Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update #2

To:	Amira Shehata City of Ottawa 110 Laurier Avenue West Ottawa, Ontario K1P 1J1	From:	Robert Vastag, MCIP, RPP 400 - 1331 Clyde Avenue Ottawa, ON K2C 3G4
File:	163600949	Date:	August 18, 2015

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update #2

1.0 PURPOSE

The purpose of this update is to present the analytical findings of a new access configuration for the development's proposed accesses to Bank Street. Whereas previous transportation studies assessed a right-in/out access configuration, the proponent seeks to implement an access to Bank Street that also permits inbound left turns (i.e. northbound left turns) in addition to right-in/out. Under the proposed configuration, outbound left turns would remain restricted.

The subject intersection under the proposed configuration was initially discussed at a meeting with the City of Ottawa on Friday, February 20th 2015, where City staff indicated preliminary acceptance subject to the results of further transportation analysis which is presented herein.

2.0 CONTEXT

In June of 2012 the *Bank Street at Mitch Owens Road Commercial Development Transportation Impact Assessment* (the 2012 TIA) was prepared by GENIVAR to support a rezoning application for an approximate 13-acre vacant parcel of land located at the south-west corner of the Bank Street at Mitch Owens Road intersection in the City of Ottawa. The proposed retail / commercial development features a combined gross floor area of roughly 10,000 square meters spread over five individual building pads.

The 2012 TIA included the following site access scheme:

- New signalized intersection to Mitch Owens Road, west of Bank Street
- Right-in/out to Mitch Owens Road, between the new signals and Bank Street
- Right-in/out to Bank Street, south of Mitch Owens Road

The 2012 TIA identified improvements as being required at the Bank Street at Mitch Owens Road intersection to address a combination of existing deficiencies, future background growth, and site traffic generated by the development proposal. Other improvements included:

- An exclusive eastbound right turn lane at the Mitch Owens Road at Old Prescott Road intersection (triggered by background growth)

- Exclusive eastbound and westbound turn lanes at the Mitch Owens Road at Site Access #1 intersection (triggered by the proposed development).

- An exclusive eastbound right turn lane at the Mitch Owens Road at Site Access #3 intersection (triggered by the proposed development).

Since the completion of the 2012 TIA there were two notable updates. First, the City of Ottawa's Transportation Master Plan (TMP) was updated and the Bank Street widening in the vicinity of the site was removed from the affordable transportation network. In the 2012 TIA this improvement was identified as being required to accommodate background growth up to the 2019 ultimate horizon. Second, more recent turning movement counts were completed at the Bank Street at Mitch Owens Road intersection (conducted in 2013).

In March of 2014, Stantec prepared the *Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update* using the updated 2013 turning movement counts as well as the updated TMP which does not include the aforementioned Bank Street widening.

Attachment 1 includes the *Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update* (Stantec 2014).

The 2014 update found that exclusive eastbound and westbound left turn lanes will be required at the intersection of Bank Street and Mitch Owens Road in order for it to operate acceptably with the addition of the proposal commercial development. By 2020, it found that the proposed development is expected to contribute roughly 30% of the overall peak hour traffic volumes projected for the eastbound left turn movement. The update also found that the eastbound right turn channelized ramp at the Bank Street at Mitch Owens Road intersection will need to be reconstructed and replaced by a more conventional right turn lane treatment (i.e. smart channel).

Since the 2014 TIA update was prepared the proponent seeks to amend the originally proposed Site Access #2 to Bank Street, which was originally proposed to function as a right-in/out to also permit inbound left turns (i.e. northbound left turns from Bank Street). As such, an update is required to access the impacts of this new access configuration.

It is noted that the author of the 2012 TIA and the 2014 TIA update is the same author as the subject memorandum.

2.0 METHODOLOGY

The methodology utilized in this update is outlined as follows:

- The intersections that will be assessed include:
    - Bank Street at Mitch Owens Road
    - Mitch Owens Road at Site Access #1
    - Bank Street at Site Access #2

- Mitch Owens Road at Site Access #3

- The traffic volumes at the Mitch Owens Road at Old Prescott Road intersection will not be affected by the proposed new configuration of the Bank Street at Site Access #2 intersection, therefore, it was not included as part of the analysis in this update memorandum.

- Site generated traffic volumes will be taken directly from the 2012 TIA, however, the inbound trips will be redistributed to account for the proposed new northbound left turn movement (i.e. inbound left turn) at the Bank Street at Site Access #2 intersection.

- The study horizon years will be adjusted by one year to reflect the commercial development's anticipated opening-day of 2016. The ultimate horizon (i.e. the plus 5 year horizon), therefore, will be 2021.

- Growth from other known background developments will be consistent with the assumptions of the 2012 TIA as well as the 2014 TIA Update.

3.0 TRANSPORTATION FORECASTS

The most recent available intersection turning movement counts at the Bank Street at Mitch Owen Road intersection from 2013 were provided by the City of Ottawa for the weekday condition. Traffic counts from the 2012 TIA were used to assess the Saturday mid-day condition (the Saturday counts were conducted in 2012).

Appendix A includes the intersection turning movement count summaries.

A review of the historical traffic counts at the Bank Street at Mitch Owens Road intersection for the years 2010, 2012, and 2013 found a net decline in the overall peak hour traffic volumes. To remain conservative, existing traffic volumes were not adjusted to represent the historic decline (i.e. no growth rate was applied) and only traffic generated by known area developments was explicitly added to the future road network. As noted earlier, the traffic generated by other area background developments is consistent with what was assumed in the 2012 TIA and the 2014 TIA update.

3.1 2015 EXISTING CONDITIONS

The *Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update* (Stantec 2014) examined the intersection operations at the Bank Street at Mitch Owens Road intersection under 2015 conditions. As the turning movement counts and background growth assumptions have not changed, the results of that analysis remain valid. It found that with signal timing optimization this intersection is anticipated to operate acceptably under 2015 existing conditions.

3.2 2016 FUTURE BACKGROUND CONDITIONS

To remain conservative, existing traffic volumes were not adjusted to reflect the calculated decline in traffic growth that was found to occur from 2010 to 2013. This is consistent with the *Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update* (Stantec 2014),

With no change in background growth and no additional surrounding developments occurring between 2015 and 2016, the assessment of 2016 future background conditions would yield the same results as those presented in the analysis of 2015 existing conditions.

3.3 2016 TOTAL FUTURE CONDITIONS

It is noted that in order to facilitate the commercial development's proposed Bank Street access, the massive eastbound right turn channel at the Bank Street / Mitch Owens Road intersection must be reconstructed to reflect a more typical design treatment for a right turn lane (i.e. smart channel). This improvement has been assumed in the intersection analysis.

Figure 1 illustrates 2016 Total Future traffic volumes.

Table 1 below provides a summary of 2016 total future intersection operations.

As shown in **Table 1**, the eastbound shared left / through and the northbound through lanes are expected to operate at or above capacity. To improve the intersection operations exclusive eastbound and westbound left turn lanes are recommended. The intersection operations with these improvements can be seen in **Table 1** below.

The Bank Street at Site Access #2 intersection is anticipated to operate with LOS A during the AM, PM, and Saturday peak hours under 2016 total future conditions.

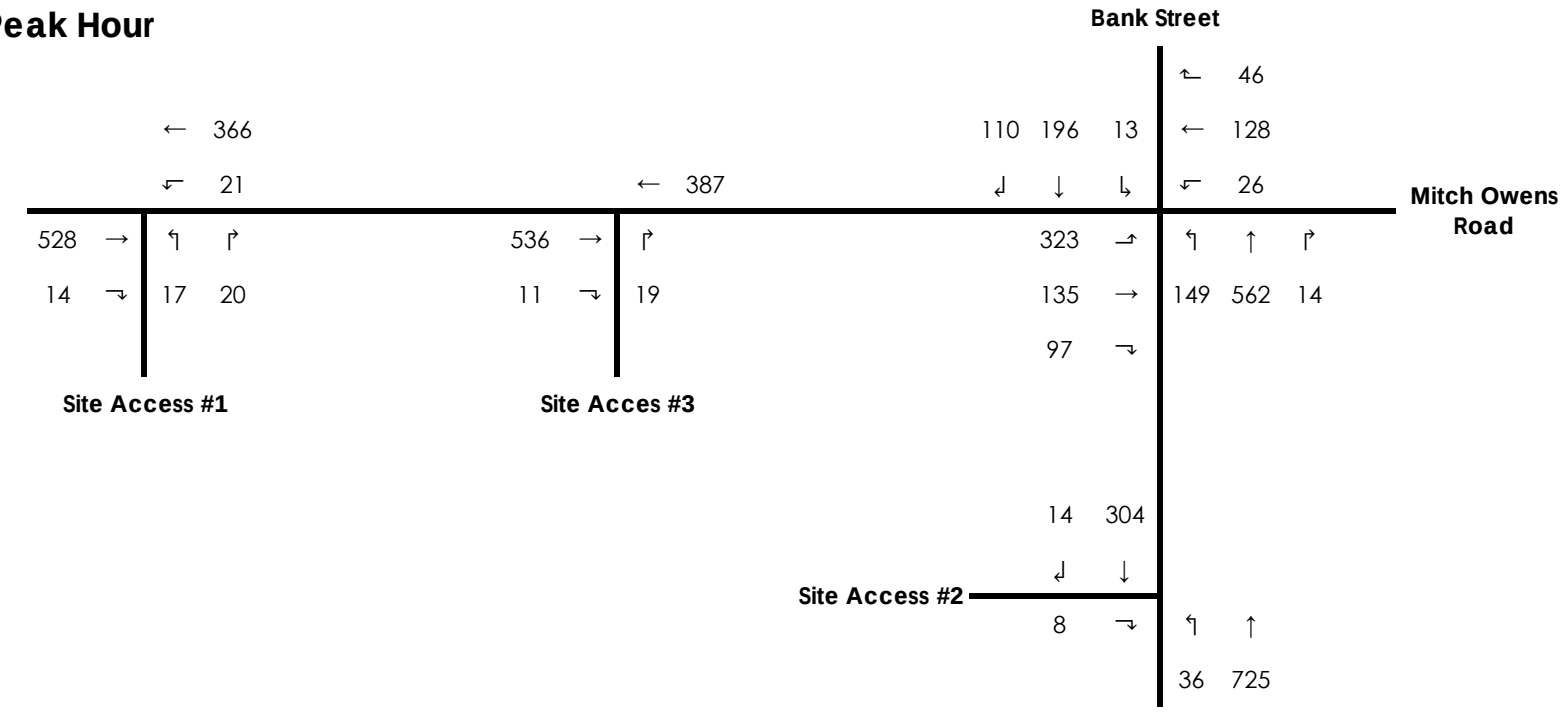
A left turn lane warrant analysis was undertaken at the Bank Street at Site Access #2 intersection and it found that a left turn lane is required with a minimum storage length of 25m. As per the *Transportation Association of Canada's Geometric Design Guide for Canadian Roads* and based on the anticipated northbound left turn queues, the left turn lane will require approximately 65m of storage and 95m of taper (to be confirmed during detail design).

The remaining intersections are anticipated to operate acceptably.

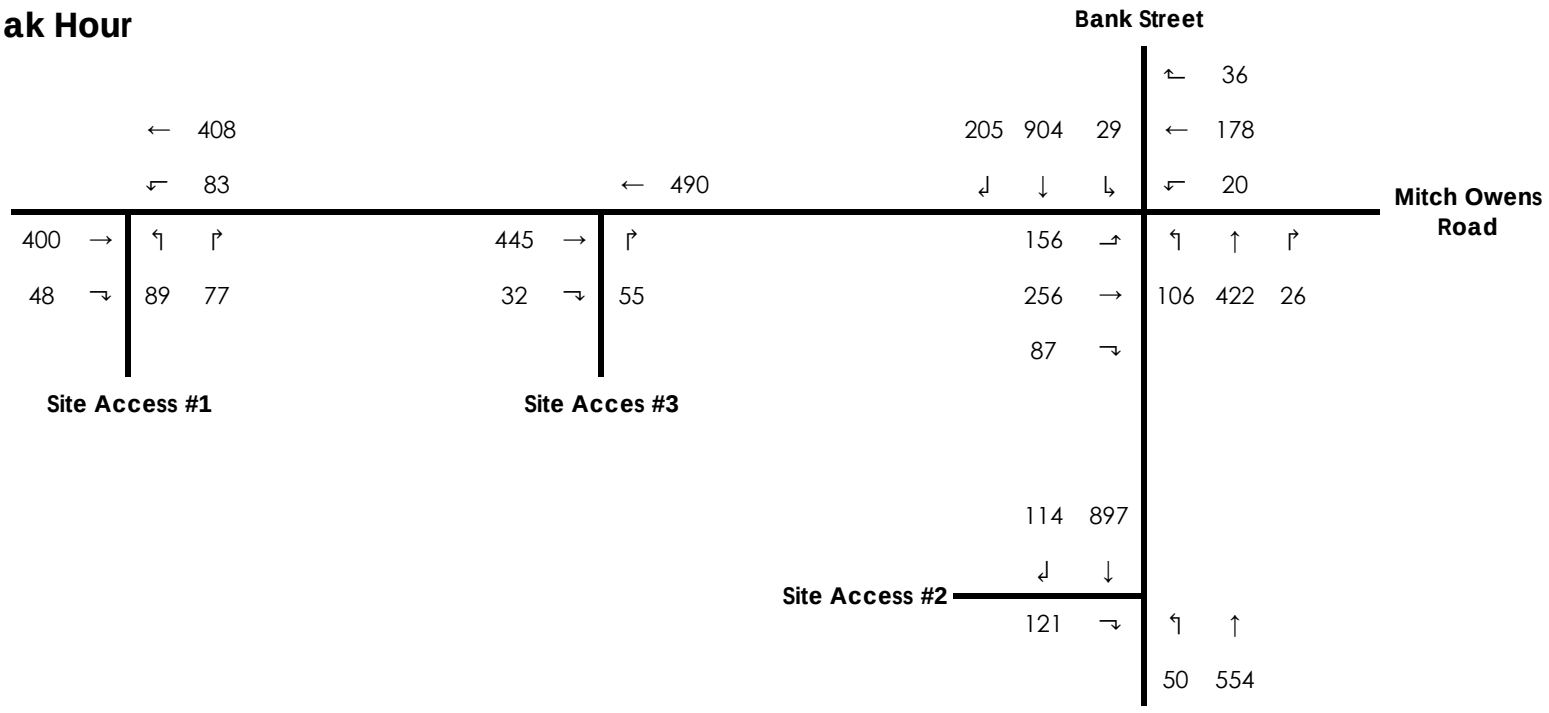
Detailed intersection performance worksheets can be found in **Appendix B**.

