnin 158 154 163 169 *eak Hour Factor 100 100 100 100 *eact Heavy Veh, % 2 2 2 2 2 Say Vehhn 158 2593 1974 170 232 206 vrine On Green 0.09 0.77 0.63 0.63 0.14 0.14 333 379 163 169 332 202 206 77 700 100 103 205 206 77 0.63 <t< th=""><th></th><th>۶</th><th>-</th><th>+</th><th>*</th><th>1</th><th>1</th></t<>		۶	-	+	*	1	1
Traffic Volume (vehn) 132 1400 1758 154 163 169 Usure Volume (vehn) 132 1400 1758 154 163 169 Vibur Volume (vehn) 132 1400 1788 154 163 169 Vibur Volume (vehn) 132 1400 1788 154 163 169 Vibur Xarang Das, Adj 100 1.00 1.00 1.00 1.00 1.00 Vibur Xarang Das, Adj 100 1.00 1.00 1.00 1.00 1.00 Vibur Xarang Das, Adj 1172 1772 1772 1772 1772 1772 Vibur Xarang Das, Adj 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Vibur Xarang Das, Adj 1.82 1.93 1.971 1.83 1.902 2.2 2	Movement	EBL	EBT	WBT	WBR	SBL	SBR
Linure Vorthin 122 140 1758 154 163 169 Briell Q (Db), veh 0 0 0 0 0 0 0 Parking BQ (Ab), veh 0 0 100 100 100 Parking Bus, Adj 100 100 100 100 100 Verk Zone On Approach No No No Mig Sal Flow, vehnhin 172 1772 1772 1772 Verk Zone On Approach No No No No Peak Hour, Factor 100 100 100 100 100 100 Verk On Green 0.0 100 100 100 100 100 100 Sar Flowis, Wehth 188 253 1974 1170 232 206 Sp Volume(V), Vehh 132 1400 333 150 150 150 150 150 150 150 150 150 150 150 150 150 150	Lane Configurations	1	44	≜î ≽		1	1
ninal Q (Co), vish 0 0 0 0 0 Verificing Bus, Aql Verificing Bus, Verificing Bus, Aql Verificing Bus, A	Traffic Volume (veh/h)	132			154	163	
nihal (Q (Q), véh 0 0 0 0 0 0 0 0 Parking Bus, Adj 100 100 100 100 100 100 100 100 100 10	Future Volume (veh/h)	132	1400	1758	154	163	169
Parking Bus, Arg 1.00 1.00 1.00 1.00 Veck Zone Gn Apersoch No No No Veck Zone Gn Apersoch Vir 1772 1772 1772 1772 Vig Sa Flow, veshihlin 1772 1772 1772 1772 1772 Veck Hour Factor 1.00 1.00 1.00 1.00 1.00 Verseent Heavy Vesh, % 2 2 2 2 2 2 Arrive On Green 0.09 0.77 0.63 0.33 1.40 1.44 Sta Flow (veshihline 188 1683 1717 1888 1502 20 <t< td=""><td>Initial Q (Qb), veh</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></t<>	Initial Q (Qb), veh	0	0	0	0	0	0
Not. Zaro Dn Ágorasch No No váj Sa Fliow, vehhlin 1772 1771 188 1502 30 170 163 169 30 173 163 163 163 163 163 163 163 163 163 163 163 163 163 163 163 163	Ped-Bike Adj(A pbT)	1.00			0.98	1.00	1.00
kij Sak Flow, vehinh 1772 1772 1772 1772 1772 vij Flow Rate, volt, ho 12 100 100 100 100 100 Parcert Heary Veh, % 2 <td>Parking Bus, Adj</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td>	Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
kij Sak Flow, vehinh 1772 1772 1772 1772 1772 vij Flow Rate, volt, ho 12 100 100 100 100 100 Parcert Heary Veh, % 2 <td></td> <td>ch</td> <td>No</td> <td>No</td> <td></td> <td>No</td> <td></td>		ch	No	No		No	
hig File Male, wehh 12 1400 1758 154 163 169 Seak Hour Facent Heary Veh, % 2			1772	1772	1772	1772	1772
Percent Heavy Veh, % 2	Adi Flow Rate, veh/h	132	1400	1758	154	163	169
Jag, wehn 158 2693 1974 170 232 206 Virwe On Green 0.99 0.7 0.63 0.53 0.14 0.15 0.16 100 1.02 0.15 0.16 1.00	Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Jag, wehn 158 2693 1974 170 232 206 Virwe On Green 0.99 0.7 0.63 0.53 0.14 0.15 0.16 100 1.02 0.15 0.16 1.00	Percent Heavy Veh, %						
nmine On Green 0.09 0.77 0.63 0.14 0.14 Sat Flow, wehn 1688 352 9219 270 1688 1502 Sip Sat Flow(s), wehn 132 1400 933 97 163 169 Sip Sat Flow(s), wehn 132 1400 933 97 163 169 Sip Sat Flow(s), wehn 132 1400 933 97 163 169 Sip Sat Flow(s), wehn 100 21.3 596 63.8 12.0 14.2 Orgo In Lane 0.00 21.3 596 63.8 12.0 14.2 Orgo In Lane 0.04 0.84 0.80 0.80 0.07 0.82 Vail Cap(c, a), wehn 0.84 0.80 0.80 0.00 100 100 Jackream Filter(1) 0.100 1.00 1.00 1.00 1.00 1.00 Jackream Filter(1) 1.00 1.00 1.00 1.00 1.00 1.00 Jackream Filter(1) <td< td=""><td>Cap, veh/h</td><td></td><td>2593</td><td>1974</td><td></td><td></td><td></td></td<>	Cap, veh/h		2593	1974			
Sat Flow, wehn 1688 3455 3219 270 1688 1502 Sip Volume(v), wehn 132 1400 933 979 163 169 Sip Volume(v), wehn 132 1400 933 979 163 169 Sip Volume(v), wehn 132 1400 933 979 163 169 Sip Volume(v), wehn 132 1400 933 979 163 169 Sip Volume(v), wehn 132 596 63.8 12.0 14.2 Yopo In Lane 1.00 1.06 100 1.00 1.00 ane Gro Cap(c), wehn 158 259 1628 153 70 Yold Caer(c), wehn 158 1602 103 1.00 1.00 Jay Caer(c), wehn 158 1602 103 1.00 1.00 Jay Caer(c), wehn 158 1051 1051 1.00 1.00 Jay Caer(c), wehn 154 1051 1051 1.00 1.00 Jay Caer(c), wehn 154 1051 12.3 39 7.8 Indica Delay(s), wehn 1532 1912 332 17.4 Jay Caer(C) 152 1912 332 Upproach Delay, Sveh 124 31.6 59 <td>Arrive On Green</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Arrive On Green						
Sprevige.sp. 1400 933 979 163 169 Sp Sar Flow(s), wehn 1688 1683 1683 1631 169 Sp Sar Flow(s), wehn 1688 1683 1683 1717 1688 1502 Spred(g. s), s 100 21.3 59.6 63.8 12.0 14.2 Orgo In Lane 1.00 2.13 59.6 63.8 12.0 14.2 Orgo In Lane 0.00 2.13 59.6 63.8 12.0 14.2 Orgo In Lane 0.00 2.13 59.6 63.8 12.0 14.2 Orgo In Lane 0.06 0.80 0.00 0.0 0.0 0.0 Orgo Pacify, ewh 1.84 2.83 1062 1083 415 370 CVC Retick On Swh 50 0.9 1.00 1.00 1.00 1.00 1.00 Inform Deley (3), when 50 0.9 19.9 2.6 3.5 5.4 5 Inform Deley (3), when 50 0.0 0.0 0	Sat Flow, veh/h	1688	3455	3219	270	1688	1502
Sip Sat Fow(s), verhium 88 1683 1717 1888 1502 Serve(s, s), s 10.0 21.3 59.6 63.8 12.0 14.2 Yop In Lane 10.0 21.3 59.6 63.8 12.0 14.2 Yop In Lane 10.0 106 10.0 100 100 100 are Grp Cap(c), verhi 158 259 163.8 12.0 14.2 Yop In Lane 10.0 1062 103.3 222 06 //C Ratio(X) verhi 158 259 1062 103.3 222 06 //C Ratio(X) verhi 152 102 103.4 153 70 CCM Platom Ratio 100 100 100 100 100 100 100 100 Jpatram Filler(I) 10.0 10.0 10.0 10.0 100 100 100 100 100 100 100 100 100 100 100 100 100 100	Grn Volume(v) veh/h	132		933	979	163	169
2 Serve(g, s), s 10.0 21.3 59.6 63.8 12.0 14.2 Syde Q Clear(g, c), s 10.0 21.3 59.6 63.8 12.0 14.2 are Gip Cap(c), seth 158 29.3 168.1 10.0 1.00 are Gip Cap(c), seth 58.4 29.3 1062 1083 22.2 206 VC Ratio(X) 0.44 0.54 0.68 0.90 0.70 0.82 Viail Cap(c, a), veth 1.04 1.00 1.00 1.00 1.00 1.00 Jpsteam Filter(I) 1.00 1.00 1.00 1.00 1.00 1.00 Jpsteam Filter(I) 1.00 1.00 1.00 1.00 1.00 1.00 JabcKOGQ(95%), vehift 6.9 13.1 36.3 39.7 7.8 10.10 1.00 Indip Delay(S), vehift 7.4 6.7 3.02 2.9 5.7.4 62.3 10.2 1.02 Approach Delay, Siveh 1.6 7.0 2.2.9 5.7.4 62.3							
Syde 0 Clearing c.), s 10.0 21.3 59.6 63.8 12.0 14.2 Prop In Lane 1.00 0.16 1.00 1.00 1.00 and Grip Cap(0), vehh 158 259.3 1062 108.3 222 206 //C Ratio(X) 0.84 0.54 0.83 0.90 0.70 0.82 Vaid Cap(c.), vehh 158 259.3 1062 108.3 155.3 70 CKM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Japteman Filler(T) 1.00 1.00 1.00 1.00 1.00 1.00 Japteman Filler(T) 1.00 1.00 1.00 1.00 1.00 1.00 Japteman Filler(T) 1.01 1.03 1.23 3.9 7.8 India D Delay(Gl2), Siveh fro.0 0.0 0.0 0.0 0.0 0.0 Japtemach Hotely 15.3 6.7 20.2 2.9 7.4 62.3 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
Top Lange 1.00 0.16 1.00 Top Lange 1.00 1.00 1.00 Jane Grp Cap(c), with 158 253 162 103 222 266 J/C Ratic (X) 0.84 0.54 0.88 0.90 0.70 0.82 J/C Ratic (X) 0.84 0.54 0.88 0.90 0.70 0.82 Vial C Cap (c, a), with 1.00 1.00 1.00 1.00 1.00 1.00 Jpsteam Filter(I) 1.00 1.00 1.00 1.00 1.00 1.00 Jinform Delay (c), siveh 158 0.8 10.3 1.23 3.9 7.8 Inicial O Delay (c), siveh 1.3 36.3 3.9.7 9.6 17.4 Jnsig, Movement Delay, siveh 1.34 5.0 6 2.3 .6 Androp Delay (c) siveh 1.52 1.912 3.32 2.9 57.4 62.3 Androp Delay, Siveh 1.24 3.16 5.9 9							