The left turn lane warrant can be found in **Appendix C.**

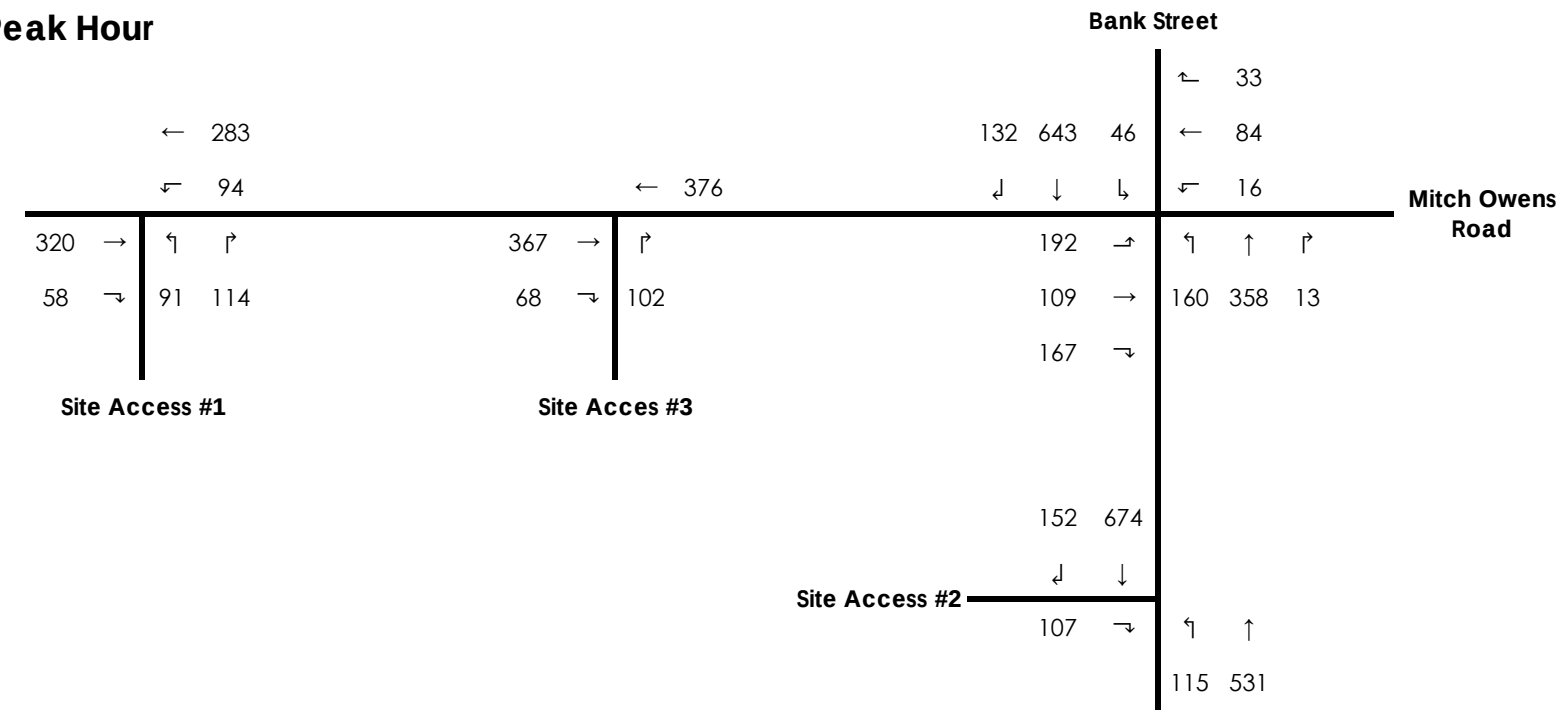
AM Peak Hour



PM Peak Hour



SAT Peak Hour



Stantec

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OTIS
Bank Street at Mitch Owens Road
Commercial Development
Figure 1
2016 Total Future Traffic Volumes

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update #2

Table 1 2016 Total Future Intersection Operations

Signalized Intersections	Approach / Movement		AM Peak Hour LOS	AM Peak Hour V/C	AM Peak Hour Q[1] (m)	PM Peak Hour LOS	PM Peak Hour V/C	PM Peak Hour Q[1] (m)	SAT Peak Hour LOS	SAT Peak Hour V/C	SAT Peak Hour Q[1] (m)
Bank Street at Mitch Owens Road	EB	Left / Through	E	0.91	#175.7	E	1.00	#190.9	D	0.83	#92.4
		Right	A	0.10	16.8	A	0.11	21.8	A	0.11	16.5
	WB	Left / Through	A	0.24	38.9	A	0.42	66.3	A	0.22	25.2
		Right	A	0.03	7.7	A	0.02	8.9	A	0.02	5.1
	NB	Left	A	0.28	45.2	E	0.95	#43.6	A	0.54	#50.9
		Through	B	0.67	#196.7	A	0.42	88.6	A	0.36	55.5
		Right	A	0.01	2.2	A	0.02	4.0	A	0.01	0.3
	SB	Left	A	0.05	6.6	A	0.06	8.3	A	0.09	9.3
		Through	A	0.23	52.8	D	0.89	#326.6	B	0.65	127.7
		Right	A	0.07	13.4	A	0.20	30.3	A	0.11	12.1
	Overall Intersection		***C***	***0.78***	-	***E***	***0.96***	-	***C***	***0.71***	-
	Improvement: add eastbound and westbound exclusive left turn lanes										
	EB	Left	D	0.83	#93.6	D	0.83	#75.7	B	0.70	51.3
		Through	A	0.23	28.4	C	0.74	93.1	A	0.28	27.6
		Right	A	0.06	10.8	A	0.12	20.4	A	0.11	17.0
	WB	Left	A	0.07	8.1	A	0.16	11.9	A	0.06	6.8
		Through	A	0.22	27.1	A	0.51	64.6	A	0.21	22.2
		Right	A	0.03	7.0	A	0.02	10.1	A	0.02	5.2
	NB	Left	A	0.26	30.1	A	0.41	32.3	A	0.45	39.1
		Through	B	0.63	#125.1	A	0.34	69.3	A	0.33	52.8
		Right	A	0.01	0.6	A	0.02	3.1	A	0.01	0.3
	SB	Left	A	0.04	4.6	A	0.05	6.4	A	0.08	8.8
		Through	A	0.22	34.6	C	0.73	#265.4	A	0.60	121.5
		Right	A	0.07	10.0	A	0.17	21.3	A	0.10	11.2
	Overall Intersection		***C***	***0.71***	-	***C***	***0.76***	-	***B***	***0.62***	-
Mitch Owens Road at Site Access #1	EB	Through / Right	C	0.77	90.2	C	0.74	78.1	B	0.70	62.9
	WB	Left	A	0.11	5.3	A	0.41	19.5	A	0.44	20.8
		Through	A	0.52	53.1	B	0.68	69.7	A	0.53	46.2
	NB	Left	A	0.03	5.7	A	0.12	16.7	A	0.11	15.3
		Right	A	0.01	4.6	A	0.05	8.3	A	0.08	9.4
	Overall Intersection		***A***	***0.40***	-	***A***	***0.38***	-	***A***	***0.34***	-

Unsignalized Intersections	Approach / Movement		AM Peak Hour LOS	AM Peak Hour Delay (s)	PM Peak Hour LOS	PM Peak Hour Delay (s)	SAT Peak Hour LOS	SAT Peak Hour Delay (s)
Bank Street at Site Access #2	EB	Right	A	9.8	C	20.3	B	14.6
	NB	Left	A	8.0	A	12.5	B	10.8
		Through	A	0.0	A	0.0	A	0.0
	SB	Through	A	0.0	A	0.0	A	0.0
		Right	A	0.0	A	0.0	A	0.0
	Overall Intersection		***A***	***0.3***	***A***	***1.8***	***A***	***1.8***
Mitch Owens Road at Site Access #3	EB	Through	A	0.0	A	0.0	A	0.0
		Right	A	0.0	A	0.0	A	0.0
	WB	Through	A	0.0	A	0.0	A	0.0
	NB	Right	B	10.9	B	10.7	B	10.8
	Overall Intersection		***A***	***0.2***	***A***	***0.6***	***A***	***1.2***

Note: yellow highlight denotes v/c of 0.90 or greater

1. *95th Percentile Queue (m)*
2. *# - 95th percentile volume exceeds capacity, queue may be longer*
3. *v/c – represents the anticipated volume divided by the predicted capacity*

4.4 2021 ULTIMATE FUTURE CONDITIONS

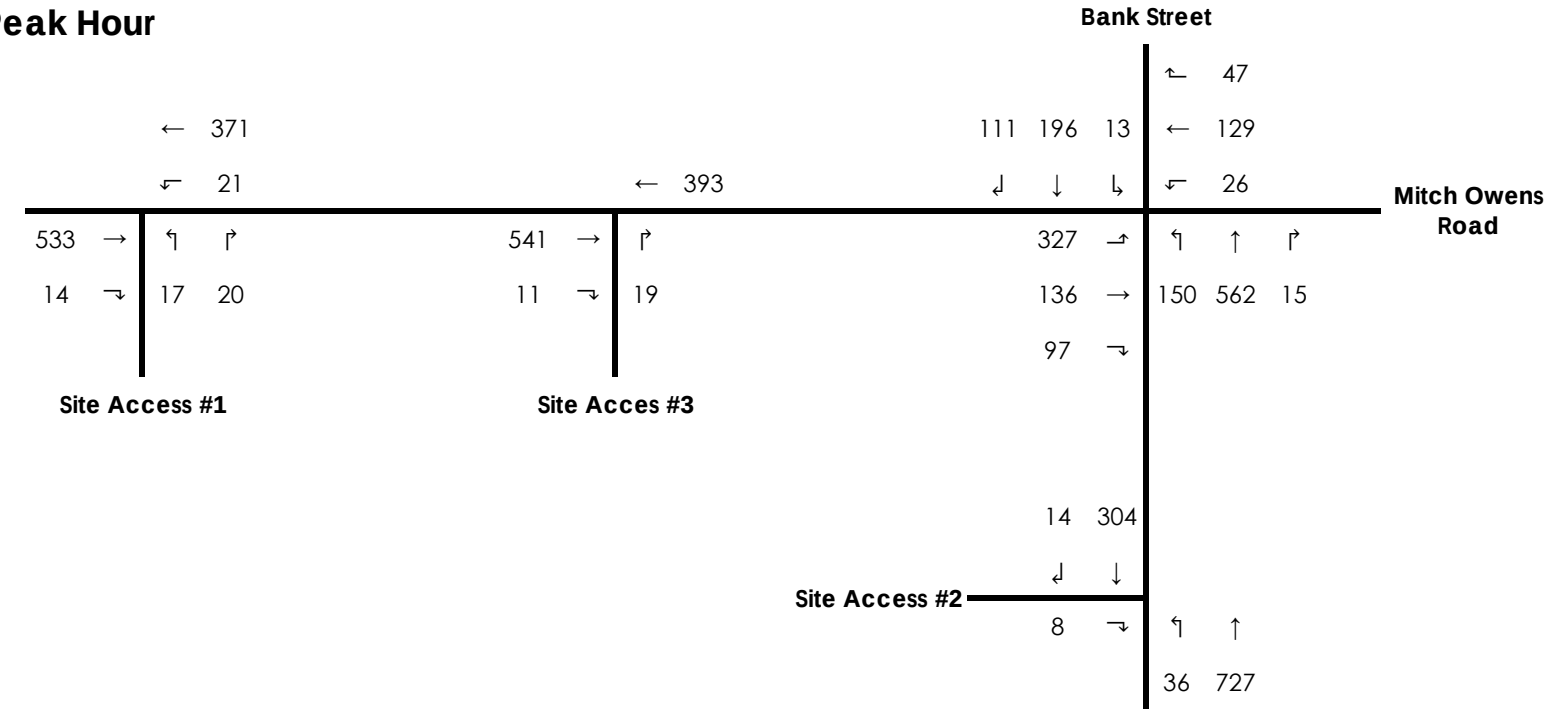
Figure 2 illustrates 2021 ultimate traffic volumes.

Table 2 below provides a summary of 2021 ultimate future intersection operations.

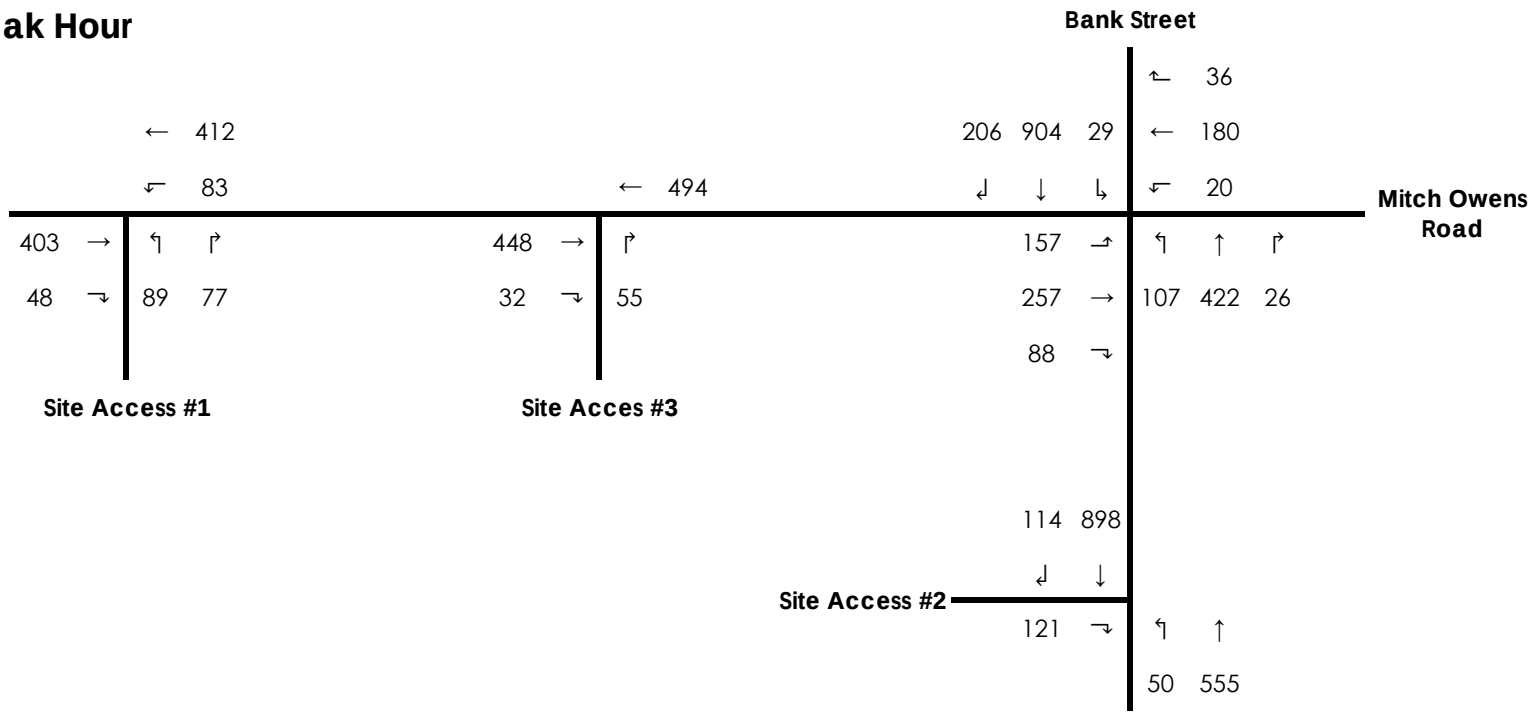
As shown in the table below, with the improvements identified during the 2016 total future horizon the intersections are expected to operate satisfactorily 5 years beyond the build-out of the subject development. No further improvements are required.

Detailed intersection performance worksheets can be found in **Appendix B**.

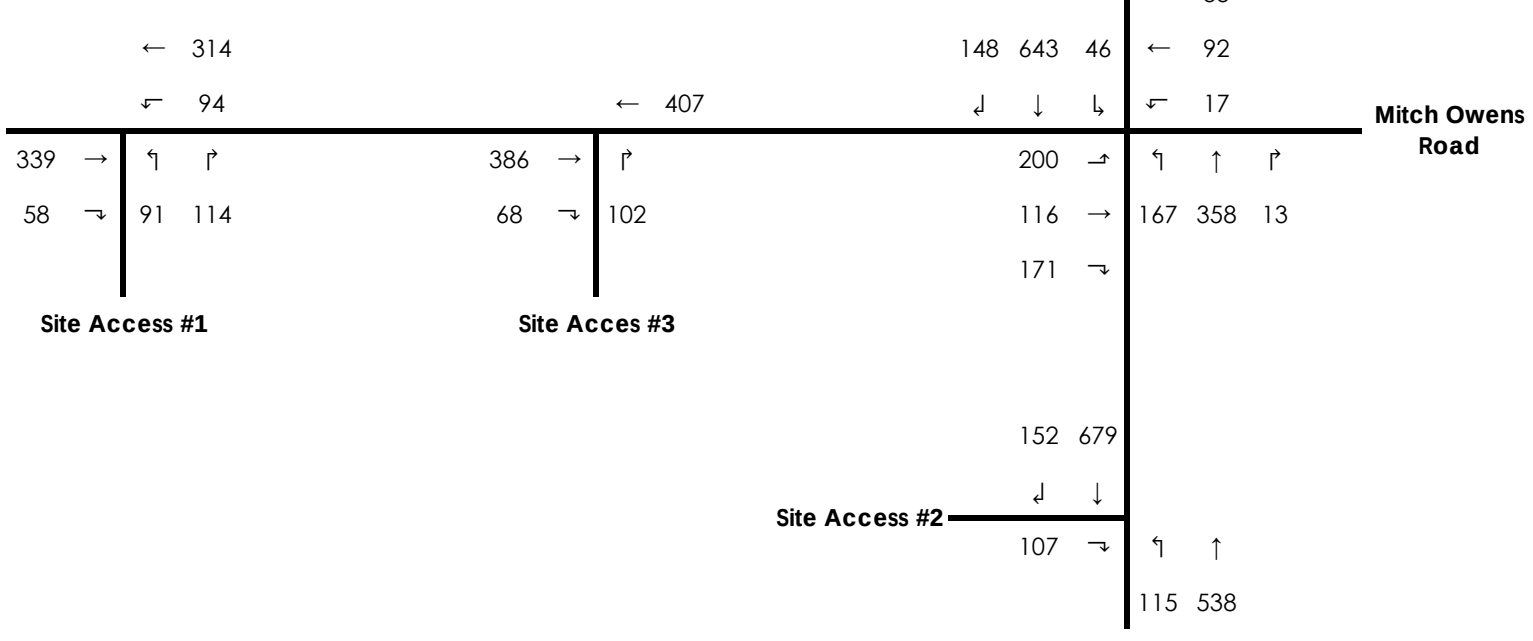
AM Peak Hour



PM Peak Hour



SAT Peak Hour



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OTIS
Bank Street at Mitch Owens Road
Commercial Development
Figure 2
2021 Ultimate Traffic Volumes