ande Gro Cap(c), wehh 188 293 1062 1083 322 206 //C Ratic(X) 0.84 0.64 0.88 0.90 70 0.82 //C Ratic(X) 0.84 0.64 0.88 0.90 70 0.82 //CM Platbon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 Juniorm Delay (G), siveh 50. 5.9 1.93 2.06 5.3 5.4.5 Juniorm Delay (G), siveh 50. 5.9 1.92 2.06 5.3 5.4.5 Juniorm Delay (G), siveh 50. 5.9 1.93 2.06 5.3 5.4.5 Juniorm Delay (G), siveh 50. 0.0 0.0 0.0 0.0 0.0 Juniorm Delay (G), siveh 73.4 6.7 30.2 2.9 57.4 62.3 Androg Delay (G), siveh 73.4 6.7 30.2 32.9 57.4 62.3 Androg Delay (G), siveh 73.4 6.7 30.2 32.9 57.4 62.3 Approach Delay, siveh 1.64 59.9			21.0	00.0			
MC Rain(x) 0.84 0.54 0.88 0.90 0.70 0.82 Maxil Cap(c.), which 234 258 1062 1083 155 370 HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 Jpaream Filter(1) 1.00 1.00 1.00 1.00 1.00 1.00 Jpaream Filter(1) 0.00 1.00 1.00 1.00 1.00 Jinform Delay (0), siveh 560 5.9 1.99 2.05 5.5 5.5 Arron Delay (0), siveh 560 5.9 1.92 2.05 5.5 5.5 Inicial O Delay(3), siveh 0.0 0.0 0.0 0.0 0.0 Jikie BackOf(2)(5%), wehl filds 0.7 0.2 2.9 7.4 62.3 Indig Delay, Glaveh 7.3.4 6.7 30.2 2.9 57.4 62.3 Indig Delay, Glaveh 7.3.4 6.7 30.2 2.9 57.4 62.3 Indig Delay, Glaveh 7.3.4 6.7 30.2 2.9 57.4 62.3 Indig Delay, Glaveh 1.23 31.9 3.2 2.9 57.4 62.3 Indig Delay, Glaveh 1.24 31.6 5.9 6 5.8 <td></td> <td></td> <td>2593</td> <td>1062</td> <td></td> <td></td> <td></td>			2593	1062			
Valid Cap(-2), veh/h 24 2533 1052 1053 415 370 UCM Platoon Ratio 100 1.00 1.00 1.00 1.00 1.00 Jpstream Filter(I) 1.00 1.00 1.00 1.00 1.00 1.00 Jnform Delay (C), sveh 56. 5.9 19.2 20.6 53.3 54.5 Inform Delay (C), sveh 56. 0.8 1.03 12.3 3.9 7.8 Infeld Delay(C3), sveh 10 0.0 0.0 0.0 0.0 0.0 0.0 Infeld Delay(C3), sveh 7.34 6.7 30.2 32.9 57.4 62.3 ArGrp Delay (A), sveh 7.34 6.7 30.2 32.9 57.4 62.3 Argorach Vol, veh/h 152.3 1912 33.2 332 332 Approach Delay, sveh 1.24 31.6 59.9 57.4 62 Stange Proid VH/H 152.3 162 20.5 58 52.2 6 Stange Proid VH/Rely, s 16.8 52.3							
CACM Plackon Ratio 1.00 1.00 1.00 1.00 1.00 Upstream Filter(I) 1.00 1.00 1.00 1.00 1.00 1.00 Inform Delay (O), siveh 58.0 5.9 19.9 20.6 53.5 54.5 Inform Delay (O), siveh 58.0 5.9 19.9 20.6 53.5 54.5 Inform Delay (O), siveh 58.0 0.8 10.3 12.3 3.9 7.8 Intid O Delay(Six) siveh 0.0 0.0 0.0 0.0 0.0 0.0 Neigh Overement Delay, siveh 13.1 36.3 39.7 9.6 17.4 Insig, Moverement Delay, siveh 152 1912 332 32. 59.9 Opproach Delay, Siveh 12.4 31.6 59.9 59.9 59.9 Opproach Delay, Siveh 12.4 31.6 59.9 52.6 6 Strange Preiod (Y-Rc), s 105.9 24.1 18.1 87.8 56.8 Jange Preiod (Y-Rc), s 105.9 42.1 18.1 87.8		234			1083	415	370
Jpetream Filter(1) 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.						1.00	
Jinform Delay (j), sveh 8:0 5.9 19.9 20.6 63.5 54.5 nar Delay (d)2), sveh 15.4 0.8 10.3 12.3 3.9 7.8 Inidial D Delay (d)2), sveh 15.4 0.8 10.3 12.3 3.9 7.8 Niel B DackO(2), Siveh 10 0.0 0.0 0.0 0.0 0.0 Nie BackO(2), Siveh 10.9 13.1 36.3 39.7 9.6 17.4 Jnörp Delay, Siveh 7.4 67.7 20.2 57.4 62.3 Joprach Vol, veh/h 1532 1912 332 9.6 17.4 Joprach Vol, veh/h 1532 1912 332 9.7 46.7 Vaproach Vol, veh/h 1532 1912 332 9.7 46.7 Upproach Vol, veh/h 1532 1912 332 9.7 8 17.4 Joprach Vol, veh/h 1532 1912 332 32.9 59.9 9 Joprach Vol, Veh/h 153 15.6 58.9 62.9 65.8 62							
ncr Delay (d2), s'veh 15,4 0,8 10,3 12,3 3,9 7,8 micial O Delay(53), veh 10, 0,0 0,0 0,0 0,0 0,0 Mile BackO((35%), veh 16,9 13,1 36,3 39,7 9,6 17,4 Jrsg, Movement Delay, s'veh mörp Delay(58%), veh 16,7 30,2 32,9 57,4 62,3 mörp Delay(58%), veh 17,4 6,7 30,2 32,9 57,4 62,3 mörp Delay(58%), veh 17,4 6,7 30,2 32,9 57,4 62,3 mörp Delay(58%), veh 15,4 1912 33,2 Approach Delay, siveh 12,4 31,6 59,9 Approach Delay, siveh 12,4 11,8 1,8 17,8 Jrange Period (Y-Rc), s '8,6 '6,2 6,0 '5,8 Jack Green Setting (Gmax), s '86 '6,2 12,0 65,8 Green Ext Time (p, c), s 43,9 1,6 0,3 0,0 Intersection Summary Hot Mich DC Belay 26,3 Hot Mich DC Belay 26,3							
nitial 0 Celleny(d3), siveh 0 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.							
Sile BackOrd(265%), wehlte 9 13.1 36.3 39.7 9.6 17.4 Jrsig, Movement Delay, Sveh Trip Delay(d), Sveh 73.4 6.7 30.2 32.9 57.4 62.3 Inför Delay(d), Sveh 73.4 6.7 30.2 32.9 57.4 62.3 Inför Delay(d), Sveh 73.4 6.7 30.2 32.9 57.4 62.3 Andro Delay, Sveh 15.2 1912 33.2 32.2 57.4 62.3 Approach Delay, Sveh 12.4 31.6 59.9 59.9 59.7 60.7 56.7 Strange Priod (Y+RC), s 105.9 24.1 18.1 87.8 56. 56.2 6 56.8 6 44.0 56.8 56.2 56.8 56.2 56.8 56.2 56.8 56.2 56.8 56.2 56.8 56.8 56.8 56.8 56.2 56.8 56.8 56.2 56.8 56.8 56.8 56.2 56.8 56.8 56.2 56.8 56.2							
Jnsig, Movement Delay, Sveh							
Jndrp Delay(d)s/hei T3.4 6.7 20.2 2.9 7.4 6.2 2.3 Jngrp LOS E A C C E E Agroach Vol, veh/h 1532 1912 332 332 5.9 5.9 Upproach LOS B C C E E 5.9 5.9 Upproach LOS B C E E 5.6 5.2 5.2 5.8 5.2 5.8 <td></td> <td></td> <td></td> <td>00.0</td> <td>00.1</td> <td>0.0</td> <td></td>				00.0	00.1	0.0	
Indirg LOS E A C C E E typprach Delys, lveh 1532 1912 332				30.2	32.9	57.4	62.3
Approach Delay, Sveh 1532 1912 332 Approach Delay, Sveh 12.4 31.6 59.9 Approach Delay, Sveh 12.4 31.6 59.9 Timer - Assigned Phs 2 4 5 6 Thange Period (Y+Rc), s 105.9 24.1 18.1 87.8 Abarge Period (Y+Rc), s 5.8 *6.2 6.0 *5.8 Max Green Setting (Gmax), s *66 *32 18.0 *62 Max O Clear Time (g_c-H1), s 33 1.6 0.3 0.0 Intersection Summary 26.3 - - - CM 6th LOEs C C - -							
Approach LOS 12.4 31.6 59.9 Approach LOS B C E Immer - Assigned Phs 2 4 5 6 Phs Duration (G+V+Rc), s 105.9 24.1 18.1 87.8 Danage Period (V+Rc), s *65 -6.0 7.5.8 Assa Q Clear Time (g, c+fl), s 23.3 16.2 12.0 65.8 refere Ext Time (g, c), s 43.9 1.6 0.3 0.0 Interseeting Summary 26.3 - - - 4CM 6th LDS C C - - -							
Approach LOS B C E Immer - Assigned Phs 2 4 5 6 Phs Duration (G+Y+Rc), s 105.9 24.1 18.1 87.8 Dhange Period (Y+Rc), s 5.8 +6.2 6.0 *5.8 Asa Crean Time (G-ex), s *86 *32 18.0 *62 Ava Colear Time (g-crit), s 33 16.2 12.0 65.8 Breen Ext Time (p, c), s 43.9 1.6 0.3 0.0 Intersection Summary 26.3 - - CM 6th C/D Felay 26.3 - -							
Immer - Assigned Phis 2 4 5 6 Phis Duration (G+V+Rc), s 105.9 24.1 18.1 87.8 Dhange Period (V+Rc), s 16.8 16.0 5.8 48.2 48.3 48.2 48.4							
Phs Duration (G+Y+Rc), s 105.9 24.1 18.1 87.8 Phange Perod (Y+Rc), s *5.8 *5.8 *6.2 6.0 *5.8 Mack Green Setting (Gmax), s *86 *32 18.0 *62 Jax Q Clear Time (gc+11), s 23.3 16.2 12.0 65.8 Jareen Ext Time (pc), s 43.9 1.6 0.3 0.0 Intersection Summary CM 6th Ctrl Delay 26.3 CM CCM 6th LOS C C C			-			-	·
Change Period (Y+Rc), s *5.8 *6.2 6.0 *5.8 Jaca Green Setting (Gmax), s *86 *3.2 18.0 *62 Jaca Clear Time (g_c)+11, s 23.3 16.2 12.0 65.8 Jreen EX Time (g_c,c), s 43.9 1.6 0.3 0.0 Intersection Summary C C Koll Chart Time (g_c, G_c) Koll Chart Time (G_c) CM 6th Ch Delay 26.3 C C Koll Chart Time (G_c) Koll Chart Time (G_c)							
Jax-Cireen Setting (Gmax), s *86 *32 18.0 *62 Jax-Oclear Time (g_c-chl), s 23.3 16.2 12.0 65.8 Green Ext Time (g_c-c), s 43.9 1.6 0.3 0.0 Intersection Summary							
Jax Q Clear Time (g.c+11), s 23.3 16.2 12.0 65.8 Sreen Ext Time (p.c), s 43.9 1.6 0.3 0.0 Intersection Summary CM 61b (CH Delay 26.3 CM 61b (CH Delay 26.3 ICM 61b LOS C C C C C							
Green Ext Time (p. c), s 43.9 1.6 0.3 0.0 Intersection Summary CM 6th Chr Delay 26.3							
ntersection Summary HCM 6th Ctrl Delay 26.3 HCM 6th LOS C							
HCM 6th Ctrl Delay 26.3 HCM 6th LOS C	Green Ext Time (p_c), :	S	43.9		1.6	0.3	0.0
ICM 6th LOS C	ntersection Summary						
	HCM 6th Ctrl Delay						
Inter	HCM 6th LOS			С			
	lotes						

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
	WDL	WDR			ODL	
Lane Configurations	0		††		0	
Traffic Vol, veh/h	0	156	1436	145		1062
Future Vol, veh/h	0	156	1436	145	0	1062
Conflicting Peds, #/hr	0	31	0	31	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		Stop	-	Free	-	
Storage Length	-	0	-	450		-
Veh in Median Storage		-	0		-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	0	156	1436	145	0	1062
	Minor1		Major1		Major2	
Conflicting Flow All	-	749	0		-	
Stage 1	-	-	-			-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-		-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	354	-	0	0	
Stage 1	0			0	0	
Stage 2	0			0	0	
Platoon blocked. %	v				•	
Mov Cap-1 Maneuver		344				
Mov Cap-2 Maneuver		- 044				
Stage 1		-				
		-				-
Stage 2	-			-		
Approach	WB		NB		SB	
HCM Control Delay, s	23.9		0		0	
HCM LOS	C		-		-	
110101200	0					
Minor Lane/Major Mvn	nt	NBTV	VBLn1	SBT		
Capacity (veh/h)		-	344	-		
HCM Lane V/C Ratio		-	0.453	-		
HCM Control Delay (s)	-	23.9			
HCM Lane LOS		-	С			
HCM 95th %tile Q(veh)	-	2.3			
Home of Action	7		2.0			