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update #2

Table 2 2021 Ultimate Intersection Operations

Signalized Intersections	Approach / Movement		AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	V/C	Q[1] (m)	LOS	V/C	Q[1] (m)	LOS	V/C	Q[1] (m)
Bank Street at Mitch Owens Road	EB	Left	D	0.83	102.5	C	0.73	55.3	B	0.70	52.1
		Through	A	0.23	34.5	B	0.69	78.1	A	0.28	28.3
		Right	A	0.06	11.9	A	0.08	15.2	A	0.11	16.7
	WB	Left	A	0.07	9.6	A	0.13	10.1	A	0.06	6.8
		Through	A	0.22	32.9	A	0.49	54.7	A	0.22	23.3
		Right	A	0.03	8.1	A	0.02	8.8	A	0.02	5.1
	NB	Left	A	0.25	39.9	A	0.48	#46.1	A	0.49	#46.4
		Through	A	0.59	161.3	A	0.36	75.5	A	0.34	55.5
		Right	A	0.01	2.2	A	0.02	3.3	A	0.01	0.3
	SB	Left	A	0.04	5.9	A	0.05	7.1	A	0.08	9.3
		Through	A	0.21	46.2	C	0.77	#287.6	B	0.61	127.7
		Right	A	0.07	12.2	A	0.18	25.3	A	0.12	13.0
	Overall Intersection		***B***	***0.68***	-	***C***	***0.76***	-	***B***	***0.64***	-
Mitch Owens Road at Site Access #1	EB	Through / Right	C	0.76	86.1	C	0.71	66.6	C	0.71	66.9
	WB	Left	A	0.10	5.0	A	0.36	16.1	A	0.45	21.2
		Through	A	0.52	50.8	B	0.66	59.9	A	0.57	51.6
	NB	Left	A	0.03	5.8	A	0.13	16.1	A	0.11	15.8
		Right	A	0.01	4.6	A	0.05	8.2	A	0.08	9.6
	Overall Intersection		***A***	***0.41***	-	***A***	***0.40***	-	***A***	***0.35***	-

Unsignalized Intersections	Approach / Movement		AM Peak Hour		PM Peak Hour		SAT Peak Hour	
			LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
Bank Street at Site Access #2	EB	Right	A	9.8	C	21.5	B	14.8
	NB	Left	A	0.4	B	12.1	B	10.8
		Through	A	0.0	A	0.0	A	0.0
	SB	Through	A	0.0	A	0.0	A	0.0
		Right	A	0.0	A	0.0	A	0.0
	Overall Intersection		***A***	***0.3***	***A***	***1.8***	***A***	***1.8***
Mitch Owens Road at Site Access #3	EB	Through	A	0.0	A	0.0	A	0.0
		Right	A	0.0	A	0.0	A	0.0
	WB	Through	A	0.0	A	0.0	A	0.0
	NB	Right	B	11.0	A	2.0	B	10.9
	Overall Intersection		***A***	***0.2***	***A***	***0.6***	***A***	***1.2***

Note: yellow highlight denotes v/c of 0.90 or greater

1. 95th Percentile Queue (m)
2. # - 95th percentile volume exceeds capacity, queue may be longer
3. v/c – represents the anticipated volume divided by the predicted capacity

5.0 CONCLUSIONS

The findings from this memorandum are consistent with that of the 2014 TIA Update.

Furthermore, it can be concluded that the proposed access to Bank Street will function acceptably with inbound left turns permitted (in addition to right-in/out), however, a northbound left turn lane will be required on Bank Street.

In summary, the proposed retail-commercial development at the south-west corner of the Bank Street at Mitch Owen Road intersection will trigger the following intersection improvements:

- The long-contemplated eastbound and westbound left turn lanes at the Bank Street at Mitch Owens Road intersection will be required in order for the intersection to operate acceptably. By 2021, the proposed development is expected to contribute roughly 30% of the overall peak hour traffic volumes projected for the eastbound left turn movement.

- To facilitate the commercial development's proposed Bank Street access the massive existing eastbound right turn channelized ramp at the Bank Street / Mitch Owens Road intersection will need to be reconstructed and replaced by a more convention right turn lane treatment (i.e. smart channel).

- Traffic signals and auxiliary turning lanes will be required at the main site access (Site Access #1) to Mitch Owens Road.

- A northbound left turn lane on Bank Street will be required to facilitate access to Site Access #2. The northbound left turn lane should include approximately 65m of storage and 95m of taper (to be confirmed during detail design). A southbound right turn lane will also be required with taper and storage lengths to be confirmed during detail design.

Attachment 2 illustrates a conceptual design of the reconfigured Bank Street at Site Access #2 intersection.

With the above improvements, the intersections are expected to operate satisfactorily and the development should be permitted to proceed.

***

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update #2

Our client wishes to proceed with the detailed design of the subject improvements, and as such, we seek the City's comments and overall acceptance of the proposed improvements and any preliminary comments related to the conceptual design. We would be pleased to meet with you to discuss the above in greater detail.

Should you have any questions or concerns please feel free to contact the undersigned at your earliest convenience.

Stantec Consulting Ltd.

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Lauren O'Grady, EIT
Transportation Engineering Intern
Lauren.O'Grady@stantec.com

Attachments: Appendix A – Intersection Turning Movement Counts
Appendix B –Intersection Performance Worksheets
Appendix C – Left Turn Lane Warrant
Attachment 1 – Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update (Stantec 2014)
Attachment 2 – Conceptual Design

Appendix A INTERSECTION TURNING MOVEMENT COUNTS

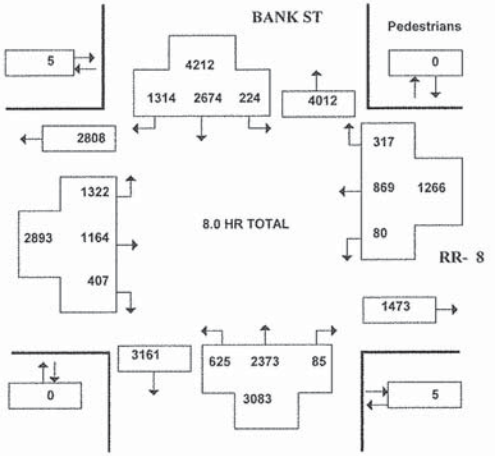
MITCH OWENS RD and BANK ST

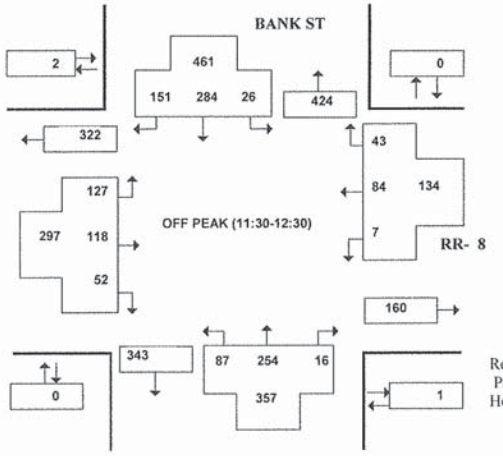
(ULRS Listing RR- 8 & BANK ST)

Survey Date: Thursday 27 June 2013
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Thursday in June is 0.9





Refer to Summary Page for Survey Hours.

Approved by : AWI

Printed on : 13/02/2014

Ottawa — *Public Works and Services Department*
Count ID 3198

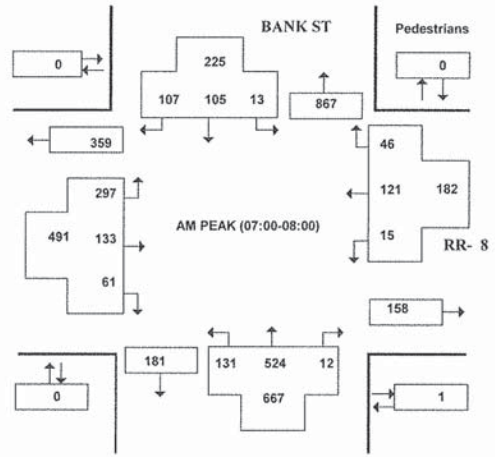
MITCH OWENS RD and BANK ST

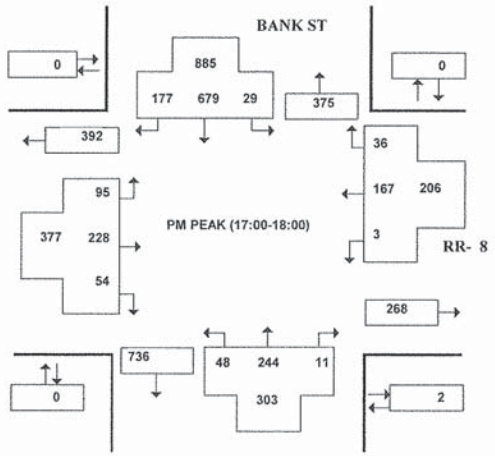
(ULRS Listing RR- 8 & BANK ST)

Survey Date: Thursday 27 June 2013
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Thursday in June is 0.9





Approved by : AWI

Printed on : 13/02/2014

Ottawa — *Public Works and Services Department*

Count ID 3198(

Vehicular Turning Movements - Summary

MITCH OWENS RD and BANK ST

(ULRS Listing RR- 8 & BANK ST)

Survey Date: Thursday 27 June 2013
Conditions: dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Thursday in June is 0.9

	BANK ST									RR- 8									
	Northbound			SUB	Southbound			SUB	STR	Eastbound			SUB	Westbound			SUB	STR	GRAND
Time Period	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	TOT
07:00-08:00	131	524	12	667	13	105	107	225	892	297	133	61	491	15	121	46	182	673	1565
08:00-09:00	113	372	7	492	16	138	91	245	737	236	149	73	458	12	96	39	147	605	1342
09:00-10:00	74	271	8	353	18	179	139	336	689	199	155	46	400	11	88	61	160	560	1249
11:30-12:30	87	254	16	357	26	284	151	461	818	127	118	52	297	7	84	43	134	431	1249
12:30-13:30	70	207	15	292	32	300	146	478	770	114	89	32	235	3	69	29	101	336	1106
15:00-16:00	59	264	9	332	47	424	243	714	1046	151	116	37	304	20	119	46	185	489	1535
16:00-17:00	43	237	7	287	43	565	260	868	1155	103	176	52	331	9	125	17	151	482	1637
17:00-18:00	48	244	11	303	29	679	177	885	1188	95	228	54	377	3	167	36	206	583	1771
8.0 HR TOTAL	625	2373	85	3083	224	2674	1314	4212	7295	1322	1164	407	2893	80	869	317	1266	4159	11454
EQU. 12 HR TOTAL	868	3298	118	4284	311	3716	1826	5853	10137	1837	1617	565	4019	111	1207	440	1758	5777	15914
AVG. 12 HR TOTAL	781	2968	106	3855	279	3344	1643	5266	9121	1653	1455	508	3616	99	1086	396	1581	5197	14318
AVG. 24 HR TOTAL	1023	3888	138	5049	365	4380	2152	6897	11946	2165	1906	665	4736	129	1422	518	2069	6805	18751
AM TOTAL (0700-0900)	244	896	19	1159	29	243	198	470	1629	533	282	134	949	27	217	85	329	1278	2907
PM TOTAL (1530-1730)	93	498	18	609	86	1140	478	1704	2313	239	327	89	655	21	267	55	343	998	3311

Note: These values are calculated by multiplying the totals by the appropriate expansion factor.

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.

Note: These volumes were calculated by multiplying the Average Daily 12 hr totals by 1.31.

Ottawa — *Public Works and Services Department*

Count ID 31980

Vehicular Turning Movements (15 Min. Volumes)

MITCH OWENS RD and BANK ST

(ULRS Listing RR- 8 & BANK ST)

Survey Date: Thursday 27 June 2013
Conditions: dry
Start Time: 07:00

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
Thursday in June is 0.9

	BANK ST									RR- 8									
	Northbound			SUB	Southbound			SUB	STR	Eastbound			SUB	Westbound			SUB	STR	GRAND
Time Period	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	TOT
07:00-07:15	29	148	3	180	1	14	21	36	216	81	25	2	108	3	25	3	31	139	355
07:15-07:30	41	126	6	173	4	16	33	53	226	73	43	11	127	4	35	18	57	184	410
07:30-07:45	36	140	2	178	3	34	19	56	234	62	30	31	123	3	31	14	48	171	405
07:45-08:00	25	110	1	136	5	41	34	80	216	81	35	17	133	5	30	11	46	179	395
08:00-08:15	29	96	3	128	6	22	16	44	172	54	31	6	91	0	16	11	27	118	290
08:15-08:30	32	110	1	143	3	28	17	48	191	77	60	10	147	4	31	8	43	190	381
08:30-08:45	29	75	1	105	4	42	25	71	176	47	31	40	118	3	23	13	39	157	333
08:45-09:00	23	91	2	116	3	46	33	82	198	58	27	17	102	5	26	7	38	140	338
09:00-09:15	21	68	3	92	5	59	33	97	189	49	40	9	98	8	22	27	57	155	344
09:15-09:30	25	79	4	108	6	39	38	83	191	59	44	17	120	1	30	10	41	161	352
09:30-09:45	14	60	1	75	7	50	37	94	169	36	24	14	74	2	21	18	41	115	284
09:45-10:00	14	64	0	78	0	31	31	62	140	55	47	6	108	0	15	6	21	129	269
11:30-11:45	32	80	4	116	4	57	37	98	214	28	28	17	73	4	12	10	26	99	313
11:45-12:00	18	49	3	70	6	81	38	125	195	26	28	3	57	1	20	14	35	92	287
12:00-12:15	21	68	3	92	10	66	40	116	208	37	29	19	85	0	20	8	28	113	321
12:15-12:30	16	57	6	79	6	80	36	122	201	36	33	13	82	2	32	11	45	127	328
12:30-12:45	24	65	7	96	8	54	28	90	186	30	20	3	53	2	20	7	29	82	268
12:45-13:00	18	43	2	63	7	69	42	118	181	19	17	2	38	0	11	8	19	57	238
13:00-13:15	18	60	2	80	10	85	35	130	210	44	18	14	76	1	16	6	23	99	309
13:15-13:30	10	39	4	53	7	92	41	140	193	21	34	13	68	0	22	8	30	98	291
15:00-15:15	12	77	0	89	5	89	46	140	229	23	23	3	49	5	13	5	23	72	301
15:15-15:30	14	53	1	68	9	86	68	163	231	36	31	11	78	4	27	12	43	121	352
15:30-15:45	14	60	2	76	12	128	57	197	273	52	31	18	101	6	41	14	61	162	435
15:45-16:00	19	74	6	99	21	121	72	214	313	40	31	5	76	5	38	15	58	134	447
16:00-16:15	15	67	1	83	15	147	61	223	306	20	43	6	69	3	37	10	50	119	425
16:15-16:30	8	45	4	57	9	141	74	224	281	44	55	22	121	3	26	4	33	154	435
16:30-16:45	11	80	0	91	10	163	58	231	322	26	34	12	72	0	26	1	27	99	421
16:45-17:00	9	45	2	56	9	114	67	190	246	13	44	12	69	3	36	2	41	110	356
17:00-17:15	12	67	3	82	4	132	49	185	267	17	20	5	42	1	32	3	36	78	345
17:15-17:30	5	60	0	65	6	194	40	240	305	27	69	9	105	0	31	6	37	142	447
17:30-17:45	9	73	1	83	9	171	46	226	309	25	81	21	127	2	43	8	53	180	489
17:45-18:00	22	44	7	73	10	182	42	234	307	26	58	19	103	0	61	19	80	183	490

Approved by: AWD

Printed on : 13/02/2014

Ottawa — *Public Works and Services Department*

Count ID 31980

Pedestrian Volume Summary Sheet - Hourly Volumes

MITCH OWENS RD and BANK ST

(ULRS Listing RR- 8 & BANK ST)