1357 Baseline Road 09/16/2019 2027 Ult_NoTSP_PM

01/08/2020

Appendix F Intersection Performance Worksheets May 13, 2020

2027 Ultimate Conditions – Soft Transit Signal Priority

Peak Hour Factor 1.00 0.37 0.37 0.37 0.36 0.32 0.32 0.34 0.28 0.29 0.25 0.31 1.33 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0	1	
Taffic Volume (vehh) 175 1130 131 69 552 408 88 781 110 11 vuluer Volume (vehh) 78 1130 131 69 552 408 88 781 110	SBL	
raffic Volume (veh/h) 178 1130 131 69 532 408 88 781 110 11 vitter Volume (veh/h) 178 1130 131 69 532 408 88 781 110 11 vitter Volume (veh/h) 178 1130 131 69 532 408 88 781 110 11 veh/hth 178 1130 131 69 532 408 88 781 110 10 Veh/bk 0 0 0.0 0.77 1730 1786 1730 1786 1730 1786 1730 1786 1730 1786 1730 1786 1730 1786 1786 1786 110 110 100	រីរ៉ា	1
nihal Q (Qb), wh 0	314	
Vert Bits Adj(A, pbT) 1.00 0.98 1.00	314	
Parking Bus, Arg 1.00 No No Voit Zone On Approach No	0	1
Voix Z. one On Ågorrasch No No No No vigi Sak Elow, vehhin 100 1772 1788 1772 1736 1786 1786 vigi Sak Elow, vehhin 100 100 100 100 100 100 100 veak Hour Factor 100<	1.00	
Volx Zone On Approach No No No No Violx Zone On Approach No 1772 1758 1772 1778 1730 1786 1786 vigi Flow, Rate, veh/h 178 1130 131 69 532 408 88 781 110 veak Hour Factor 1.00 1.01 1.02 1.02 2.02 0.2 3.0 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10 3.10	1.00	
igi Sat Flow, vehh/in 1200 1726		
Name Name <th< td=""><td>1786</td><td>1</td></th<>	1786	1
Peak Hour Factor 1.00 0.37 0.37 0.37 0.36 0.32 0.32 0.34 0.28 0.29 0.25 0.31 1.33 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0	314	
Parcent Heavy Veh, % 0 2 3 2 5 1 5 1 1 Dap, wehh 164 1231 533 88 1058 474 136 820 115 Star Flow, wehh 164 1231 533 88 1058 474 136 820 115 Star Flow, wehh 1714 3367 1457 1688 2027 1474 3156 2524 0.28 0.28 Star Flow, shehh 1714 3367 1457 1688 2627 1474 3156 2524 0.88 844 445 3tr Sour, wehh 1714 1838 1457 1688 1643 1474 1598 1697 1696 3tr Ocionacionacionacionacionacionacionaciona	1.00	
Sap, wehn 164 1231 533 88 1058 474 136 82.0 115 Say, Vehn 0.0 0.37 0.37 0.05 0.28 2.32 0.40 0.28 0.28 Sat Flow, vehin 1714 3367 1457 1688 3287 1474 3196 2974 419 3p Volume(V), vehin 1714 1836 167 1688 1634 1474 1986 1694 1696 3p Volume(V), vehin 1714 183 157 1688 1634 1474 1586 1697 111 3.3 31.0	1	
Three On Green 0.10 0.37 0.37 0.05 0.32 0.32 0.04 0.28 0.28 3at Flow, webh 1714 3367 1457 1688 3287 1474 3196 2974 419 3at Flow, webh 1714 3367 1457 1688 3287 1474 3196 2974 419 3ip Sat Flow(s), veh/h 177 1130 131 69 552 408 84 444 3ip Sat Flow(s), veh/h 1714 1683 1477 1588 75 49 15.7 31.1 33 31.0 31.0 Sterre(g. s), s 11.5 38.5 7.5 49 15.7 31.1 33 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 31.0 30.0 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	286	
Sat Flow, web/h 17/4 3367 1457 1688 2367 1474 3196 2974 419 3p Volume(v), web/h 178 1130 131 69 532 408 88 446 445 3p Volume(v), web/h 178 1130 131 69 532 408 88 446 445 3p Volume(v), web/h 178 113 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Specie(c), s), s 11.5 38.5 7.5 4.9 15.7 31.1 3.3 31.0	0.09	
Sign Volume(v), vehih 178 1130 131 69 532 408 88 446 445 Sign Sat Flow(s), vehihin 1714 1683 1457 1888 1447 1598 1697 1696 Spred(z, s), s 11.5 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Spred(z, c), s 11.5 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Origo In Lane 10.0 1.00 1.00 1.00 1.00 1.00 2.5 7.7 0.50 0.86 0.65 0.95 0.95 Vice Ratio (X) 1.08 0.92 0.25 0.79 0.50 0.66 0.55 0.95 0.95 Viail Cap(c, a), vehih 164 1231 533 162 1088 474 277 468 468 CACM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	3300	
Sar Devis (a) web/hilin 17/4 1683 1457 1688 1643 1474 1598 1697 1696 Sycie Q, Clear(q, c), s 11.5 38.5 7.5 4.9 15.7 31.1 3.3 31.0	314	
2 Seve(q, s), s 115 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Specied O(Sargie, c), s 115 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Specied O(Sargie, c), s 115 38.5 7.5 4.9 15.7 31.1 3.3 31.0 0.25 Specied O(Sargie, c), s 115 38.5 7.5 4.9 15.7 31.1 3.3 31.0 0.25 Specied O(Sargie, c), s 11.5 38.5 7.5 4.9 15.7 31.1 3.3 31.0 0.25 Specied O(Sargie, c), s 10.0 1.00 1.00 1.00 1.00 1.00 0.05 Specied O(Sargie, c), s 10.0 1.00 1.00 1.00 1.00 1.00 1.00 1.	1650	
Open Clear(no.)s 115 38.5 7.5 4.9 15.7 31.1 3.3 31.0 31.0 Prop In Lane 100 1.00 1.00 1.00 1.00 0.25 are Gro Cap(c), whih 164 1231 533 88 1058 47.4 136 468 467 V/C Ratic(X) 1.08 0.92 0.25 0.79 0.50 0.66 0.65 0.59 0.59 V/C Ratic(X) 1.08 0.92 0.25 0.79 0.50 0.66 0.65 0.59 0.59 V/C Ratic(X) 1.00		
Top In Lane 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.25 ane Gro Cap(C) with 164 1231 533 88 058 474 136 468 467 V//C Ratix(X) 1.08 0.22 2.5 0.79 0.50 0.86 0.66 0.95 0.95 Viail Cap(c a), with 164 1231 533 162 1058 474 277 468 468 CAM Hatoon Ratio 1.00	10.4	
arise Gro Cap(c), veh/h 164 1231 533 88 1058 474 136 468 467 V/C Raticx(X) 1.06 0.92 0.25 0.79 0.50 0.56 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	10.4	
VIC RainQy 108 0.92 0.25 0.79 0.50 0.86 0.65 0.95 0.95 Marci Cargic (a), wehh 144 1231 533 162 108 474 277 468 468 HCM Platoon Ratio 1.00	1.00	
Varil Cap(*) Number 164 1231 533 162 1058 474 277 488 468 HCM Platoon Ratio 1.00 <td>286</td> <td></td>	286	
CMC Plakon Ratio 100	1.10	
jpstream Filter(I) 1.00 0.0	286	
juniom Delay (d), siveh 54.2 36.3 26.5 66.2 32.9 38.2 56.6 42.7 42.7 nor Delay (d), siveh 94.2 12.2 1.1 14.3 1.7 18.1 51.2 29.9 38.2 56.6 42.7 42.7 nor Delay (d), siveh 94.2 12.2 1.1 14.3 1.7 18.1 51.2 29.9 39.0 20.0 0.0	1.00	
ncr Delay (x0), siven 94.2 12.2 1.1 14.3 1.7 18.1 5.1 2.8. 2.9.9 micial O Delay(3), siven 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Kile BackO(Q(95%), vehin 15.0 25.9 5.5 4.5 11.2 20.7 2.6 24.4 24.4 Jrsg. Movement Delay, siven Jrsg. Jrsg. Jrsg	1.00	
nitial O Celevid3) siven 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	54.8	
Skile BackOl(Q)(g55), vehin 15.0 25.9 5.5 4.5 11.2 20.7 2.6 24.4 24.4 LnGrp Delay, Siveh 148.5 48.6 27.6 70.5 34.6 56.3 61.7 72.5 72.6 LnGrp Delay, Siveh 148.5 48.6 27.6 70.5 34.6 56.3 61.7 72.5 72.6 LnGrp Delay, Siveh 143.9 1009 979 979 40.0 45.8 71.6 Approach Tol, siveh 59.0 45.8 71.6 76.5 78.8 71.6 Approach Tol, NeNb, siveh 50.0 45.8 71.6 78.0 14.5 11.7 45.3 Change Priod (Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Priod (Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Max G Ciera Time (Guaxi), s 11.5 38.6 10.4 *3.3 11.5 38.6 10.4	82.0	
Unsig Movement Delay, s/veh LinGrp Delay(d), s/veh LinGrp Delay(d), s/veh LinGrp Delay(d), s/veh LinGrp Delay(d), s/veh LinGrp LOS F D C E C E E E E Approach Delay 148.5 48.6 27.6 70.5 34.6 56.3 61.7 72.5 72.6 C E E E E C E E E E D E E D E D E D E D E D E	0.0	
Drog Delay(d) siven 148.5 48.6 27.6 70.5 34.6 65.3 61.7 72.5 72.6 Approach Vol, veh/h 1439 0.09 979 979 Approach Vol, veh/h 1439 1009 979 Approach Delay, siveh 59.0 45.8 71.6 Drago Eriod (Y-Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Priod (Y-Rc), s 6.5 6.4 6.6 6.9 6 6.9 9 Max Green Setting (Gmax), s 11.5 38.6 10.4 *33 11.5 38.6 10.4 *33 Max O Clear Time (g_c,e), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary Horid Mit Clear Time (g_c,e), s 6.1.4 +4.4	12.9	
Indrip Loss F D C E C E E E E E E E E E E E E E E D C E C E E D 979 Approach Delsy, siveh 59.0 45.8 71.6 P Approach Delsy, siveh 12.3 4 5 6 7 8 T F D C E D E D E D C B D C B D C B D C B D C B D C D C D<		
Approach Vol. vehh 1439 1009 979 Approach Vol. vehh 59.0 45.8 71.6 Approach Delay, Sveh 59.0 45.8 71.6 Mapproach DOS E D E Dimer - Assigned Phs 1 2 3 4 5 6 7 8 Phs Buration (G+Y+Rc), s 1.2 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Ass Green Setting (Gmax), s 11.5 38.6 10.4 *3.3 11.5 38.6 10.4 *3.3 Max O Clear Time (g_c,e)t), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Offene Setting (Gmax), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary 61.4 * * * * * CM 6th Ch Delay 61.4 * * * * * User aproved ignoring U-Turning movement. E * *	136.8	
Approach Delay, siveh 59.0 45.8 71.6 Approach LOS E D E Timer - Assigned Phs 1 2 3 4 5 6 7 8 Priso Duration (6Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Period (Y-Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Grax), s 11.5 38.6 10.4 * 33 13.5 33.1 5.3 16.8 Green Ext Time (p, c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 HCM 6th Ctrl Delay 61.4 - - - - - HCM 6th LOS E E - - - - - Ser approved ignoring U-Turning movement. E - - - -	F	
Approach Delay, siveh 59.0 45.8 71.6 Approach LOS D E Approach LOS 0 71.6 Phs Duration (G+Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Period (Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Period (Y+Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (grax), s 1.5 38.6 10.4 * 33 13.5 33.1 5.3 16.8 Green Ext Time (p, c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary E E E E E Notes Lear aprived ignoring U-Turning movement. E E E		
Approach LOS E D E Immer - Assigned Phs 1 2 3 4 5 6 7 8 Phe Duration (G+Y+Rc), s 1.7 63.3 17.0 40.0 18.0 45.0 17.7 45.3 Change Period (Y-Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.8 * 6.9 Max Green Resting (Gmax), s 1.1.5 38.6 10.4 * 33 14.5 38.6 10.4 * 33 Max O Clear Time (g_o-t)), s 6.9 1.2.4 33.0 1.5.5 3.16.8 Green Ext Time (g_o_t), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary 61.4 * 4.3 * 4.3 * 4.3 * 4.3 * 4.3 * 4.3 Volte Stribus E * * * * * * Volte Stribus E * * * * *		
Immer - Assigned Phs 1 2 3 4 5 6 7 8 Phs Duration (6+V+Rc), s 12.7 60.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Period (Y+Rc), s 6.5 6.4 6.6 *6.9 45.6 6.6 *6.9 Max Green Setting (Gmax), s 11.5 38.6 10.4 *33 11.5 38.6 10.4 *33 Max Q Clear Time (g_c-t), s 0.9 40.5 12.4 33.0 13.5 33.1 5.3 16.8 Green Exit Time (p_c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary HCM 6th Ct/l Delay 61.4 + <t< td=""><td></td><td></td></t<>		
Phs Duration (G-Y+Rc), s 12.7 50.3 17.0 40.0 18.0 45.0 11.7 45.3 Change Period (Y+Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 11.5 38.6 10.4 * 33 11.7 45.3 Max Q Cetar Time (g_c-t), s 6.9 40.5 12.4 33.0 13.5 33.1 5.3 16.8 Green Exit Time (p_c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary 61.4 - - - - - HCM 6th Ct/l Delay 61.4 - - - - - Screep Ext Time (p_cription Gurding movement. E - - - -		
Change Period (Y-Rc), s 6.5 6.4 6.6 * 6.9 6.5 6.4 6.6 * 6.9 Max Green Setting (Gmax), s 11.5 38.6 10.4 * 33 11.5 38.6 10.4 * 33 Max Q Clear Time (p, c), s 6.9 12.4 33.0 13.5 33.1 5.3 16.8 Sreen Ext Time (p, c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary 0.1 0.0 0.1 0.0 3.7 0.1 6.7 CM 6h Ch Delay 61.4 - - - - - CM 6h LOS E - - - - - - Ser approved ignoring U-Turning movement. - <td></td> <td></td>		
Max Green Setting (Gmax), s 11.5 38.6 10.4 * 33 Max Q Clear Time (g_c-rt), s 6.9 40.5 12.4 33.0 13.5 33.1 5.3 16.8 Sreen EX Time (g_c,c), s 0.1 0.0 0.0 10.0 3.7 0.1 6.7 Intersection Summary 11.4 11.6 <td< td=""><td></td><td></td></td<>		
Max O Clear Time (g.c-t1/), s 6.9 40.5 12.4 33.0 13.5 33.1 5.3 16.8 Green Exit Time (p.c), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Intersection Summary 1 14.4 14.4 14.4 14.4 14.4 HCM 6th Crit Delay 61.4 14.4		
Green Ext Time (p. e), s 0.1 0.0 0.1 0.0 3.7 0.1 6.7 Horssection Summary HCM 6th CHI Delay 61.4 HCM 6th LOS E Notes Ser approved ignoring U-Turning movement. 0.0 0.0 0.1 0.0 3.7 0.1 6.7		
Intersection Summary HCM 6th CHI Delay 61.4 HCM 6th LOS E Notes Jeer approved ignoring U-Turning movement.		
HCM 6th Ctrl Delay 61.4 +CM 6th LOS E Notes Joer approved ignoring U-Turning movement.		
HCM 6th Ckr/ Delay 61.4 HCM 6th LOS E Notes Jear approved ignoring U-Turning movement.		
HCM 6th LOS E Notes Jser approved ignoring U-Turning movement.		
Notes Jser approved ignoring U-Turning movement.		
Jser approved ignoring U-Turning movement.		
HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.		
357 Baseline Road 09/16/2019 2027 Ult SoftTSP AM	Synchro 10 F	