Survey Date: Thursday 27 June 2013 **Conditions:** dry **Start Time:** 0700

Time Period	CROSSING BANK ST N/B APPROACH	CROSSING BANK ST S/B APPROACH	STREET TOTAL	CROSSING RR- 8 E/B APPROACH	CROSSING RR- 8 W/B APPROACH	STREET TOTAL	GRAND TOTAL
07:00-08:00	1	0	1	0	0	0	1
08:00-09:00	0	1	1	0	0	0	1
09:00-10:00	0	0	0	0	0	0	0
11:30-12:30	1	2	3	0	0	0	3
12:30-13:30	0	0	0	0	0	0	0
15:00-16:00	1	0	1	0	0	0	1
16:00-17:00	0	2	2	0	0	0	2
17:00-18:00	2	0	2	0	0	0	2
8.0 HR TOTAL	5	5	10	0	0	0	10
PEAK PERIOD SUMMARIES							
AM PEAK PERIOD (7:00-9:00)							
07:00-07:15	1	0	1	0	0	0	1
07:15-07:30	0	0	0	0	0	0	0
07:30-07:45	0	0	0	0	0	0	0
07:45-08:00	0	0	0	0	0	0	0
08:00-08:15	0	0	0	0	0	0	0
08:15-08:30	0	1	1	0	0	0	1
08:30-08:45	0	0	0	0	0	0	0
08:45-09:00	0	0	0	0	0	0	0
TOTALS	1	1	2	0	0	0	2
OFF PEAK PERIOD (11:30-13:30)							
11:30-11:45	1	0	1	0	0	0	1
11:45-12:00	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0
12:15-12:30	0	2	2	0	0	0	2
12:30-12:45	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0
13:00-13:15	0	0	0	0	0	0	0
13:15-13:30	0	0	0	0	0	0	0
TOTALS	1	2	3	0	0	0	3
PM PEAK PERIOD (15:30-17:30)							
15:30-15:45	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0
16:00-16:15	0	0	0	0	0	0	0
16:15-16:30	0	0	0	0	0	0	0
16:30-16:45	0	0	0	0	0	0	0
16:45-17:00	0	2	2	0	0	0	2
17:00-17:15	1	0	1	0	0	0	1
17:15-17:30	1	0	1	0	0	0	1
TOTALS	2	2	4	0	0	0	4

Approved by: AWD

Printed on : 13/02/2014

Ottawa — *Public Works and Services Department*

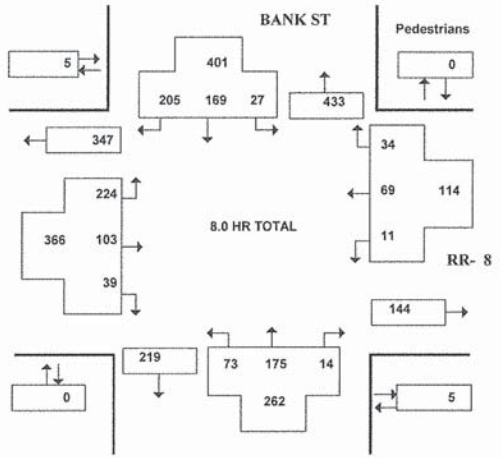
Count ID 31980

Heavy Vehicle Summary Sheet - Hourly Volumes

MITCH OWENS RD and BANK ST

(ULRS Listing RR- 8 & BANK ST)

Survey Date :Thursday 27 June 2013 **Conditions : dry** **Start Time : 0700**



	BANK ST									RR- 8									
	Northbound			SUB	Southbound			SUB	STR	Eastbound			SUB	Westbound			SUB	STR	GRAND
Time Period	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	TOT	TOT
07:00-08:00	9	29	3	41	4	12	29	45	86	23	11	10	44	1	12	4	17	61	147
08:00-09:00	12	27	1	40	4	21	21	46	86	33	11	6	50	3	10	4	17	67	153
09:00-10:00	8	14	1	23	4	25	22	51	74	37	13	8	58	1	10	6	17	75	149
11:30-12:30	15	21	3	39	4	23	22	49	88	27	12	5	44	1	6	7	14	58	146
12:30-13:30	16	15	2	33	2	24	33	59	92	24	15	6	45	1	6	2	9	54	146
15:00-16:00	7	29	3	39	7	19	45	71	110	33	8	0	41	3	8	10	21	62	172
16:00-17:00	3	24	0	27	2	20	23	45	72	25	20	1	46	1	8	1	10	56	128
17:00-18:00	3	16	1	20	0	25	10	35	55	22	13	3	38	0	9	0	9	47	102
8.0 HR TOTAL	73	175	14	262	27	169	205	401	663	224	103	39	366	11	69	34	114	480	1143

Heavy Vehicles are vehicles having one rear axle with four or more wheels, or having two or more rear axles. These vehicles include most O.C. Transpo, school and inter-city buses. Further, they ARE included in the Turning Movement Count Summary.

Approved by: AWD

Printed on: 13/02/2014

Bank @ Mitch Owens
Saturday February 11/2012

	BANK Southbound				MITCH OWENS Westbound				BANK Northbound				MITCH OWENS Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
01:30 PM	28	47	15	0	6	15	6	0	1	72	13	0	8	16	22	0	
01:45 PM	22	72	9	0	7	19	2	0	2	52	25	0	13	22	27	0	
02:00 PM	31	55	10	0	9	19	0	0	0	51	13	0	20	20	22	0	1049
02:15 PM	28	80	14	0	7	11	2	0	1	53	23	0	12	23	24	0	1066
02:30 PM	27	71	13	0	10	20	1	0	3	52	15	0	20	10	24	0	1029
02:45 PM	31	53	13	0	11	14	4	0	2	41	11	0	20	15	20	0	1032
03:00 PM	26	65	13	0	12	10	2	0	5	52	13	0	14	22	19	0	1002
03:15 PM	27	60	7	0	6	22	3	0	2	54	13	0	19	18	17	0	
Heavy Vehicles																	
01:30 PM	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	
01:45 PM	3	3	0	0	0	1	0	0	0	0	0	0	1	0	0	0	
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
02:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0	13
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
02:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	9
03:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	8
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	

Peak Hour

	BANK Southbound				MITCH OWENS Westbound				BANK Northbound				MITCH OWENS Eastbound				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
1:45 PM	108	278	46	0	33	69	5	0	6	208	76	0	65	75	97	0	1066
HV %	3%	1%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%	3%	2%	0%	

Appendix B INTERSECTION PERFORMANCE WORKSHEETS

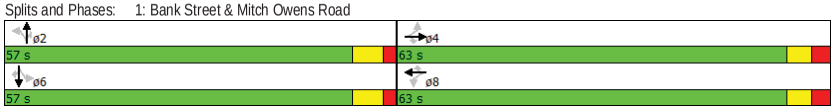
B.1 2016 TOTAL FUTURE CONDITIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.966			0.992		0.950			0.950		
Satd. Flow (prot)	0	1724	1517	0	1770	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.696			0.872		0.630			0.282		
Satd. Flow (perm)	0	1242	1517	0	1556	1517	1124	1784	1517	503	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			59			46			32			110
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	458	97	0	154	46	149	562	14	13	196	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	63.0	63.0	63.0	63.0	63.0	63.0	57.0	57.0	57.0	57.0	57.0	57.0
Total Split (%)	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%
Maximum Green (s)	56.5	56.5	56.5	56.5	56.5	56.5	50.4	50.4	50.4	50.4	50.4	50.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		43.8	43.8		43.8	43.8	50.9	50.9	50.9	50.9	50.9	50.9
Actuated g/C Ratio		0.41	0.41		0.41	0.41	0.47	0.47	0.47	0.47	0.47	0.47
v/c Ratio		0.91	0.15		0.24	0.07	0.28	0.67	0.02	0.05	0.23	0.14
Control Delay		60.3	8.9		21.3	5.3	22.0	29.4	2.1	20.7	20.2	4.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		60.3	8.9		21.3	5.3	22.0	29.4	2.1	20.7	20.2	4.4
LOS		E	A		C	A	C	C	A	C	C	A
Approach Delay		51.3			17.6			27.3			14.8	
Approach LOS		D			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 31.4		Intersection LOS: C	
Intersection Capacity Utilization 92.2%		ICU Level of Service F	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	458	97	154	46	149	562	14	13	196	110
v/c Ratio	0.91	0.15	0.24	0.07	0.28	0.67	0.02	0.05	0.23	0.14
Control Delay	60.3	8.9	21.3	5.3	22.0	29.4	2.1	20.7	20.2	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	8.9	21.3	5.3	22.0	29.4	2.1	20.7	20.2	4.4
Queue Length 50th (m)	88.1	4.7	20.8	0.0	19.2	91.9	0.0	1.5	24.6	0.0
Queue Length 95th (m)	#175.7	16.8	38.9	7.7	45.2	#196.7	2.2	6.6	52.8	13.4
Internal Link Dist (m)	115.1		254.3			126.1			132.1	
Turn Bay Length (m)		30.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	656	829	822	823	530	840	732	237	840	773
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.12	0.19	0.06	0.28	0.67	0.02	0.05	0.23	0.14

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1724	1517		1769	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.70	1.00		0.87	1.00	0.63	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)		1242	1517		1556	1517	1124	1784	1517	503	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
RTOR Reduction (vph)	0	0	35	0	0	27	0	0	7	0	0	58
Lane Group Flow (vph)	0	458	62	0	154	19	149	562	7	13	196	52
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		43.9	43.9		43.9	43.9	50.9	50.9	50.9	50.9	50.9	50.9
Effective Green, g (s)		43.9	43.9		43.9	43.9	50.9	50.9	50.9	50.9	50.9	50.9
Actuated g/C Ratio		0.41	0.41		0.41	0.41	0.47	0.47	0.47	0.47	0.47	0.47
Clearance Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		505	617		633	617	530	841	715	237	841	715
v/s Ratio Prot								c0.31			0.11	
v/s Ratio Perm		c0.37	0.04		0.10	0.01	0.13		0.00	0.03		0.03
v/c Ratio		0.91	0.10		0.24	0.03	0.28	0.67	0.01	0.05	0.23	0.07
Uniform Delay, d1		30.1	19.8		21.1	19.2	17.4	22.0	15.1	15.5	16.9	15.6
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		25.3	0.1		0.2	0.0	1.3	4.3	0.0	0.4	0.7	0.2
Delay (s)		55.4	19.9		21.3	19.2	18.7	26.3	15.1	15.9	17.6	15.8
Level of Service		E	B		C	B	B	C	B	B	B	B
Approach Delay (s)		49.2			20.8			24.5			16.9	
Approach LOS		D			C			C			B	

Intersection Summary

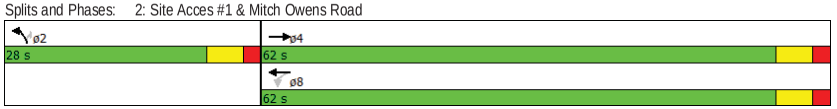
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	13.1
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	528	14	21	366	17	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1779	0	1695	1784	1695	1517
Flt Permitted			0.280		0.950	
Satd. Flow (perm)	1779	0	500	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3					20
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	528	14	21	366	17	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	542	0	21	366	17	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	62.0		62.0	62.0	28.0	28.0
Total Split (%)	68.9%		68.9%	68.9%	31.1%	31.1%
Maximum Green (s)	56.0		56.0	56.0	22.0	22.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	22.3		22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.39		0.39	0.39	0.39	0.39
v/c Ratio	0.77		0.11	0.52	0.03	0.03
Control Delay	23.3		11.3	15.6	13.8	7.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	23.3		11.3	15.6	13.8	7.2
LOS	C		B	B	B	A
Approach Delay	23.3			15.4	10.2	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 56.7			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	542	21	366	17	20
v/c Ratio	0.77	0.11	0.52	0.03	0.03
Control Delay	23.3	11.3	15.6	13.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	11.3	15.6	13.8	7.2
Queue Length 50th (m)	45.8	1.3	27.3	1.0	0.0
Queue Length 95th (m)	90.2	5.3	53.1	5.7	4.6
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1696	477	1701	665	607
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.04	0.22	0.03	0.03

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	528	14	21	366	17	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1778		1695	1784	1695	1517
Flt Permitted	1.00		0.28	1.00	0.95	1.00
Satd. Flow (perm)	1778		500	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	528	14	21	366	17	20
RTOR Reduction (vph)	2	0	0	0	0	12
Lane Group Flow (vph)	540	0	21	366	17	8
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	22.3		22.3	22.3	22.3	22.3
Effective Green, g (s)	22.3		22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.39		0.39	0.39	0.39	0.39
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	700		196	702	667	597
v/s Ratio Prot	c0.30			0.21	c0.01	
v/s Ratio Perm			0.04			0.01
v/c Ratio	0.77		0.11	0.52	0.03	0.01
Uniform Delay, d1	14.9		10.9	13.1	10.5	10.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5		0.2	0.7	0.1	0.0
Delay (s)	20.4		11.1	13.8	10.6	10.5
Level of Service	C		B	B	B	B
Approach Delay (s)	20.4			13.6	10.5	
Approach LOS	C			B	B	

Intersection Summary					
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	8	36	725	304	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	8	36	725	304	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	8	36	725	304	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.6%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	8	36	725	304	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	8	36	725	304	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.95	0.95	0.95			
vC, conflicting volume	1101	304	318			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1078	235	250			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	97			
cM capacity (veh/h)	222	760	1244			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	36	725	304	14
Volume Left	0	36	0	0	0
Volume Right	8	0	0	0	14
cSH	760	1244	1700	1700	1700
Volume to Capacity	0.01	0.03	0.43	0.18	0.01
Queue Length 95th (m)	0.2	0.7	0.0	0.0	0.0
Control Delay (s)	9.8	8.0	0.0	0.0	0.0
Lane LOS	A	A			
Approach Delay (s)	9.8	0.4		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	43.6%	ICU Level of Service		A
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	536	11	0	388	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	536	11	0	388	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	11	0	388	0	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	39.8%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	536	11	0	388	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	536	11	0	388	0	19
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.74		0.77	0.74
vC, conflicting volume			547		924	536
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			205		542	190
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1006		387	627

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	536	11	388	19
Volume Left	0	0	0	0
Volume Right	0	11	0	19
cSH	1700	1700	1700	627
Volume to Capacity	0.32	0.01	0.23	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.7
Control Delay (s)	0.0	0.0	0.0	10.9
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.9
Approach LOS				B

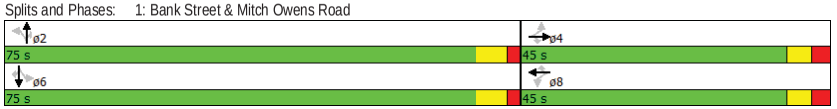
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	60		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.981			0.995		0.950			0.950		
Satd. Flow (prot)	0	1750	1517	0	1775	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.718			0.831		0.111			0.447		
Satd. Flow (perm)	0	1281	1517	0	1483	1517	198	1784	1517	798	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			46			36			32			78
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	87	0	198	36	106	422	26	29	904	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	75.0	75.0	75.0	75.0	75.0	75.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%
Maximum Green (s)	38.5	38.5	38.5	38.5	38.5	38.5	68.4	68.4	68.4	68.4	68.4	68.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		38.5	38.5		38.5	38.5	68.4	68.4	68.4	68.4	68.4	68.4
Actuated g/C Ratio		0.32	0.32		0.32	0.32	0.57	0.57	0.57	0.57	0.57	0.57
v/c Ratio		1.00	0.17		0.42	0.07	0.95	0.42	0.03	0.06	0.89	0.23
Control Delay		134.9	16.1		35.3	9.2	153.3	16.1	3.2	12.1	36.9	8.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		134.9	16.1		35.3	9.2	153.3	16.1	3.2	12.1	36.9	8.4
LOS		F	B		D	A	F	B	A	B	D	A
Approach Delay		114.2			31.3			41.8			31.2	
Approach LOS		F			C			D			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 50.7		Intersection LOS: D	
Intersection Capacity Utilization 112.6%		ICU Level of Service H	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	412	87	198	36	106	422	26	29	904	205
v/c Ratio	1.00	0.17	0.42	0.07	0.95	0.42	0.03	0.06	0.89	0.23
Control Delay	134.9	16.1	35.3	9.2	153.3	16.1	3.2	12.1	36.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.9	16.1	35.3	9.2	153.3	16.1	3.2	12.1	36.9	8.4
Queue Length 50th (m)	~97.3	6.7	36.4	0.0	22.0	53.2	0.0	2.9	176.6	13.4
Queue Length 95th (m)	#190.9	21.8	66.3	8.9	#43.6	88.6	4.0	8.3	#326.6	30.3
Internal Link Dist (m)	115.1		254.3			126.1			132.1	
Turn Bay Length (m)		30.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	410	517	475	511	112	1016	878	454	1016	898
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.17	0.42	0.07	0.95	0.42	0.03	0.06	0.89	0.23

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1751	1517		1775	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.72	1.00		0.83	1.00	0.11	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)		1282	1517		1483	1517	197	1784	1517	797	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
RTOR Reduction (vph)	0	0	31	0	0	24	0	0	11	0	0	34
Lane Group Flow (vph)	0	412	56	0	198	12	106	422	15	29	904	171
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		38.5	38.5		38.5	38.5	68.4	68.4	68.4	68.4	68.4	68.4
Effective Green, g (s)		38.5	38.5		38.5	38.5	68.4	68.4	68.4	68.4	68.4	68.4
Actuated g/C Ratio		0.32	0.32		0.32	0.32	0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		411	486		475	486	112	1016	864	454	1016	864
v/s Ratio Prot								0.24			0.51	
v/s Ratio Perm		c0.32	0.04		0.13	0.01	c0.54		0.01	0.04		0.11
v/c Ratio		1.00	0.11		0.42	0.02	0.95	0.42	0.02	0.06	0.89	0.20
Uniform Delay, d1		40.8	28.7		31.9	27.9	24.1	14.5	11.2	11.5	22.5	12.5
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		91.1	0.1		0.6	0.0	124.1	1.3	0.0	0.3	13.4	0.5
Delay (s)		131.9	28.8		32.5	27.9	148.2	15.8	11.2	11.8	35.9	13.0
Level of Service		F	C		C	C	F	B	B	B	D	B
Approach Delay (s)		113.9			31.8			40.9			31.2	
Approach LOS		F			C			D			C	