HCM 6th Signalized Intersection Summary 1: Clyde Avenue & Baseline Road 1

01/08/2020

	-
Movement	SBR
Lanconfigurations	
Traffic Volume (veh/h)	50
Future Volume (veh/h)	50
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.98
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1786
Adj Flow Rate, veh/h	50
Peak Hour Factor	1.00
Percent Heavy Veh, %	1
Cap, veh/h	104
Arrive On Green	0.32
Sat Flow, veh/h	326
Grp Volume(v), veh/h	263
Grp Sat Flow(s),veh/h/ln	1718
Q Serve(g_s), s	14.8
Cycle Q Clear(g_c), s	14.8
Prop In Lane	0.19
Lane Grp Cap(c), veh/h	550
V/C Ratio(X)	0.48
Avail Cap(c_a), veh/h	550
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	32.8
Incr Delay (d2), s/veh	0.6
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	11.1
Unsig. Movement Delay, s/v	
LnGrp Delay(d),s/veh	33.4
LnGrp LOS	С
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

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HCM 6th Signalized Intersection Summary

2: Baseline Roa	d & F	Privat	te Ac	cess	1		
	۶	-	+	•	1	∢_	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
ane Configurations	٦	^	≜î ≽		1	1	
Traffic Volume (veh/h)	66	1454	966	60	43	57	
Future Volume (veh/h)	66	1454	966	60	43	57	
nitial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Nork Zone On Approac	ch	No	No		No		
Adj Sat Flow, veh/h/ln	1772	1772	1772	1772	1772	1772	
Adj Flow Rate, veh/h	66	1454	966	60	43	57	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	83	2759	2318	144	136	121	
Arrive On Green	0.05	0.82	0.72	0.72	0.08	0.08	
Sat Flow, veh/h	1688	3455	3307	200	1688	1502	
Grp Volume(v), veh/h	66	1454	505	521	43	57	
Grp Sat Flow(s),veh/h/l		1683	1683	1734	1688	1502	
Serve(g s), s	4.6	16.5	14.4	14.4	2.9	4.4	
cycle Q Clear(g c), s	4.6	16.5	14.4	14.4	2.9	4.4	
Prop In Lane	1.00			0.12	1.00	1.00	
ane Grp Cap(c), veh/h		2759	1213	1249	136	121	
//C Ratio(X)	0.79	0.53	0.42	0.42	0.32	0.47	
Avail Cap(c a), veh/h	98	2759	1213	1249	450	400	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Jpstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Jniform Delay (d), s/vel		3.4	6.7	6.7	52.1	52.7	
ncr Delay (d2), s/veh	30.3	0.7	1.1	1.0	1.3	2.9	
nitial Q Delay(d3),s/vel		0.0	0.0	0.0	0.0	0.0	
ile BackOfQ(95%),vel		10.0	10.0	10.2	2.4	6.7	
Jnsig. Movement Delay				10.2	2.7	0.1	
nGrp Delay(d),s/veh	86.8	4.2	7.8	7.7	53.4	55.6	
InGrp LOS	F	A	A	A	D	E	
pproach Vol, veh/h		1520	1026		100		
Approach Delay, s/veh		7.7	7.7		54.7		
oproach LOS		A	A		D		
			R				
imer - Assigned Phs		2		4	5	6	
Phs Duration (G+Y+Rc		104.2		15.8	11.9	92.2	
change Period (Y+Rc),		* 5.8		* 6.2	6.0	* 5.8	
lax Green Setting (Grr		* 76		* 32	7.0	* 63	
Max Q Clear Time (g_c				6.4	6.6	16.4	
Green Ext Time (p_c), s	S	42.9		0.5	0.0	24.5	
ntersection Summary							
HCM 6th Ctrl Delay			9.5				
HCM 6th LOS			A				
lotes		_		_	_	_	

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TIDE	1	^	1 I	ODL	111
Traffic Vol. veh/h	0	58	1313	72	0	819
Future Vol. veh/h	0	58	1313	72	0	819
Conflicting Peds, #/hr	0	9	0	9	0	015
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -	Stop	Fiee -	Free	Fiee -	None
		Stop 0		450		NUTIE -
Storage Length	- # 0	-	- 0	450		0
Veh in Median Storag						
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	1	1	2	1
Mvmt Flow	0	58	1313	72	0	819
Major/Minor	Minor1	1	Major1	1	Major2	
Conflicting Flow All	-	666	0			
Stage 1	-		-			
Stage 2						
Critical Hdwy		6.94				
Critical Hdwy Stg 1	-	- 0.54		-		
Critical Hdwy Stg 2					- 1	
		3.32	-			-
Follow-up Hdwy	-			-	-	
Pot Cap-1 Maneuver	0	402		0	0	
Stage 1	0	-	-	0	0	-
Stage 2	0	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver		399	-	-		-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-			-		-
, in the second s						
Approach	WB		NB		SB	
			0		0	
HCM Control Delay, s			U		U	
HCM LOS	С					
Minor Lane/Major Mvr	nt	NBTV	VBLn1	SBT		
Capacity (veh/h)			399	-		
HCM Lane V/C Ratio			0.145			
HCM Control Delay (s	3		15.6			
HCM Lane LOS	7		13.0 C			
HCM 95th %tile Q(veh			0.5			
TOW SOUT 76UIE Q(VEF	1	-	0.5			

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Novement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SE
ane Configurations	٦	<u>††</u>	1	٦	<u>†</u> †	1	ሻሻ	≜ î≽			31	t t
raffic Volume (veh/h)	160	926	226	133	1221	561	315	830	96	30	381	63
Future Volume (veh/h)	160	926	226	133	1221	561	315	830	96	30	381	63
nitial Q (Qb), veh	0	0	0	0	0	0	0	0	0		0	
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.95		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Nork Zone On Approach		No			No			No				N
Adj Sat Flow, veh/h/ln	1772	1772	1786	1786	1772	1786	1786	1786	1786		1786	180
Adj Flow Rate, veh/h	160	926	226	133	1221	561	315	830	96		381	63
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Percent Heavy Veh, %	2	2	1	1	2	1	1	1	1		1	
Cap, veh/h	149	1207	522	150	1207	520	315	775	90		315	76
Arrive On Green	0.09	0.36	0.36	0.09	0.36	0.36	0.10	0.25	0.25		0.10	0.2
Sat Flow, veh/h	1688	3367	1456	1701	3367	1451	3300	3045	352		3300	302
Grp Volume(v), veh/h	160	926	226	133	1221	561	315	462	464		381	35
Grp Sat Flow(s),veh/h/ln	1688	1683	1456	1701	1683	1451	1650	1697	1701		1650	171
Q Serve(q s), s	11.5	31.6	15.3	10.1	46.6	46.6	12.4	33.1	33.1		12.4	25
Cycle Q Clear(q c), s	11.5	31.6	15.3	10.1	46.6	46.6	12.4	33.1	33.1		12.4	25
Prop In Lane	1.00	31.0	1.00	1.00	40.0	40.0	12.4	33.1	0.21		12.4	20
	149	1207	522	150	1207	520	315	432	433		315	43
Lane Grp Cap(c), veh/h	1.07		0.43						433		1.21	43
V/C Ratio(X)		0.77		0.88	1.01	1.08	1.00	1.07				
Avail Cap(c_a), veh/h	149	1207	522	150	1207	520	315	432	433		315	43
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.0
Uniform Delay (d), s/veh	59.2	36.9	31.7	58.6	41.7	41.7	58.8	48.5	48.5		58.8	45.
Incr Delay (d2), s/veh	94.1	4.7	2.6	41.5	28.8	62.4	50.9	63.4	63.4		120.6	11
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0
%ile BackOfQ(95%),veh/In	14.3	20.9	10.4	10.4	33.7	37.2	12.2	31.3	31.4		17.3	18
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	153.4	41.6	34.3	100.1	70.5	104.1	109.7	111.8	111.8		179.4	57
LnGrp LOS	F	D	С	F	F	F	F	F	F		F	
Approach Vol, veh/h		1312			1915			1241				109
Approach Delay, s/veh		54.0			82.4			111.3				100.
Approach LOS		D			F			F				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	53.0	19.0	40.0	18.0	53.0	19.0	40.0				
Change Period (Y+Rc), s	6.5	6.4	6.6	* 6.9	6.5	6.4	6.6	* 6.9				
Max Green Setting (Gmax), s	11.5	46.6	12.4	* 33	11.5	46.6	12.4	* 33				
Max Q Clear Time (g c+11), s	12.1	33.6	14.4	35.1	13.5	48.6	14.4	27.6				
Green Ext Time (p_c), s	0.0	9.8	0.0	0.0	0.0	40.0	0.0	3.7				
Intersection Summary												
HCM 6th Ctrl Delay			85.6									
HCM 6th LOS			03.0 F									
			г									
Notes												
User approved ignoring U-Turr HCM 6th computational engin			clearance	e times for	r the pha	ses cross	ing the ba	arrier.				

HCM 6th Signalized Intersection Summary <u>1: Clyde Avenue & Baseline Road</u>

01/08/2020

	-
Movement	SBR
Lanconfigurations	
Traffic Volume (veh/h)	81
Future Volume (veh/h)	81
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	0.94
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1800
Adj Flow Rate, veh/h	81
Peak Hour Factor	1.00
Percent Heavy Veh, %	0
Cap, veh/h	99
Arrive On Green	0.25
Sat Flow, veh/h	388
Grp Volume(v), veh/h	355
Grp Sat Flow(s),veh/h/ln	1698
Q Serve(g_s), s	25.6
Cycle Q Clear(g_c), s	25.6
Prop In Lane	0.23
Lane Grp Cap(c), veh/h	432
V/C Ratio(X)	0.82
Avail Cap(c_a), veh/h	432
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	45.7
Incr Delay (d2), s/veh	12.0
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(95%),veh/In	18.9
Unsig. Movement Delay, s/\	
LnGrp Delay(d),s/veh	57.6
LnGrp LOS	E
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Timer - hasigileu Plis	