Intersection Summary

HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.1
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	60		

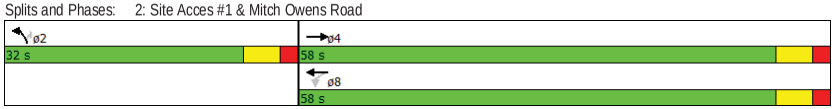
c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	400	48	83	408	89	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	0	1695	1784	1695	1517
Flt Permitted			0.332		0.950	
Satd. Flow (perm)	1759	0	592	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11					77
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	400	48	83	408	89	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	0	83	408	89	77
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	58.0		58.0	58.0	32.0	32.0
Total Split (%)	64.4%		64.4%	64.4%	35.6%	35.6%
Maximum Green (s)	52.0		52.0	52.0	26.0	26.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	19.5		19.5	19.5	26.2	26.2
Actuated g/C Ratio	0.34		0.34	0.34	0.45	0.45
v/c Ratio	0.75		0.42	0.68	0.12	0.11
Control Delay	25.1		21.4	22.6	11.5	4.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.1		21.4	22.6	11.5	4.0
LOS	C		C	C	B	A
Approach Delay	25.1			22.4	8.0	
Approach LOS	C			C	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 57.8			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 50.4%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	448	83	408	89	77
v/c Ratio	0.75	0.42	0.68	0.12	0.11
Control Delay	25.1	21.4	22.6	11.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	21.4	22.6	11.5	4.0
Queue Length 50th (m)	39.5	6.5	35.7	5.0	0.0
Queue Length 95th (m)	78.1	19.5	69.7	16.7	8.3
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1588	534	1609	769	730
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.25	0.12	0.11

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	400	48	83	408	89	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1759		1695	1784	1695	1517
Flt Permitted	1.00		0.33	1.00	0.95	1.00
Satd. Flow (perm)	1759		592	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	400	48	83	408	89	77
RTOR Reduction (vph)	7	0	0	0	0	42
Lane Group Flow (vph)	441	0	83	408	89	35
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	19.5		19.5	19.5	26.2	26.2
Effective Green, g (s)	19.5		19.5	19.5	26.2	26.2
Actuated g/C Ratio	0.34		0.34	0.34	0.45	0.45
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	594		200	602	769	688
v/s Ratio Prot	c0.25			0.23	c0.05	
v/s Ratio Perm			0.14			0.02
v/c Ratio	0.74		0.41	0.68	0.12	0.05
Uniform Delay, d1	16.9		14.7	16.4	9.1	8.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1		1.4	3.1	0.3	0.1
Delay (s)	22.0		16.1	19.5	9.4	8.9
Level of Service	C		B	B	A	A
Approach Delay (s)	22.0			18.9	9.2	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	57.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	121	50	554	897	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	121	50	554	897	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	121	50	554	897	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	121	50	554	897	114
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	121	50	554	897	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.55	0.55	0.55			
vC, conflicting volume	1551	897	1011			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1593	401	609			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	66	91			
cM capacity (veh/h)	59	356	532			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	121	50	554	897	114
Volume Left	0	50	0	0	0
Volume Right	121	0	0	0	114
cSH	356	532	1700	1700	1700
Volume to Capacity	0.34	0.09	0.33	0.53	0.07
Queue Length 95th (m)	11.6	2.4	0.0	0.0	0.0
Control Delay (s)	20.3	12.5	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	20.3	1.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	64.4%	ICU Level of Service		C
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	445	32	0	490	0	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	445	32	0	490	0	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	32	0	490	0	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.0%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	445	32	0	490	0	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	445	32	0	490	0	55
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.81		0.85	0.81
vC, conflicting volume			477		935	445
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			240		612	200
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1077		390	682

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	445	32	490	55
Volume Left	0	0	0	0
Volume Right	0	32	0	55
cSH	1700	1700	1700	682
Volume to Capacity	0.26	0.02	0.29	0.08
Queue Length 95th (m)	0.0	0.0	0.0	2.0
Control Delay (s)	0.0	0.0	0.0	10.7
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.7
Approach LOS				B

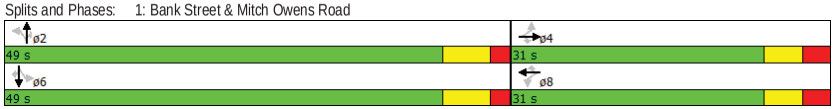
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	60		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	0		1	0		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected		0.969			0.992		0.950			0.950		
Satd. Flow (prot)	0	1729	1517	0	1770	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.747			0.918		0.299			0.524		
Satd. Flow (perm)	0	1333	1517	0	1638	1517	534	1784	1517	935	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			49			48			97
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	301	167	0	100	33	160	358	13	46	643	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%	61.3%	61.3%	61.3%	61.3%	61.3%	61.3%
Maximum Green (s)	24.5	24.5	24.5	24.5	24.5	24.5	42.4	42.4	42.4	42.4	42.4	42.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)		20.8	20.8		20.8	20.8	42.6	42.6	42.6	42.6	42.6	42.6
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.56	0.56	0.56	0.56	0.56	0.56
v/c Ratio		0.83	0.31		0.22	0.07	0.54	0.36	0.02	0.09	0.65	0.15
Control Delay		50.0	5.5		22.5	4.4	20.8	11.5	0.0	9.7	16.6	3.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		50.0	5.5		22.5	4.4	20.8	11.5	0.0	9.7	16.6	3.9
LOS		D	A		C	A	C	B	A	A	B	A
Approach Delay		34.1			18.0			14.0			14.1	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.5			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 19.2		Intersection LOS: B	
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	301	167	100	33	160	358	13	46	643	132
v/c Ratio	0.83	0.31	0.22	0.07	0.54	0.36	0.02	0.09	0.65	0.15
Control Delay	50.0	5.5	22.5	4.4	20.8	11.5	0.0	9.7	16.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	5.5	22.5	4.4	20.8	11.5	0.0	9.7	16.6	3.9
Queue Length 50th (m)	40.6	0.0	11.1	0.0	14.6	28.7	0.0	3.1	64.3	2.3
Queue Length 95th (m)	#92.4	16.5	25.2	5.1	#50.9	55.5	0.3	9.3	127.7	12.1
Internal Link Dist (m)	115.1		254.3			126.1			132.1	
Turn Bay Length (m)		30.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	428	600	526	520	297	992	865	520	992	887
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.28	0.19	0.06	0.54	0.36	0.02	0.09	0.65	0.15

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1729	1517		1770	1517	1695	1784	1517	1695	1784	1517
Flt Permitted		0.75	1.00		0.92	1.00	0.30	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)		1334	1517		1637	1517	534	1784	1517	935	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
RTOR Reduction (vph)	0	0	122	0	0	24	0	0	6	0	0	43
Lane Group Flow (vph)	0	301	45	0	100	9	160	358	7	46	643	89
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		20.8	20.8		20.8	20.8	42.5	42.5	42.5	42.5	42.5	42.5
Effective Green, g (s)		20.8	20.8		20.8	20.8	42.5	42.5	42.5	42.5	42.5	42.5
Actuated g/C Ratio		0.27	0.27		0.27	0.27	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)		6.5	6.5		6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		363	413		445	413	297	992	843	520	992	843
v/s Ratio Prot								0.20			c0.36	
v/s Ratio Perm		c0.23	0.03		0.06	0.01	0.30		0.00	0.05		0.06
v/c Ratio		0.83	0.11		0.22	0.02	0.54	0.36	0.01	0.09	0.65	0.11
Uniform Delay, d1		26.1	20.9		21.5	20.4	10.7	9.4	7.6	7.9	11.8	8.0
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		16.3	0.1		0.3	0.0	7.0	1.0	0.0	0.3	3.3	0.3
Delay (s)		42.4	21.0		21.8	20.4	17.8	10.4	7.6	8.2	15.1	8.2
Level of Service		D	C		C	C	B	B	A	A	B	A
Approach Delay (s)		34.8			21.5			12.6			13.6	
Approach LOS		C			C			B			B	

Intersection Summary

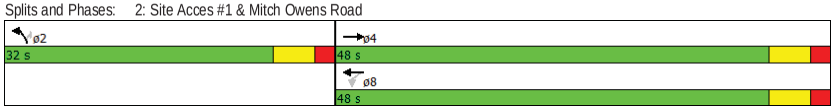
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	76.4	Sum of lost time (s)	13.1
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	320	58	94	283	91	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1747	0	1695	1784	1695	1517
Flt Permitted			0.401		0.950	
Satd. Flow (perm)	1747	0	716	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	17					114
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	58	94	283	91	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	378	0	94	283	91	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	48.0		48.0	48.0	32.0	32.0
Total Split (%)	60.0%		60.0%	60.0%	40.0%	40.0%
Maximum Green (s)	42.0		42.0	42.0	26.0	26.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	16.4		16.4	16.4	26.2	26.2
Actuated g/C Ratio	0.30		0.30	0.30	0.48	0.48
v/c Ratio	0.71		0.44	0.53	0.11	0.15
Control Delay	24.0		22.1	19.5	9.9	3.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.0		22.1	19.5	9.9	3.2
LOS	C		C	B	A	A
Approach Delay	24.0			20.1	6.2	
Approach LOS	C			C	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 54.7			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 47.3%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	378	94	283	91	114
v/c Ratio	0.71	0.44	0.53	0.11	0.15
Control Delay	24.0	22.1	19.5	9.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	22.1	19.5	9.9	3.2
Queue Length 50th (m)	30.9	7.3	22.7	4.5	0.0
Queue Length 95th (m)	62.9	20.8	46.2	15.3	9.4
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1355	553	1379	811	785
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.17	0.21	0.11	0.15

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	320	58	94	283	91	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1747		1695	1784	1695	1517
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	1747		716	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	58	94	283	91	114
RTOR Reduction (vph)	12	0	0	0	0	59
Lane Group Flow (vph)	366	0	94	283	91	55
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	16.4		16.4	16.4	26.2	26.2
Effective Green, g (s)	16.4		16.4	16.4	26.2	26.2
Actuated g/C Ratio	0.30		0.30	0.30	0.48	0.48
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	524		215	535	813	727
v/s Ratio Prot	c0.21			0.16	c0.05	
v/s Ratio Perm			0.13			0.04
v/c Ratio	0.70		0.44	0.53	0.11	0.08
Uniform Delay, d1	16.9		15.4	15.9	7.8	7.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1		1.4	1.0	0.3	0.2
Delay (s)	21.1		16.8	16.8	8.1	7.9
Level of Service	C		B	B	A	A
Approach Delay (s)	21.1			16.8	8.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	107	115	531	674	152
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	107	115	531	674	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	107	115	531	674	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	107	115	531	674	152
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	107	115	531	674	152
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1435	674	826			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1416	427	624			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	78	84			
cM capacity (veh/h)	98	483	737			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	107	115	531	674	152
Volume Left	0	115	0	0	0
Volume Right	107	0	0	0	152
cSH	483	737	1700	1700	1700
Volume to Capacity	0.22	0.16	0.31	0.40	0.09
Queue Length 95th (m)	6.5	4.2	0.0	0.0	0.0
Control Delay (s)	14.6	10.8	0.0	0.0	0.0
Lane LOS	B	B			
Approach Delay (s)	14.6	1.9		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	51.1%	ICU Level of Service		A
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	367	68	0	376	0	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	367	68	0	376	0	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	367	68	0	376	0	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	33.7%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	367	68	0	376	0	102
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	367	68	0	376	0	102
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.90		0.91	0.90
vC, conflicting volume			435		743	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			311		606	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			1119		418	720

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	367	68	376	102
Volume Left	0	0	0	0
Volume Right	0	68	0	102
cSH	1700	1700	1700	720
Volume to Capacity	0.22	0.04	0.22	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.8
Control Delay (s)	0.0	0.0	0.0	10.8
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.8
Approach LOS				B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	60		

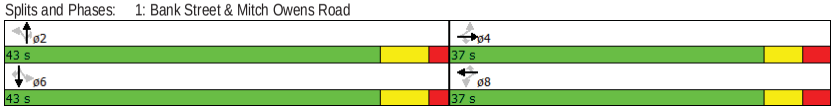
B.2 2016 TOTAL FUTURE CONDITIONS – WITH MODIFICATIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.675			0.671			0.634			0.327		
Satd. Flow (perm)	1204	1784	1517	1197	1784	1517	1131	1784	1517	583	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			49			48			110
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	37.0	37.0	37.0	37.0	37.0	37.0	43.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	46.3%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%
Maximum Green (s)	30.5	30.5	30.5	30.5	30.5	30.5	36.4	36.4	36.4	36.4	36.4	36.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	23.9	23.9	23.9	23.9	23.9	23.9	36.7	36.7	36.7	36.7	36.7	36.7
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
v/c Ratio	0.83	0.23	0.17	0.07	0.22	0.09	0.27	0.63	0.02	0.04	0.22	0.14
Control Delay	44.5	18.6	4.8	16.6	18.4	5.3	14.1	19.2	0.1	12.6	12.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	18.6	4.8	16.6	18.4	5.3	14.1	19.2	0.1	12.6	12.8	3.3
LOS	D	B	A	B	B	A	B	B	A	B	B	A
Approach Delay		31.2			15.2			17.8			9.5	
Approach LOS		C			B			B			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 73.8			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
v/c Ratio	0.83	0.23	0.17	0.07	0.22	0.09	0.27	0.63	0.02	0.04	0.22	0.14
Control Delay	44.5	18.6	4.8	16.6	18.4	5.3	14.1	19.2	0.1	12.6	12.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	18.6	4.8	16.6	18.4	5.3	14.1	19.2	0.1	12.6	12.8	3.3
Queue Length 50th (m)	40.5	13.4	0.0	2.5	12.7	0.0	12.0	57.2	0.0	0.9	15.4	0.0
Queue Length 95th (m)	#93.6	28.4	10.8	8.1	27.1	7.0	30.1	#125.1	0.6	4.6	34.6	10.0
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	501	743	688	498	743	660	562	887	778	290	887	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.18	0.14	0.05	0.17	0.07	0.27	0.63	0.02	0.04	0.22	0.14

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	323	135	97	26	128	46	149	562	14	13	196	110
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.67	1.00	1.00	0.67	1.00	1.00	0.63	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1204	1784	1517	1197	1784	1517	1132	1784	1517	584	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	323	135	97	26	128	46	149	562	14	13	196	110
RTOR Reduction (vph)	0	0	66	0	0	31	0	0	7	0	0	55
Lane Group Flow (vph)	323	135	31	26	128	15	149	562	7	13	196	55
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.9	23.9	23.9	23.9	23.9	23.9	36.7	36.7	36.7	36.7	36.7	36.7
Effective Green, g (s)	23.9	23.9	23.9	23.9	23.9	23.9	36.7	36.7	36.7	36.7	36.7	36.7
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.32	0.50	0.50	0.50	0.50	0.50	0.50
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	390	578	491	388	578	491	563	888	755	290	888	755
v/s Ratio Prot		0.08			0.07			c0.31			0.11	
v/s Ratio Perm	c0.27		0.02	0.02		0.01	0.13		0.00	0.02		0.04
v/c Ratio	0.83	0.23	0.06	0.07	0.22	0.03	0.26	0.63	0.01	0.04	0.22	0.07
Uniform Delay, d1	23.0	18.2	17.2	17.2	18.1	17.0	10.7	13.6	9.3	9.5	10.4	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.1	0.2	0.1	0.1	0.2	0.0	1.1	3.5	0.0	0.3	0.6	0.2
Delay (s)	38.1	18.4	17.2	17.3	18.3	17.0	11.8	17.0	9.4	9.8	11.0	9.8
Level of Service	D	B	B	B	B	B	B	B	A	A	B	A
Approach Delay (s)		29.7			17.9			15.8			10.5	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	13.1
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	60		