1357 Baseline Road 09/16/2019 2027 Ult_SoftTSP_PM

Synchro 10 Report Page 2

01/08/2020

HCM 6th Signalized Intersection Summary

Mavement Lane Configurations Traffic Volume (vehb) Future Volume (vehb) Future Volume (vehb) Future Solume (vehb) Mork Ad (Lang) Work Zone On Approz Parking Bus, Adj Work Zone On Approz Parking Bus, Adj Work Zone On Approz Park Hour Factor Percent Heavy Veh, % Cap, vehh Arrive On Green Sat Flow, sheh Arrive On Green Sat Flow, sheh Arrive On Green Sat Flow, sheh Gro Volume(V), vehh Gro Caer(g. c), sheh V/C Ratio(X) Avail Cap(c, a), vehh Inter Delay (d), siveh Intel BackGVQ(d) Silveh Intel BackGVQ(d) Silveh	132 0 1.00 1.00 1.00 1.00 132 1.00 0.2 130 0.08 1688 132 1688 132 1688 10.0 10.0	EBT 1400 1400 0 1.00 No 1772 1400 1.00 22593 0.77 34555 1400 1683 21.3	WBT 1758 1758 1758 1758 1.00 1.00 1.00 1.00 1.00 1.00 2026 0.65 3219 933	WBR 154 154 0.98 1.00 1772 154 1.00 2 175 0.65 270	SBL 163 163 163 0 1.00 1.00 1.00 No 1772 163 1.00 2 232 0.14	SBR 169 169 0 1.00 1.00 1.00 1.00 1772 169 1.00 2 206
Lane Configurations Traffic Volume (veh/h) Initial Q (Qb), veh Ped-Bitke Ad(A, pbT) Parking Bus, Adj Work Zone On Approce Adj Sat Flow, veh/hh Peak Hour Factor Parcent Heavy Veh, 'X Cap, veh/h Arrive On Green Sat Flow, veh/h Q Serve(g, s), se Cycle Q (Claer(g, c), sF Cycle Q (Claer(g, c), sF (Loff DP Ball) Avail Cap(c, a), veh/h Maria Cap(c), veh/h Ch Platon Ratio Upstream Filter(1) Unform Delay (d), s/veh Initial Q Delay(d), s/veh	132 132 0 1.00 1.00 1.00 1.00 1.00 1772 132 1.00 0.08 1688 132 101688 10.0 10.0	↑↑ 1400 1400 0 1.00 No 1772 1400 1.00 2593 0.77 3455 1400 1683	↑↑> 1758 1758 1758 0 1.00 1.00 1.772 1758 1.00 2026 0.65 3219	154 154 0.98 1.00 1772 154 1.00 2 175 0.65	163 163 163 0 1.00 1.00 No 1772 163 1.00 2 232	169 169 0 1.00 1.00 1.00 1772 169 1.00 2 206
Traffic Volume (vehb) Initial Q (Qb), veh Prachard Valland, Adj (ApbT) Prachard Bas, Adj Work Zaroe On Approc Parking Bus, Adj Work Zaroe On Approc Park Hour Factor Pacen, Vehb Arrive On Green Saco, Vehb Arrive On Green Saco, Vehb Arrive On Green Saco, Vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Calcel, S, s Cycle Q Clear(g, C), s Pyolo I Lane Grp Cap(C), vehb Neil Con Ratio Upstraam Filter(U) Uniform Delay (d), s/veh Innifal Q Delay(d), s/veh Innifal Q Delay(d), s/veh Innifal Q Delay(d), s/veh	132 132 0 1.00 1.00 1.00 1.00 1.00 1.00 0.08 1688 132 10.0 10.0 10.0	1400 1400 0 1.00 1772 1400 1.00 22593 0.77 3455 1400 1683	1758 1758 0 1.00 No 1772 1758 1.00 2 2026 0.65 3219	154 154 0.98 1.00 1772 154 1.00 2 175 0.65	163 163 0 1.00 1.00 1.00 1772 163 1.00 2 232	169 169 0 1.00 1.00 1.00 1772 169 1.00 2 206
Traffic Volume (vehb) Initial Q (Qb), veh Prachard Valland, Adj (ApbT) Prachard Bas, Adj Work Zaroe On Approc Parking Bus, Adj Work Zaroe On Approc Park Hour Factor Pacen, Vehb Arrive On Green Saco, Vehb Arrive On Green Saco, Vehb Arrive On Green Saco, Vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Volume(V), vehb Grp Calcel, S, s Cycle Q Clear(g, C), s Pyolo I Lane Grp Cap(C), vehb Neil Con Ratio Upstraam Filter(U) Uniform Delay (d), s/veh Innifal Q Delay(d), s/veh Innifal Q Delay(d), s/veh Innifal Q Delay(d), s/veh	132 132 0 1.00 1.00 1.00 1.00 1.00 1.00 0.08 1688 132 10.0 10.0 10.0	1400 1400 0 1.00 1772 1400 1.00 22593 0.77 3455 1400 1683	1758 1758 0 1.00 No 1772 1758 1.00 2 2026 0.65 3219	154 0.98 1.00 1772 154 1.00 2 175 0.65	163 163 0 1.00 1.00 1.00 1772 163 1.00 2 232	169 169 0 1.00 1.00 1.00 1772 169 1.00 2 206
Future Volume (vehb) Future Volume (vehb) Ped-Bike Adj(A.pbT) Parking Bus, Adj Work Zone On Approze Adj Sat Flow, vehhh Peak Hour Factor Percent Heavy Veh, % Cap, vehh Arrive On Green Sat Flow, veh hh Gro Sat Flow, veh hh Gro Sat Flow, veh wh Gro Sat Flow, veh wh Gro Sat Flow, veh wh Gro Sat Flow, veh wh Gro Sat Flow, veh ha Gro Cap(c, s), se Vicke Q.Clear(c, c), se Prop In Lane Cap(c, s), se Vicke Rato(X), veh/M Vick Rato(X), veh/M Navai Cap(c, a), veh/M Navai Cap(c, a), veh/M Inform Delay (d), siveh Inifai BackO(Q)(s)/siveh Inifai BackO(Q)(s), siveh	132 0 1.00 1.00 1.00 1.00 1772 132 1.00 0.08 1688 132 1688 132 1688 10.0 10.0	1400 0 1.00 No 1772 1400 1.00 2 2593 0.77 3455 1400 1683	1758 0 1.00 No 1772 1758 1.00 2 2026 0.65 3219	154 0.98 1.00 1772 154 1.00 2 175 0.65	163 0 1.00 1.00 No 1772 163 1.00 2 232	169 0 1.00 1.00 1.00 1772 169 1.00 2 206
Initial Q (Qb), yeh Det-Bike Adj(A pbT) Parking Bus, Adj Work Zone On Approce Adj Sal Flow, vehnhin Adj Sal Tow, vehnhin Adj Flow Rate, vehh Pack Hour Factor Pacren Heavy Veh, % Cap, vehh Arrive On Green Sal Flow, vehh Grp Volume(v), vehh Grp Volume(v), vehh Grp Volume(v), vehh Grp Volume(v), vehh Grp Volume(v), vehh Grp Oclear(g, c), s Cycle Q Clear(g, c), s Cycle Q Clear(g, c), s Cycle Q Clear(g, c), s Cycle Q Clear(g, c), s Holf Pol I Lane Lane Grp Cap(c), veh Vic Ratio(X) Vic Ratio(X) Hord Polaron Ratio Upstram Filler(I) Uniform Delay (d), siveh Initial Q Delay(d), siveh Initial B BackO(Q)(S)%)ke	1.00 1.00 1.00 1.00 1772 132 1.00 2 130 0.08 1688 132 1688 132 1688 132 10.0 10.0	0 1.00 No 1772 1400 1.00 2 2593 0.77 3455 1400 1683	0 1.00 No 1772 1758 1.00 2 2026 0.65 3219	0 0.98 1.00 1772 154 1.00 2 175 0.65	0 1.00 1.00 No 1772 163 1.00 2 232	0 1.00 1.00 1.00 1772 169 1.00 2 206
Ped-Bike Adj(A, bT) Parking Bus, Adj Work Zone On Approce Adj Saf Tiow, vehrhin Peak Hour Factor Percent Heavy Veh. % Cap, vehrh Arrive On Green Sat Flow, vehrh Grp Volume(V), vehrh Grp Sat Flow(s), vehrh Q Serve(g, s), se Zycyle Q Clear(g, s), s Prop In Lane Lane Grp Cap(c), vehr VOR Ratio(X) VOR Ratio(X) VOR Ratio(X), vehrh Avail Cap(c), vehr VOR Ratio(X), vehrh Maria D Calay(d), vehrh Maria D Calay(d), vehrh Maria D Calay(d), vehrh Maria B Calay(d), siveh Maria B Calay(d), siveh	1.00 1.00 100 1772 132 1.00 2 130 0.08 1688 132 101688 10.0 10.0	1.00 No 1772 1400 1.00 2 2593 0.77 3455 1400 1683	1.00 No 1772 1758 1.00 2 2026 0.65 3219	0.98 1.00 1772 154 1.00 2 175 0.65	1.00 1.00 No 1772 163 1.00 2 232	1.00 1.00 1772 169 1.00 2 206
Parking Dus, Adj Work Zone On Approce Adj Sat Flow, vehhlun Adj Flow Rate, vehh Pask Hour Factor Percent Heavy Veh, % Cap, vehh Arrive On Green Sat Flow, vehh Gro Volume(V), vehh Gro Volume(V), vehh Gro Sat Flow(s), vehh Gro Sat Flow(s), vehh Gro Clear(g, c), s Cycle Q Clear(g, c), veh V/C Rato(X) V/C Rato(X) Maria Eack/Q Clear(g, c), s Indrom Delay (d), s Name Delay (d), s Name Back/Q Cle3%), w	1.00 ich 1772 132 1.00 2 130 0.08 1688 132 1n1688 10.0 10.0	No 1772 1400 1.00 2593 0.77 3455 1400 1683	No 1772 1758 1.00 2 2026 0.65 3219	1.00 1772 154 1.00 2 175 0.65	1.00 No 1772 163 1.00 2 232	1.00 1772 169 1.00 2 206
Work Zone On Aproc Adj Sat Flow, veh/hi Peak Hour Factor Percent Heavy Veh, % Cap, veh/h Arrive On Green Sat Flow, veh/h Grp Volume(v), veh/h Grp Volume(v), veh/h Grp Sat Flow(s), veh/h Q Serve(g.s), s Cycle Q Clear(g.s), s Prop In Lane Lane Grp Cap(c), veh/ VIC Ratio(X) Vic Ratio(X) Avail Cap(c.a), veh/h Mori Cabley (d), skvh Inicial O Delay(d), skvh Misig BackOfQ(95%), w Mansg Abovement Delay Mansg Abovement Delay Mansg Abovement Delay Mansg Abovement Delay Mansg Abovement Delay Mansg Abovement Delay Mansg Abovement Delay	ich 1772 132 1.00 2 130 0.08 1688 132 in1688 10.0 10.0	No 1772 1400 1.00 2593 0.77 3455 1400 1683	No 1772 1758 1.00 2 2026 0.65 3219	1772 154 1.00 2 175 0.65	No 1772 163 1.00 2 232	1772 169 1.00 2 206
Adj Sat Flow, vehnihh Peak Hour Factor Parcent Heavy Veh, % Cap, vehni Artive On Green Gro Volume(v), vehni Gro Volume(v), vehni Q Savte(g s), s Cycle Q Clear(g c), s Cycle Q C	1772 132 1.00 0.08 1688 132 10.0 10.0 10.0	1772 1400 1.00 2 2593 0.77 3455 1400 1683	1772 1758 1.00 2 2026 0.65 3219	154 1.00 2 175 0.65	1772 163 1.00 2 232	169 1.00 2 206
Adj Flow Rate, wehh Peak Hour Fador Percent Heavy Veh, % Cap, vehň Gro Volume(V), vehň Grp Sat Flow(S),vehň Grp Sat Flow(S),vehň Gro Sat Flow(S),vehň Gro Sat Flow(S),vehň Gro Clear(g, c), s Cycle Q Clear(g, c), s Cycle Q Clear(g, c), VC Ratio(X) VC Ratio(X) Harlor Daity (d), své Harlor Daity (d), své Harlor Daity (d), své Initial Q Delay(d), své Initial Q Delay(d), své	132 1.00 2 130 0.08 1688 132 In1688 10.0 10.0	1400 1.00 2593 0.77 3455 1400 1683	1758 1.00 2 2026 0.65 3219	154 1.00 2 175 0.65	163 1.00 2 232	169 1.00 2 206
Peak hour Factor Pacren Heavy Veh, % day, veh/h Arrive On Green Sait Flow, veh/h Grp Volume(v), veh/h Q Sarty(g, s), s Cycle 0 Clear(g, c), s Cycle 0 Clear(g, c	1.00 2 130 0.08 1688 132 In1688 10.0 10.0	1.00 2 2593 0.77 3455 1400 1683	1.00 2 2026 0.65 3219	1.00 2 175 0.65	1.00 2 232	1.00 2 206
Percent Heavy Veh, % Cap, veh/h Arrive On Green Sat Flow, veh/h Grp Sat Flow, veh/h Grp Sat Flow, show Marking, Sat Flow, Sat Sat Group, Veh Ver, Ratio (X) Avail Cap(Ca), veh/V (YC Ratio (X) Ver Ratio (X) Ver Ratio (X) Ver Ratio (X) Ver Ratio (X) Ver Ratio (X) Marking Cap(C), veh/V (YC Ratio (X) Ver Ratio (X) Marking Cap(C), veh/V (YC Ratio (X) Ver Ratio (X) Avail Cap(Ca), veh/h Ver Ratio (X) Avail Cap(Ca), veh/h Marking Cap(C), veh/ Veh/Sat Norme Delay (G), siveh Insig, Novement Delay (G), siveh	2 130 0.08 1688 132 In1688 10.0 10.0	2 2593 0.77 3455 1400 1683	2 2026 0.65 3219	2 175 0.65	2 232	2 206
Cap, vehň Cap, vehň Grav Con Green Sat Flow, vehň Gry Sat Flow(s), vehň Q Serve(g, s), se Prop In Lane Lane Grp Cap(c), vehň V C Rato(X) V C Rato(X) V C Rato(X) V C Rato(X) VIC Rato(X) VI	130 0.08 1688 132 In1688 10.0 10.0	2593 0.77 3455 1400 1683	2026 0.65 3219	175 0.65	232	206
Arrive On Green Sat Flow, veh/h Grp Volume(v), veh/h Grp Sat Flow(s), veh/h Grp Sat Flow(s), veh/h Gro Volume(v), so Cycle Q Clear(g, c), so Cycle Q Clear(g, c), so Cycle Q Clear(g, c), veh/h Avail Carp(c, a), veh/h Uniform Dalay (d), s/v Intro Delay (d), s/v Intro Delay (d), s/v Hinsib B Back(OQ(g)%), w Insig B Back(OQ(g)%), w Insig D Veryen (d), s/v Horsig M Veryen (0.08 1688 132 In1688 10.0 10.0	0.77 3455 1400 1683	0.65 3219	0.65		
Sat Flow, veh/h Gry Volume(v), veh/h Gry Volume(v), veh/h Q Serve(g, s), se Vycle Q Clear(g, s), s Vycle Q Clear(g, s), s Vycle Q Clear(g, s), s Vycle Q Clear(g, s), s Vycle Q Clear(g, s), veh/h Vic Ratio(X) Vic Ratio(X), veh/h Vic Ratio(X), veh/	1688 132 In1688 10.0 10.0	3455 1400 1683	3219			0.14
Grp Volume(v), vehh Grp Sat Flow(s), vehh Grp Sat Flow(s), vehn Q Serve(g, s), s Cycle Q Clear(g, c), s Proph G Lane Grp Cap(c), veh/ VIC Rato(X) Avail Cap(c, a), veh/h HCM Platon Ratio Upstream Filter(I) Unform Delay (d), skv Hinfel Q Delay(d), skv Male BackOfQ(95%), w Male BackOfQ(95%), w	132 In1688 10.0 10.0	1400 1683				
Grp Sat Flow(s), veh/h Q Serve(g.s), s Cycle Q Clear(g.c), s Prop In Lane Lane Grp Cap(c), veh/h HCM Platoon Ratio UVC Ratio(X) Avail Cap(c.a), veh/h HCM Platoon Ratio Upstream Filter(1) Uniform Delay (d2), siveh Incri Delay (d2), siveh	In1688 10.0 10.0	1683	933		1688	1502
Q Serve(g_s), s Cycle Q Clear(g_c), s Prop In Lane Lane Grp Cap(c), veh/ ViC Ratio(X) Avail Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(1) Uniform Delay (d), s/ve Incr Delay (d2), s/veh Incid Delay(d3), s/ve Musig_BackOfQ(95%), v Unsig_Movement Delay (d), s/veh	10.0 10.0			979	163	169
Cycle Q Člear(g_c), s Prop In Lane Lane Grp Cap(c), veh/ V/C Ratio(X) Avaii Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/veh Initial Q Delay(d), s/ve %ille BackOfQ(95%), wu Unsig. Movement Dela LnGrp Delay(d), s/veh	10.0	21.3	1683	1717	1688	1502
Prop In Lane Lane Grp Cap(c), veh/ V/C Ratio(X) Avail Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/ve Juniform Delay (d), s/ve Mile BackOfQ(95%), ve Unsig. Movement Dela LnGrp Delay(d), s/veh			57.0	60.9	12.0	14.2
Lane Grp Cap(c), veh/ V/C Ratio(X) Avail Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/ve Initial Q Delay(d3), s/ve %ile BackOfQ(95%), ve/ Unsig. Movement Dela LnGrp Delay(d), s/veh		21.3	57.0	60.9	12.0	14.2
V/C Ratio(X) Avail Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/v/ Incr Delay (d2), s/veh Initial Q Delay(d3), s/v Wile BackOfQ(95%), ve Unsig. Movement Dela LnGrp Delay(d), s/veh	1.00			0.16	1.00	1.00
Avail Cap(c_a), veh/h HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/vel Initial Q Delay(d3), s/ve %ile BackOfQ(95%), ve Unsig. Movement Dela LnGrp Delay(d), s/veh		2593	1089	1111	232	206
HCM Platoon Ratio Upstream Filter(I) Uniform Delay (d), s/vl Incr Delay (d2), s/veh Initial Q Delay(d3),s/ve Wile BackOfQ(95%), ve Unsig. Movement Dela LnGrp Delay(d),s/veh	1.02	0.54	0.86	0.88	0.70	0.82
Upstream Filter(I) Uniform Delay (d), s/ve Incr Delay (d2), s/veh Initial Q Delay(d3),s/ve %ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	130	2593	1089	1111	415	370
Uniform Delay (d), s/ve Incr Delay (d2), s/veh Initial Q Delay(d3),s/ve %ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	1.00	1.00	1.00	1.00	1.00	1.00
Incr Delay (d2), s/veh Initial Q Delay(d3),s/ve %ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	1.00	1.00	1.00	1.00	1.00	1.00
Initial Q Delay(d3),s/ve %ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	eh 60.0	5.9	18.1	18.8	53.5	54.5
%ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	83.5	0.8	8.7	10.1	3.9	7.8
%ile BackOfQ(95%),ve Unsig. Movement Dela LnGrp Delay(d),s/veh	eh 0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Dela LnGrp Delay(d),s/veh		13.1	34.4	37.4	9.6	17.4
LnGrp Delay(d),s/veh						
		6.7	26.8	29.0	57.4	62.3
LnGrp LOS	F	A	C	C	E	E
Approach Vol. veh/h	<u> </u>	1532	1912		332	
Approach Delay, s/veh		18.5	27.9		59.9	
Approach LOS		10.5 B	21.5 C		55.5 E	
			U			
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+R		105.9		24.1	16.0	89.9
Change Period (Y+Rc		* 5.8		* 6.2	6.0	* 5.8
Max Green Setting (Gr	max), s	* 86		* 32	10.0	* 70
Max Q Clear Time (g_				16.2	12.0	62.9
Green Ext Time (p_c),	s	43.9		1.6	0.0	7.2
Intersection Summary						
HCM 6th Ctrl Delay			26.9			
HCM 6th LOS			20.5 C			
Notes			0			