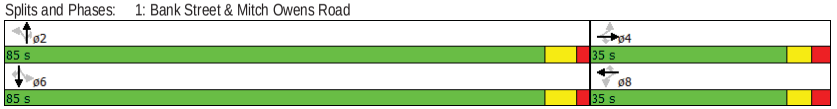
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.541			0.364			0.208			0.489		
Satd. Flow (perm)	965	1784	1517	649	1784	1517	371	1784	1517	873	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			36			32			97
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	85.0	85.0	85.0	85.0	85.0	85.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%	29.2%	70.8%	70.8%	70.8%	70.8%	70.8%	70.8%
Maximum Green (s)	28.5	28.5	28.5	28.5	28.5	28.5	78.4	78.4	78.4	78.4	78.4	78.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	22.1	22.1	22.1	22.1	22.1	22.1	78.6	78.6	78.6	78.6	78.6	78.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.69	0.69	0.69	0.69	0.69	0.69
v/c Ratio	0.83	0.74	0.25	0.16	0.51	0.11	0.41	0.34	0.02	0.05	0.73	0.19
Control Delay	86.8	57.4	15.0	40.2	46.2	12.1	15.2	8.8	2.1	7.2	16.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.8	57.4	15.0	40.2	46.2	12.1	15.2	8.8	2.1	7.2	16.9	4.3
LOS	F	E	B	D	D	B	B	A	A	A	B	A
Approach Delay		59.2			40.5			9.7			14.4	
Approach LOS		E			D			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.9			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 25.1		Intersection LOS: C	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
v/c Ratio	0.83	0.74	0.25	0.16	0.51	0.11	0.41	0.34	0.02	0.05	0.73	0.19
Control Delay	86.8	57.4	15.0	40.2	46.2	12.1	15.2	8.8	2.1	7.2	16.9	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.8	57.4	15.0	40.2	46.2	12.1	15.2	8.8	2.1	7.2	16.9	4.3
Queue Length 50th (m)	33.6	54.0	3.9	3.7	35.7	0.0	9.4	35.0	0.0	1.9	115.8	7.4
Queue Length 95th (m)	#75.7	93.1	20.4	11.9	64.6	10.1	32.3	69.3	3.1	6.4	#265.4	21.3
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	242	447	430	162	447	407	256	1231	1057	602	1231	1077
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.57	0.20	0.12	0.40	0.09	0.41	0.34	0.02	0.05	0.73	0.19

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	256	87	20	178	36	106	422	26	29	904	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.54	1.00	1.00	0.36	1.00	1.00	0.21	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	965	1784	1517	650	1784	1517	372	1784	1517	872	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	156	256	87	20	178	36	106	422	26	29	904	205
RTOR Reduction (vph)	0	0	53	0	0	29	0	0	8	0	0	30
Lane Group Flow (vph)	156	256	34	20	178	7	106	422	18	29	904	175
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.1	22.1	22.1	22.1	22.1	22.1	78.6	78.6	78.6	78.6	78.6	78.6
Effective Green, g (s)	22.1	22.1	22.1	22.1	22.1	22.1	78.6	78.6	78.6	78.6	78.6	78.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19	0.69	0.69	0.69	0.69	0.69	0.69
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	187	346	294	126	346	294	256	1232	1047	602	1232	1047
v/s Ratio Prot		0.14			0.10			0.24			c0.51	
v/s Ratio Perm	c0.16		0.02	0.03		0.00	0.29		0.01	0.03		0.12
v/c Ratio	0.83	0.74	0.12	0.16	0.51	0.02	0.41	0.34	0.02	0.05	0.73	0.17
Uniform Delay, d1	44.1	43.1	37.8	38.1	41.0	37.1	7.6	7.1	5.5	5.6	11.0	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.9	8.5	0.2	0.6	1.3	0.0	4.9	0.8	0.0	0.2	4.0	0.3
Delay (s)	76.0	51.6	38.0	38.7	42.3	37.2	12.6	7.9	5.5	5.8	15.0	6.5
Level of Service	E	D	D	D	D	D	B	A	A	A	B	A
Approach Delay (s)		56.8			41.2			8.7			13.3	
Approach LOS		E			D			A			B	

Intersection Summary

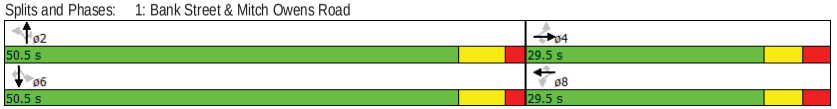
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	113.8	Sum of lost time (s)	13.1
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.702			0.687			0.329			0.539		
Satd. Flow (perm)	1253	1784	1517	1226	1784	1517	587	1784	1517	962	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167			49			48			101
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	36.9%	36.9%	36.9%	36.9%	36.9%	36.9%	63.1%	63.1%	63.1%	63.1%	63.1%	63.1%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0	23.0	43.9	43.9	43.9	43.9	43.9	43.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	16.2	16.2	16.2	16.2	16.2	16.2	44.5	44.5	44.5	44.5	44.5	44.5
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.60	0.60	0.60	0.60	0.60	0.60
v/c Ratio	0.70	0.28	0.36	0.06	0.21	0.09	0.45	0.33	0.01	0.08	0.60	0.14
Control Delay	41.2	25.0	6.4	21.9	24.0	4.8	14.9	9.4	0.0	8.1	13.2	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	25.0	6.4	21.9	24.0	4.8	14.9	9.4	0.0	8.1	13.2	3.2
LOS	D	C	A	C	C	A	B	A	A	A	B	A
Approach Delay		25.0			19.0			10.8			11.3	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 73.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
v/c Ratio	0.70	0.28	0.36	0.06	0.21	0.09	0.45	0.33	0.01	0.08	0.60	0.14
Control Delay	41.2	25.0	6.4	21.9	24.0	4.8	14.9	9.4	0.0	8.1	13.2	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	25.0	6.4	21.9	24.0	4.8	14.9	9.4	0.0	8.1	13.2	3.2
Queue Length 50th (m)	24.4	12.5	0.0	1.8	9.5	0.0	10.8	22.0	0.0	2.4	49.5	1.6
Queue Length 95th (m)	51.3	27.6	17.0	6.8	22.2	5.2	39.1	52.8	0.3	8.8	121.5	11.2
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	391	557	588	383	557	507	353	1074	933	579	1074	954
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.20	0.28	0.04	0.15	0.07	0.45	0.33	0.01	0.08	0.60	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	109	167	16	84	33	160	358	13	46	643	132
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.70	1.00	1.00	0.69	1.00	1.00	0.33	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	1253	1784	1517	1225	1784	1517	587	1784	1517	962	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	192	109	167	16	84	33	160	358	13	46	643	132
RTOR Reduction (vph)	0	0	130	0	0	26	0	0	5	0	0	40
Lane Group Flow (vph)	192	109	37	16	84	7	160	358	8	46	643	92
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.2	16.2	16.2	16.2	16.2	16.2	44.5	44.5	44.5	44.5	44.5	44.5
Effective Green, g (s)	16.2	16.2	16.2	16.2	16.2	16.2	44.5	44.5	44.5	44.5	44.5	44.5
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.60	0.60	0.60	0.60	0.60	0.60
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	275	391	333	268	391	333	353	1075	914	580	1075	914
v/s Ratio Prot		0.06			0.05			0.20			c0.36	
v/s Ratio Perm	c0.15		0.02	0.01		0.00	0.27		0.01	0.05		0.06
v/c Ratio	0.70	0.28	0.11	0.06	0.21	0.02	0.45	0.33	0.01	0.08	0.60	0.10
Uniform Delay, d1	26.5	23.9	23.0	22.8	23.6	22.6	8.0	7.3	5.8	6.1	9.1	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.8	0.4	0.1	0.1	0.3	0.0	4.2	0.8	0.0	0.3	2.5	0.2
Delay (s)	34.4	24.3	23.2	22.9	23.9	22.6	12.2	8.1	5.9	6.4	11.6	6.4
Level of Service	C	C	C	C	C	C	B	A	A	A	B	A
Approach Delay (s)		28.0			23.4			9.3			10.5	
Approach LOS		C			C			A			B	

Intersection Summary					
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service		B	
HCM 2000 Volume to Capacity ratio	0.62				
Actuated Cycle Length (s)	73.8	Sum of lost time (s)		13.1	
Intersection Capacity Utilization	79.4%	ICU Level of Service		D	
Analysis Period (min)	60				
c Critical Lane Group					

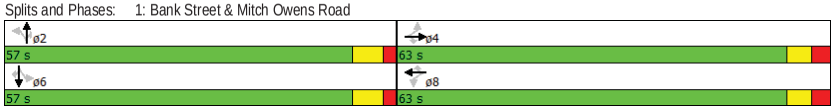
B.3 2021 ULTIMATE CONDITIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	327	136	97	26	129	47	150	562	15	13	196	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.674			0.670			0.634			0.333		
Satd. Flow (perm)	1203	1784	1517	1195	1784	1517	1131	1784	1517	594	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			97			47			32			111
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	327	136	97	26	129	47	150	562	15	13	196	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	327	136	97	26	129	47	150	562	15	13	196	111
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	63.0	63.0	63.0	63.0	63.0	63.0	57.0	57.0	57.0	57.0	57.0	57.0
Total Split (%)	52.5%	52.5%	52.5%	52.5%	52.5%	52.5%	47.5%	47.5%	47.5%	47.5%	47.5%	47.5%
Maximum Green (s)	56.5	56.5	56.5	56.5	56.5	56.5	50.4	50.4	50.4	50.4	50.4	50.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	31.1	31.1	31.1	31.1	31.1	31.1	50.9	50.9	50.9	50.9	50.9	50.9
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.53	0.53	0.53	0.53	0.53	0.53
v/c Ratio	0.83	0.23	0.17	0.07	0.22	0.09	0.25	0.59	0.02	0.04	0.21	0.13
Control Delay	50.8	23.3	4.9	20.7	23.1	6.2	15.8	20.6	2.1	15.1	14.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	23.3	4.9	20.7	23.1	6.2	15.8	20.6	2.1	15.1	14.5	3.6
LOS	D	C	A	C	C	A	B	C	A	B	B	A
Approach Delay		36.1			18.8			19.2			10.7	
Approach LOS		D			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 95.3			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 83.5%		ICU Level of Service E	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	327	136	97	26	129	47	150	562	15	13	196	111
v/c Ratio	0.83	0.23	0.17	0.07	0.22	0.09	0.25	0.59	0.02	0.04	0.21	0.13
Control Delay	50.8	23.3	4.9	20.7	23.1	6.2	15.8	20.6	2.1	15.1	14.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	23.3	4.9	20.7	23.1	6.2	15.8	20.6	2.1	15.1	14.5	3.6
Queue Length 50th (m)	54.6	17.9	0.0	3.2	16.9	0.0	14.0	66.3	0.0	1.1	17.8	0.0
Queue Length 95th (m)	102.5	34.5	11.9	9.6	32.9	8.1	39.9	161.3	2.2	5.9	46.2	12.2
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	720	1068	947	716	1068	927	604	953	825	317	953	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.13	0.10	0.04	0.12	0.05	0.25	0.59	0.02	0.04	0.21	0.13

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	327	136	97	26	129	47	150	562	15	13	196	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.67	1.00	1.00	0.67	1.00	1.00	0.63	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1203	1784	1517	1196	1784	1517	1132	1784	1517	595	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	327	136	97	26	129	47	150	562	15	13	196	111
RTOR Reduction (vph)	0	0	65	0	0	32	0	0	7	0	0	52
Lane Group Flow (vph)	327	136	32	26	129	15	150	562	8	13	196	59
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	31.1	31.1	31.1	31.1	31.1	31.1	50.9	50.9	50.9	50.9	50.9	50.9
Effective Green, g (s)	31.1	31.1	31.1	31.1	31.1	31.1	50.9	50.9	50.9	50.9	50.9	50.9
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.54	0.54	0.54	0.54	0.54	0.54
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	393	583	496	391	583	496	605	954	811	318	954	811
v/s Ratio Prot		0.08			0.07			c0.31			0.11	
v/s Ratio Perm	c0.27		0.02	0.02		0.01	0.13		0.01	0.02		0.04
v/c Ratio	0.83	0.23	0.06	0.07	0.22	0.03	0.25	0.59	0.01	0.04	0.21	0.07
Uniform Delay, d1	29.6	23.3	22.0	22.0	23.2	21.8	11.8	15.0	10.3	10.5	11.5	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.7	0.2	0.1	0.1	0.2	0.0	1.0	2.7	0.0	0.2	0.5	0.2
Delay (s)	45.3	23.5	22.0	22.1	23.4	21.8	12.8	17.7	10.3	10.7	12.0	10.9
Level of Service	D	C	C	C	C	C	B	B	B	B	B	B
Approach Delay (s)		36.0			22.9			16.5			11.6	
Approach LOS		D			C			B			B	

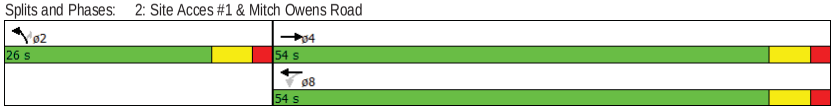
Intersection Summary					
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.68				
Actuated Cycle Length (s)	95.1	Sum of lost time (s)		13.1	
Intersection Capacity Utilization	83.5%	ICU Level of Service		E	
Analysis Period (min)	60				
c Critical Lane Group					

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	533	14	21	371	17	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1779	0	1695	1784	1695	1517
Flt Permitted			0.288		0.950	
Satd. Flow (perm)	1779	0	514	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	3					20
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	533	14	21	371	17	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	547	0	21	371	17	20
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	54.0		54.0	54.0	26.0	26.0
Total Split (%)	67.5%		67.5%	67.5%	32.5%	32.5%
Maximum Green (s)	48.0		48.0	48.0	20.0	20.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	21.7		21.7	21.7	20.3	20.3
Actuated g/C Ratio	0.40		0.40	0.40	0.38	0.38
v/c Ratio	0.77		0.10	0.52	0.03	0.03
Control Delay	21.9		10.4	14.6	14.0	7.5
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	21.9		10.4	14.6	14.0	7.5
LOS	C		B	B	B	A
Approach Delay	21.9			14.4	10.5	
Approach LOS	C			B	B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 54.1			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 44.7%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	547	21	371	17	20
v/c Ratio	0.77	0.10	0.52	0.03	0.03
Control Delay	21.9	10.4	14.6	14.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	10.4	14.6	14.0	7.5
Queue Length 50th (m)	43.2	1.2	25.7	1.0	0.0
Queue Length 95th (m)	86.1	5.0	50.8	5.8	4.6
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1582	457	1586	635	580
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.05	0.23	0.03	0.03

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	533	14	21	371	17	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1778		1695	1784	1695	1517
Flt Permitted	1.00		0.29	1.00	0.95	1.00
Satd. Flow (perm)	1778		514	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	533	14	21	371	17	20
RTOR Reduction (vph)	2	0	0	0	0	12
Lane Group Flow (vph)	545	0	21	371	17	8
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	21.7		21.7	21.7	20.3	20.3
Effective Green, g (s)	21.7		21.7	21.7	20.3	20.3
Actuated g/C Ratio	0.40		0.40	0.40	0.38	0.38
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	714		206	716	637	570
v/s Ratio Prot	c0.31			0.21	c0.01	
v/s Ratio Perm			0.04			0.00
v/c Ratio	0.76		0.10	0.52	0.03	0.01
Uniform Delay, d1	13.9		10.1	12.2	10.6	10.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0		0.2	0.6	0.1	0.0
Delay (s)	19.0		10.3	12.8	10.7	10.6
Level of Service	B		B	B	B	B
Approach Delay (s)	19.0			12.7	10.7	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	8	36	727	304	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	8	36	727	304	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	8	36	727	304	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	8	36	727	304	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	8	36	727	304	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.96	0.96	0.96			
vC, conflicting volume	1103	304	318			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1086	251	266			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	97			
cM capacity (veh/h)	223	754	1243			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	36	727	304	14
Volume Left	0	36	0	0	0
Volume Right	8	0	0	0	14
cSH	754	1243	1700	1700	1700
Volume to Capacity	0.01	0.03	0.43	0.18	0.01
Queue Length 95th (m)	0.2	0.7	0.0	0.0	0.0
Control Delay (s)	9.8	8.0	0.0	0.0	0.0
Lane LOS	A	A			
Approach Delay (s)	9.8	0.4		0.0	
Approach LOS	A				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	43.7%	ICU Level of Service		A
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	541	11	0	393	0	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	541	11	0	393	0	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	541	11	0	393	0	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.1%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	541	11	0	393	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	541	11	0	393	0	19
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.74		0.77	0.74
vC, conflicting volume			552		934	541
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			211		564	196
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1000		375	622

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	541	11	393	19
Volume Left	0	0	0	0
Volume Right	0	11	0	19
cSH	1700	1700	1700	622
Volume to Capacity	0.32	0.01	0.23	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.7
Control Delay (s)	0.0	0.0	0.0	11.0
Lane LOS				B
Approach Delay (s)	0.0		0.0	11.0
Approach LOS				B

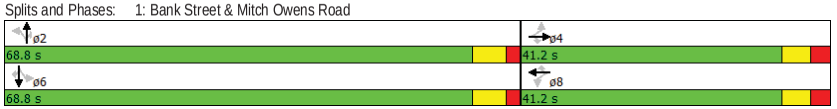
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	60		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	157	257	88	20	180	36	107	422	26	29	904	206
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.582			0.416			0.189			0.487		
Satd. Flow (perm)	1038	1784	1517	742	1784	1517	337	1784	1517	869	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81			36			35			85
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	157	257	88	20	180	36	107	422	26	29	904	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	157	257	88	20	180	36	107	422	26	29	904	206
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	41.2	41.2	41.2	41.2	41.2	41.2	68.8	68.8	68.8	68.8	68.8	68.8
Total Split (%)	37.5%	37.5%	37.5%	37.5%	37.5%	37.5%	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%
Maximum Green (s)	34.7	34.7	34.7	34.7	34.7	34.7	62.2	62.2	62.2	62.2	62.2	62.2
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	19.8	19.8	19.8	19.8	19.8	19.8	62.5	62.5	62.5	62.5	62.5	62.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66
v/c Ratio	0.73	0.70	0.23	0.13	0.49	0.11	0.49	0.36	0.03	0.05	0.77	0.20
Control Delay	57.2	45.6	9.5	31.4	37.4	10.2	20.2	9.6	2.3	8.0	19.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	45.6	9.5	31.4	37.4	10.2	20.2	9.6	2.3	8.0	19.3	5.2
LOS	E	D	A	C	D	B	C	A	A	A	B	A
Approach Delay		42.9			32.8			11.3			16.5	
Approach LOS		D			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 95.4			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	157	257	88	20	180	36	107	422	26	29	904	206
v/c Ratio	0.73	0.70	0.23	0.13	0.49	0.11	0.49	0.36	0.03	0.05	0.77	0.20
Control Delay	57.2	45.6	9.5	31.4	37.4	10.2	20.2	9.6	2.3	8.0	19.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	45.6	9.5	31.4	37.4	10.2	20.2	9.6	2.3	8.0	19.3	5.2
Queue Length 50th (m)	27.1	43.9	1.0	3.0	29.3	0.0	8.5	30.1	0.0	1.6	99.5	7.1
Queue Length 95th (m)	55.3	78.1	15.2	10.1	54.7	8.8	#46.1	75.5	3.3	7.1	#287.6	25.3
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	379	651	605	271	651	577	220	1168	1005	569	1168	1022
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.39	0.15	0.07	0.28	0.06	0.49	0.36	0.03	0.05	0.77	0.20

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	157	257	88	20	180	36	107	422	26	29	904	206
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.58	1.00	1.00	0.42	1.00	1.00	0.19	1.00	1.00	0.49	1.00	1.00
Satd. Flow (perm)	1039	1784	1517	741	1784	1517	338	1784	1517	869	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	157	257	88	20	180	36	107	422	26	29	904	206
RTOR Reduction (vph)	0	0	64	0	0	29	0	0	9	0	0	29
Lane Group Flow (vph)	157	257	24	20	180	7	107	422	17	29	904	177
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	19.8	19.8	19.8	19.8	19.8	19.8	62.5	62.5	62.5	62.5	62.5	62.5
Effective Green, g (s)	19.8	19.8	19.8	19.8	19.8	19.8	62.5	62.5	62.5	62.5	62.5	62.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.21	0.66	0.66	0.66	0.66	0.66	0.66
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	215	370	314	153	370	314	221	1168	993	569	1168	993
v/s Ratio Prot		0.14			0.10			0.24			c0.51	
v/s Ratio Perm	c0.15		0.02	0.03		0.00	0.32		0.01	0.03		0.12
v/c Ratio	0.73	0.69	0.08	0.13	0.49	0.02	0.48	0.36	0.02	0.05	0.77	0.18
Uniform Delay, d1	35.3	35.0	30.4	30.8	33.3	30.1	8.3	7.4	5.7	5.9	11.5	6.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.8	5.7	0.1	0.4	1.0	0.0	7.6	0.9	0.0	0.2	5.2	0.4
Delay (s)	48.2	40.7	30.5	31.2	34.3	30.1	15.9	8.3	5.8	6.0	16.7	6.8
Level of Service	D	D	C	C	C	C	B	A	A	A	B	A
Approach Delay (s)		41.3			33.4			9.6			14.7	
Approach LOS		D			C			A			B	

Intersection Summary

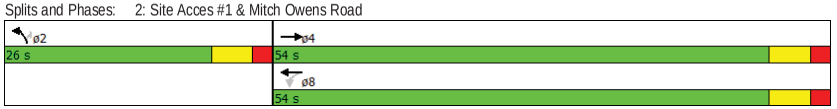
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	13.1
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	403	48	83	412	89	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1759	0	1695	1784	1695	1517
Flt Permitted			0.366		0.950	
Satd. Flow (perm)	1759	0	653	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	13					77
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	403	48	83	412	89	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	0	83	412	89	77
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	54.0		54.0	54.0	26.0	26.0
Total Split (%)	67.5%		67.5%	67.5%	32.5%	32.5%
Maximum Green (s)	48.0		48.0	48.0	20.0	20.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	17.5		17.5	17.5	20.2	20.2
Actuated g/C Ratio	0.35		0.35	0.35	0.41	0.41
v/c Ratio	0.72		0.36	0.66	0.13	0.12
Control Delay	20.8		16.4	18.9	11.8	4.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	20.8		16.4	18.9	11.8	4.3
LOS	C		B	B	B	A
Approach Delay	20.8			18.5	8.3	
Approach LOS	C			B	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 49.8			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	451	83	412	89	77
v/c Ratio	0.72	0.36	0.66	0.13	0.12
Control Delay	20.8	16.4	18.9	11.8	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	16.4	18.9	11.8	4.3
Queue Length 50th (m)	32.2	5.2	29.4	4.6	0.0
Queue Length 95th (m)	66.6	16.1	59.9	16.1	8.2
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1662	617	1685	686	660
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.13	0.24	0.13	0.12

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	403	48	83	412	89	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1759		1695	1784	1695	1517
Flt Permitted	1.00		0.37	1.00	0.95	1.00
Satd. Flow (perm)	1759		652	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	403	48	83	412	89	77
RTOR Reduction (vph)	8	0	0	0	0	46
Lane Group Flow (vph)	443	0	83	412	89	31
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	17.5		17.5	17.5	20.2	20.2
Effective Green, g (s)	17.5		17.5	17.5	20.2	20.2
Actuated g/C Ratio	0.35		0.35	0.35	0.41	0.41
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	619		229	628	688	616
v/s Ratio Prot	c0.25			0.23	c0.05	
v/s Ratio Perm			0.13			0.02
v/c Ratio	0.71		0.36	0.66	0.13	0.05
Uniform Delay, d1	13.9		12.0	13.6	9.2	8.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0		1.0	2.5	0.4	0.2
Delay (s)	18.0		12.9	16.1	9.6	9.1
Level of Service	B		B	B	A	A
Approach Delay (s)	18.0			15.5	9.4	
Approach LOS	B			B	A	

Intersection Summary					
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	121	50	555	898	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	121	50	555	898	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	121	50	555	898	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	121	50	555	898	114
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	121	50	555	898	114
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.63	0.63	0.63			
vC, conflicting volume	1553	898	1012			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1584	550	730			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	64	91			
cM capacity (veh/h)	69	339	554			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	121	50	555	898	114
Volume Left	0	50	0	0	0
Volume Right	121	0	0	0	114
cSH	339	554	1700	1700	1700
Volume to Capacity	0.36	0.09	0.33	0.53	0.07
Queue Length 95th (m)	12.5	2.3	0.0	0.0	0.0
Control Delay (s)	21.5	12.1	0.0	0.0	0.0
Lane LOS	C	B			
Approach Delay (s)	21.5	1.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	64.5%	ICU Level of Service		C
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	448	32	0	494	0	55
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	448	32	0	494	0	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	32	0	494	0	55
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.2%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	448	32	0	494	0	55
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	448	32	0	494	0	55
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.82		0.86	0.82
vC, conflicting volume			480		942	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			259		638	220
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			1073		380	674

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	448	32	494	55
Volume Left	0	0	0	0
Volume Right	0	32	0	55
cSH	1700	1700	1700	674
Volume to Capacity	0.26	0.02	0.29	0.08
Queue Length 95th (m)	0.0	0.0	0.0	2.0
Control Delay (s)	0.0	0.0	0.0	10.8
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.8
Approach LOS				B

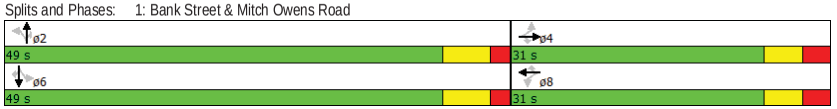
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	60		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	116	171	17	92	33	167	358	13	46	643	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	25.0			25.0			25.0			25.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.697			0.682			0.323			0.537		
Satd. Flow (perm)	1244	1784	1517	1217	1784	1517	576	1784	1517	958	1784	1517
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			49			48			109
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		139.1			278.3			150.1			156.1	
Travel Time (s)		8.3			16.7			9.0			9.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	116	171	17	92	33	167	358	13	46	643	148
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	116	171	17	92	33	167	358	13	46	643	148
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	2	2	2	6	6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	29.5	29.5	29.5	29.5	24.6	24.6	24.6	24.6	24.6	24.6
Total Split (s)	31.0	31.0	31.0	31.0	31.0	31.0	49.0	49.0	49.0	49.0	49.0	49.0
Total Split (%)	38.8%	38.8%	38.8%	38.8%	38.8%	38.8%	61.3%	61.3%	61.3%	61.3%	61.3%	61.3%
Maximum Green (s)	24.5	24.5	24.5	24.5	24.5	24.5	42.4	42.4	42.4	42.4	42.4	42.4
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.8	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	16.0	16.0	16.0	16.0	16.0	16.0	10.0	10.0	10.0	10.0	10.0	10.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	16.7	16.7	16.7	16.7	16.7	16.7	42.7	42.7	42.7	42.7	42.7	42.7
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.59	0.59	0.59	0.59	0.59	0.59
v/c Ratio	0.70	0.28	0.36	0.06	0.22	0.09	0.49	0.34	0.01	0.08	0.61	0.16
Control Delay	39.9	24.1	6.0	20.9	23.1	4.6	17.0	9.9	0.0	8.6	14.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	24.1	6.0	20.9	23.1	4.6	17.0	9.9	0.0	8.6	14.1	3.6
LOS	D	C	A	C	C	A	B	A	A	A	B	A
Approach Delay		24.2			18.6			11.9			11.9	
Approach LOS		C			B			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 72.6			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 60			

Splits and Phases: 1: Bank Street & Mitch Owens Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	200	116	171	17	92	33	167	358	13	46	643	148
v/c Ratio	0.70	0.28	0.36	0.06	0.22	0.09	0.49	0.34	0.01	0.08	0.61	0.16
Control Delay	39.9	24.1	6.0	20.9	23.1	4.6	17.0	9.9	0.0	8.6	14.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	24.1	6.0	20.9	23.1	4.6	17.0	9.9	0.0	8.6	14.1	3.6
Queue Length 50th (m)	24.9	13.0	0.0	1.8	10.2	0.0	11.8	22.4	0.0	2.4	50.3	2.0
Queue Length 95th (m)	52.1	28.3	16.7	6.8	23.3	5.1	#46.4	55.5	0.3	9.3	127.7	13.0
Internal Link Dist (m)		115.1			254.3			126.1			132.1	
Turn Bay Length (m)	100.0		30.0	15.0		30.0	85.0		70.0	80.0		30.0
Base Capacity (vph)	422	605	628	412	605	547	339	1050	912	563	1050	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.19	0.27	0.04	0.15	0.06	0.49	0.34	0.01	0.08	0.61	0.16

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	116	171	17	92	33	167	358	13	46	643	148
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1695	1784	1517	1695	1784	1517	1695	1784	1517	1695	1784	1517
Flt Permitted	0.70	1.00	1.00	0.68	1.00	1.00	0.32	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	1244	1784	1517	1218	1784	1517	575	1784	1517	958	1784	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	116	171	17	92	33	167	358	13	46	643	148
RTOR Reduction (vph)	0	0	132	0	0	25	0	0	5	0	0	45
Lane Group Flow (vph)	200	116	39	17	92	8	167	358	8	46	643	103
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.7	16.7	16.7	16.7	16.7	16.7	42.7	42.7	42.7	42.7	42.7	42.7
Effective Green, g (s)	16.7	16.7	16.7	16.7	16.7	16.7	42.7	42.7	42.7	42.7	42.7	42.7
Actuated g/C Ratio	0.23	0.23	0.23	0.23	0.23	0.23	0.59	0.59	0.59	0.59	0.59	0.59
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	410	349	280	410	349	338	1050	893	564	1050	893
v/s Ratio Prot		0.07			0.05			0.20			c0.36	
v/s Ratio Perm	c0.16		0.03	0.01		0.01	0.29		0.01	0.05		0.07
v/c Ratio	0.70	0.28	0.11	0.06	0.22	0.02	0.49	0.34	0.01	0.08	0.61	0.12
Uniform Delay, d1	25.6	23.0	22.0	21.8	22.6	21.6	8.6	7.7	6.2	6.4	9.6	6.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.4	0.1	0.1	0.3	0.0	5.2	0.9	0.0	0.3	2.7	0.3
Delay (s)	33.2	23.4	22.2	21.9	22.9	21.6	13.8	8.5	6.2	6.7	12.3	6.8
Level of Service	C	C	C	C	C	C	B	A	A	A	B	A
Approach Delay (s)		27.0			22.5			10.1			11.0	
Approach LOS		C			C			B			B	

Intersection Summary

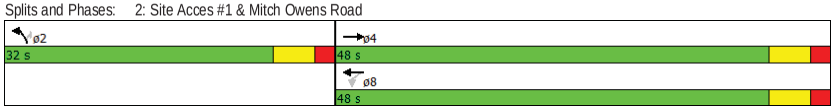
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	13.1
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	339	58	94	314	91	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	30.0		15.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1749	0	1695	1784	1695	1517
Flt Permitted			0.380		0.950	
Satd. Flow (perm)	1749	0	678	1784	1695	1517
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	16					114
Link Speed (k/h)	60			60	60	
Link Distance (m)	240.5			177.0	45.1	
Travel Time (s)	14.4			10.6	2.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	339	58	94	314	91	114
Shared Lane Traffic (%)						
Lane Group Flow (vph)	397	0	94	314	91	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	30.5		6.1	30.5	6.1	6.1
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	1.8		6.1	1.8	6.1	6.1
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Detector Phase	4		8	8	2	2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	24.0		24.0	24.0	24.0	24.0
Total Split (s)	48.0		48.0	48.0	32.0	32.0
Total Split (%)	60.0%		60.0%	60.0%	40.0%	40.0%
Maximum Green (s)	42.0		42.0	42.0	26.0	26.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None	None	Max	Max
Walk Time (s)	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0		11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0		0	0	0	0
Act Effct Green (s)	17.2		17.2	17.2	26.2	26.2
Actuated g/C Ratio	0.31		0.31	0.31	0.47	0.47
v/c Ratio	0.72		0.45	0.57	0.11	0.15
Control Delay	24.4		22.5	20.1	10.3	3.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	24.4		22.5	20.1	10.3	3.3
LOS	C		C	C	B	A
Approach Delay	24.4			20.7	6.4	
Approach LOS	C			C	A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 55.5			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 19.2		Intersection LOS: B	
Intersection Capacity Utilization 48.4%		ICU Level of Service A	
Analysis Period (min) 60			

Splits and Phases: 2: Site Acces #1 & Mitch Owens Road



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	397	94	314	91	114
v/c Ratio	0.72	0.45	0.57	0.11	0.15
Control Delay	24.4	22.5	20.1	10.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	22.5	20.1	10.3	3.3
Queue Length 50th (m)	33.1	7.4	25.8	4.7	0.0
Queue Length 95th (m)	66.9	21.2	51.6	15.8	9.6
Internal Link Dist (m)	216.5		153.0	21.1	
Turn Bay Length (m)		30.0		15.0	
Base Capacity (vph)	1338	517	1361	800	776
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.18	0.23	0.11	0.15