Notes * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. HCM 6th TWSC 4: Clyde Avenue & Private Access 3

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1100	1	^	1	001	444
Traffic Vol. veh/h	0	156	1436	145	٥	1062
Future Vol. veh/h	0	156	1436	145	0	1062
Conflicting Peds, #/hr	0	31	1430	31	0	1002
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	Stop -		Fiee -	Free	Fiee -	
Storage Length		Stop 0		450		NUTIE -
Veh in Median Storage		-	0	400		0
Grade, %	e,# U 0		0	-		0
Peak Hour Factor	100	100	100	100	100	100
		2				
Heavy Vehicles, %	2		1	1	0	0
Mvmt Flow	0	156	1436	145	0	1062
Major/Minor	Minor1	1	Major1	1	Major2	
Conflicting Flow All	-	749	0			
Stage 1		-	-	-	-	-
Stage 2	-			-		-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1		-				
Critical Hdwy Stg 2	-					
Follow-up Hdwy		3.32				
Pot Cap-1 Maneuver	0	354		0	0	-
Stage 1	0			0	0	
Stage 2	0			0	0	
Platoon blocked. %	0			0	0	
Mov Cap-1 Maneuver		344				
Mov Cap-2 Maneuver		-	-	-		
Stage 1		-	-			-
Stage 2		-	-	-		
Approach	WB		NB		SB	
HCM Control Delay, s	23.9		0		0	
HCM LOS	С					
Minor Lane/Major Mvn	at .	NDTU	VBLn1	SBT		
	nt					
Capacity (veh/h)		-	344	-		
HCM Lane V/C Ratio			0.453			
HCM Control Delay (s))	-	23.9	-		
HCM Lane LOS		-	С	-		
HCM 95th %tile Q(veh)	-	2.3			

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