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	339	58	94	314	91	114
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1749		1695	1784	1695	1517
Flt Permitted	1.00		0.38	1.00	0.95	1.00
Satd. Flow (perm)	1749		679	1784	1695	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	339	58	94	314	91	114
RTOR Reduction (vph)	11	0	0	0	0	60
Lane Group Flow (vph)	386	0	94	314	91	54
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	17.2		17.2	17.2	26.2	26.2
Effective Green, g (s)	17.2		17.2	17.2	26.2	26.2
Actuated g/C Ratio	0.31		0.31	0.31	0.47	0.47
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	543		210	553	801	717
v/s Ratio Prot	c0.22			0.18	c0.05	
v/s Ratio Perm			0.14			0.04
v/c Ratio	0.71		0.45	0.57	0.11	0.08
Uniform Delay, d1	16.9		15.3	16.0	8.1	8.0
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5		1.5	1.3	0.3	0.2
Delay (s)	21.4		16.8	17.3	8.4	8.2
Level of Service	C		B	B	A	A
Approach Delay (s)	21.4			17.2	8.3	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	60		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	0	107	115	538	679	152
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	1543	1695	1784	1784	1517
Flt Permitted			0.950			
Satd. Flow (perm)	0	1543	1695	1784	1784	1517
Link Speed (k/h)	60			60	60	
Link Distance (m)	46.5			405.5	150.1	
Travel Time (s)	2.8			24.3	9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	107	115	538	679	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	107	115	538	679	152
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	60		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	107	115	538	679	152
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	107	115	538	679	152
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					150	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	1447	679	831			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1433	459	652			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	84			
cM capacity (veh/h)	98	475	737			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	107	115	538	679	152
Volume Left	0	115	0	0	0
Volume Right	107	0	0	0	152
cSH	475	737	1700	1700	1700
Volume to Capacity	0.23	0.16	0.32	0.40	0.09
Queue Length 95th (m)	6.6	4.2	0.0	0.0	0.0
Control Delay (s)	14.8	10.8	0.0	0.0	0.0
Lane LOS	B	B			
Approach Delay (s)	14.8	1.9		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	51.4%	ICU Level of Service		A
Analysis Period (min)	60			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	386	68	0	407	0	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		20.0	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			25.0		25.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	1784	1517	0	1784	0	1543
Flt Permitted						
Satd. Flow (perm)	1784	1517	0	1784	0	1543
Link Speed (k/h)	60			60	60	
Link Distance (m)	177.0			139.1	55.0	
Travel Time (s)	10.6			8.3	3.3	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	386	68	0	407	0	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	68	0	407	0	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

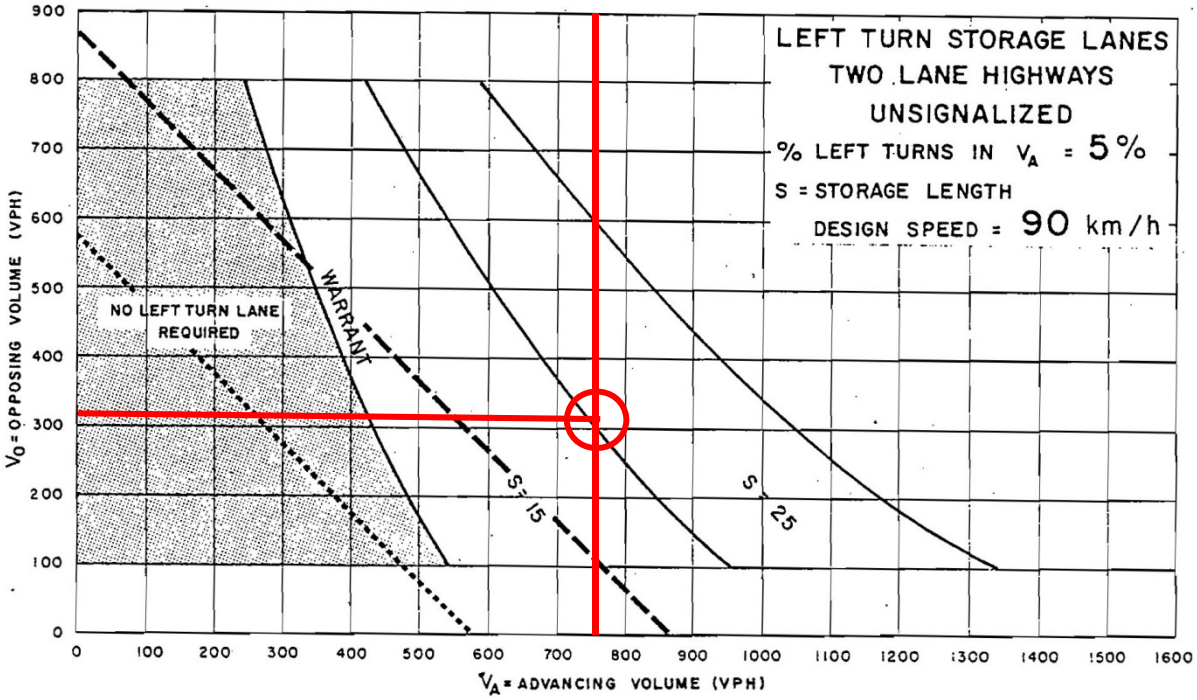
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	34.8%	ICU Level of Service A	
Analysis Period (min)	60		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	386	68	0	407	0	102
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	386	68	0	407	0	102
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	177			139		
pX, platoon unblocked			0.88		0.90	0.88
vC, conflicting volume			454		793	386
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			309		627	232
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	86
cM capacity (veh/h)			1099		400	709

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	386	68	407	102
Volume Left	0	0	0	0
Volume Right	0	68	0	102
cSH	1700	1700	1700	709
Volume to Capacity	0.23	0.04	0.24	0.14
Queue Length 95th (m)	0.0	0.0	0.0	3.8
Control Delay (s)	0.0	0.0	0.0	10.9
Lane LOS				B
Approach Delay (s)	0.0		0.0	10.9
Approach LOS				B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	60		

Appendix C LEFT TURN LANE WARRANT ANALYSIS



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

ATTATCHMENT 1 – BANK STREET AT MITCH OWENS ROAD COMMERCIAL DEVELOPMENT TRAFFIC IMPACT ASSESSMENT UPDATE (STANTEC 2014)

Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update

To: Amira Shehata
City of Ottawa

From: Robert Vastag, MCIP, RPP
400 - 1331 Clyde Avenue
Ottawa, ON
K2C 3G4

File: 163600949

Date: March 4, 2014

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update

1.0 INTRODUCTION

In June of 2012 the *Bank Street at Mitch Owens Road Commercial Development Transportation Impact Assessment* (the 2012 TIA) was prepared by GENIVAR to support a rezoning application for a 12-acre vacant parcel of land located at the south-west corner of the Bank Street at Mitch Owens Road intersection in the City of Ottawa. The proposed retail / commercial development features a combined gross floor area of roughly 10,000 square meters spread over six individual building pads.

The 2012 TIA identified improvements as being required at the Bank Street at Mitch Owens Road intersection (among other improvements identified at other locations that are not the subject of this update). The improvements identified at the Bank Street at Mitch Owens Road intersection (the subject intersection) were required to address a combination of existing deficiencies, future background growth and site traffic generated by the development proposal.

Since the completion of the 2012 TIA there have been two notable updates. First, the City of Ottawa's Transportation Master Plan has been updated and the Bank Street widening in the vicinity of the site is no longer within the affordable transportation network. In the 2012 TIA this improvement was identified as being required to accommodate background growth up to the 2019 ultimate horizon. Second, there are more recent turning movement counts available at the Bank Street at Mitch Owens Road intersection that were conducted in 2013.

Through discussions with the City of Ottawa it was determined that an update to the 2012 TIA would be required. The purpose of this memorandum, therefore, is to update the findings of 2012 TIA and to confirm the transportation improvements required at the Bank Street at Mitch Owens Road intersection.

It is noted that the author of the 2012 TIA is the same as the author of the subject memorandum.

2.0 METHODOLOGY

As discuss with the City of Ottawa, the focus of this memo will be to update the assessment of intersection operations at the Bank Street at Mitch Owens Road intersection.

The methodology utilized in this update is outlined as follows:

- Existing traffic conditions will be updated and assessed using the most recent traffic counts available at the Bank Street at Mitch Owens Road intersection (counts from 2013 to assess AM and PM peak hours; counts from 2012 to assess the Saturday peak)

- In the assessment of future background conditions growth from other known background developments will be consistent with the assumptions of the 2012 TIA.

- In the assessment of future background conditions the historic rate of growth assumed in the 2012 TIA will be revisited based on the newly available traffic count information

- Site generated traffic volumes will be taken directly from the 2012 TIA

- The study horizon years will be adjusted by one year to reflect the commercial development's anticipated opening-day of 2015. The ultimate horizon (i.e. the plus 5 year horizon), therefore, will be 2020.

3.0 TRANSPORTATION FORECASTS

The most recent available intersection turning movement counts at the Bank Street at Mitch Owen Road intersection from 2013 were provided by the City of Ottawa for the weekday condition. Traffic counts from the 2012 TIA were used to assess the Saturday mid-day condition (the Saturday counts were conducted in 2012).

Appendix A includes the intersection turning movement count summaries.

Table 1 provides a summary of the overall growth experienced at the Bank Street and Mitch Owens Road intersection between 2010 to 2013.

Table 1
Growth in Overall Peak Hour Traffic Volumes at the Bank Street / Mitch Owens Road Intersection

Peak Hour	Count Year [1]			2010 to 2012		2012 to 2013		2010 to 2013	
	201o	2012	2013	Growth	Annual Growth %	Growth	Annual Growth %	Growth	Annual Growth %
AM	1922	1596	1565	(326)	(8.5%)	(31)	(1.9%)	(357)	(6.2%)
PM	2020	1987	1771	(33)	(0.8%)	(216)	(10.9%)	(249)	(4.1%)

[1] Traffic volumes represent overall intersection totals for the peak hour

As shown in the above table, there has been a net decline in the overall peak hour traffic volumes at the Bank Street / Mitch Owens Road intersection during the period between 2010 to 2013.

To remain conservative in the assessment, existing traffic volumes were not adjusted to represent the historic decline identified in **Table 1**. Furthermore, the observed rate of peak hour traffic decline was not applied to the traffic forecasts. In lieu of a background growth rate, only traffic generated by known area developments was explicitly added to the future road network. As noted earlier, the traffic generated by other area background developments is consistent with what was assumed in the 2012 TIA.

Table 2 below provides a summary of the existing and forecasted traffic volumes at the Bank Street / Mitch Owens Road intersection.

Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update

Table 2
Existing and Future Traffic Volumes at the Bank Street / Mitch Owens Intersection

Horizon	Peak	Eastbound				Westbound				Northbound				Southbound				Intersection Total
		L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Existing	AM	297	133	61	491	15	121	46	182	131	524	12	667	13	105	107	225	1565
	PM	95	228	54	377	3	167	36	206	48	244	11	303	29	679	177	885	1771
	SAT	97	75	65	237	5	69	33	107	76	208	6	290	46	278	108	432	1066
2015 Future Background	AM	297	133	97	526	23	121	46	189	149	577	14	740	13	190	107	310	1765
	PM	95	228	87	409	12	167	36	214	106	447	26	579	29	857	177	1063	2266
	SAT	97	75	135	307	10	69	33	12	160	439	13	611	46	578	108	732	1763
2015 Total Future	AM	323	135	97	554	26	128	46	199	185	562	14	761	13	196	110	319	1833
	PM	156	256	87	498	20	178	36	233	156	422	26	604	29	904	205	1138	2474
	SAT	224	109	135	468	16	84	33	133	275	358	13	645	46	643	132	821	2068
2020 Ultimate	AM	326	136	97	559	25	128	47	200	186	562	15	763	13	196	110	319	1841
	PM	156	257	87	501	20	180	36	235	157	422	26	605	29	904	209	1142	2482
	SAT	232	116	140	488	16	92	32	141	282	357	13	653	46	643	148	837	2118

4.0 TRANSPORTATION ASSESSMENT

4.1 EXISTING CONDITIONS

Table 3 below provides a summary of existing intersection operations.

Table 3
Existing Traffic Operations at the Bank Street / Mitch Owens Road Intersection

Scenario	Peak Hour	Intersection Operations				Recommended Mitigation
		LOS	v/c	Delay (s)	Critical Movements	
Prior to Improvements	AM	D	0.88	45.5	EBT/L, 1.05	Signal timing adjustments
	PM	D	0.88	45.4	none	None
	SAT	A	0.38	17.7	none	None
Following Improvements	AM	D	0.84	29.0	none	
	PM	D	0.88	45.4	none	
	SAT	A	0.38	17.7	None	

As shown in the above table, during the AM peak hour the eastbound shared left / through movement exceeds capacity. Signal timing adjustment and optimization will permit the intersection to function acceptably. In particular, the southbound left turn advanced phase should be eliminated given the low volumes experienced by this movement and this time should be reallocated to other, more heavily utilized movements.

Detailed intersection performance worksheets can be found in **Appendix B**.

4.2 2015 FUTURE BACKGROUND CONDITIONS

Table 4 below provides a summary of 2015 future background intersection operations.

Table 4
2015 Future Background Traffic Operations at the Bank Street / Mitch Owens Road Intersection

Scenario	Peak Hour	Intersection Operations				Recommended Mitigation
		LOS	v/c	Delay (s)	Critical Movements	
Optimized Signal Timings	AM	D	0.82	26.7	none	Optimized signal timing
	PM	D	0.86	26.1	none	Optimized signal timing
	SAT	A	0.52	14.2	none	Optimized signal timing

As shown in the above table, with the signal phasing and timing plans optimized the intersection is expected to operate satisfactorily.

Detailed intersection performance worksheets can be found in **Appendix B**.

4.3 2015 TOTAL FUTURE CONDITIONS

Table 5 below provides a summary of 2015 total future intersection operations.

Table 5
2015 Total Future Traffic Operations at the Bank Street / Mitch Owens Road Intersection

Scenario	Peak Hour	Intersection Operations				Recommended Mitigation
		LOS	v/c	Delay (s)	Critical Movements	
Prior to Improvements	AM	D	0.84	29.0	none	None
	PM	F	1.13	167.6	EBL/T – 1.14 NBL - 1.08 SBT - 1.10	Add EB and WB LTLs
	SAT	D	0.88	27.4	none	None
Following Improvements	AM	B	0.70	24.6	none	
	PM	C	0.80	46.5	none	
	SAT	C	0.71	20.3	none	

It is noted that in order to facilitate the commercial development's proposed Bank Street access, the massive eastbound right turn channel at the Bank Street / Mitch Owens Road intersection must be reconstructed to reflect a more typical design treatment for a right turn lane (i.e. smart channel). This improvement has been assumed in the above intersection performance analysis.

As shown in the above table, with the addition of site traffic during the PM peak hour, the eastbound shared left / through, the northbound left turn, and the southbound through movements are expected to exceed capacity. To correct these anticipated deficiencies, the intersection requires exclusive eastbound and westbound left turn lanes in order for the intersection to operate satisfactorily.

Detailed intersection performance worksheets can be found in **Appendix B**.

4.4 2020 ULTIMATE FUTURE CONDITIONS

Table 6 below provides a summary of 2020 ultimate future intersection operations.

Table 6
2020 Ultimate Future Traffic Operations at the Bank Street / Mitch Owens Road Intersection

Scenario	Peak Hour	Intersection Operations				Recommended Mitigation
		LOS	v/c	Delay (s)	Critical Movements	
Optimized Signal Timings	AM	C	0.73	25.4	none	Optimized signal timing
	PM	D	0.82	27.3	none	Optimized signal timing
	SAT	D	0.83	22.6	none	Optimized signal timing

As shown in the above table, with the improvements identified during the 2015 total future horizon the intersection is expected to operate satisfactorily 5 years beyond the build-out of the subject development.

Detailed intersection performance worksheets can be found in **Appendix B**.

5.0 CONCLUSIONS

The proposed retail-commercial development at the south-west corner of the Bank Street at Mitch Owen Road intersection will trigger the following intersection improvements at the subject intersection:

- The long-contemplated eastbound and westbound left turn lanes will be required in order for the intersection to operate acceptably. By 2020, the proposed development is expected to contribute roughly 30% of the overall peak hour traffic volumes projected for the eastbound left turn movement.

- To facilitate the commercial development's proposed Bank Street access the massive existing eastbound right turn channelized ramp at the Bank Street / Mitch Owens Road intersection will need to be reconstructed and replaced by a more convention right turn lane treatment (i.e. smart channel).

The attached Figures 1 and 2 illustrate two potential conceptual designs of the improvements identified above. In the attached concepts there are subtle differences to the southbound receiving lanes on Bank Street; Figure 1 shows a potential design treatment with no weaving zone whereas the Figure 2 concept includes a weaving area on Bank Street.

With the above improvements, the intersection is expected to operate satisfactorily and the development should be permitted to proceed.

***

Our client wishes to proceed with the detailed design of the subject improvements, and as such, we seek the City's comments and overall acceptance of the proposed improvements and any preliminary comments related to the conceptual designs. We would be pleased to meet with you to discuss the above in greater detail.

Reference: Bank Street at Mitch Owens Road Commercial Development Traffic Impact Assessment Update

Should you have any questions or concerns please feel free to contact the undersigned at your earliest convenience.

Stantec Consulting Ltd.

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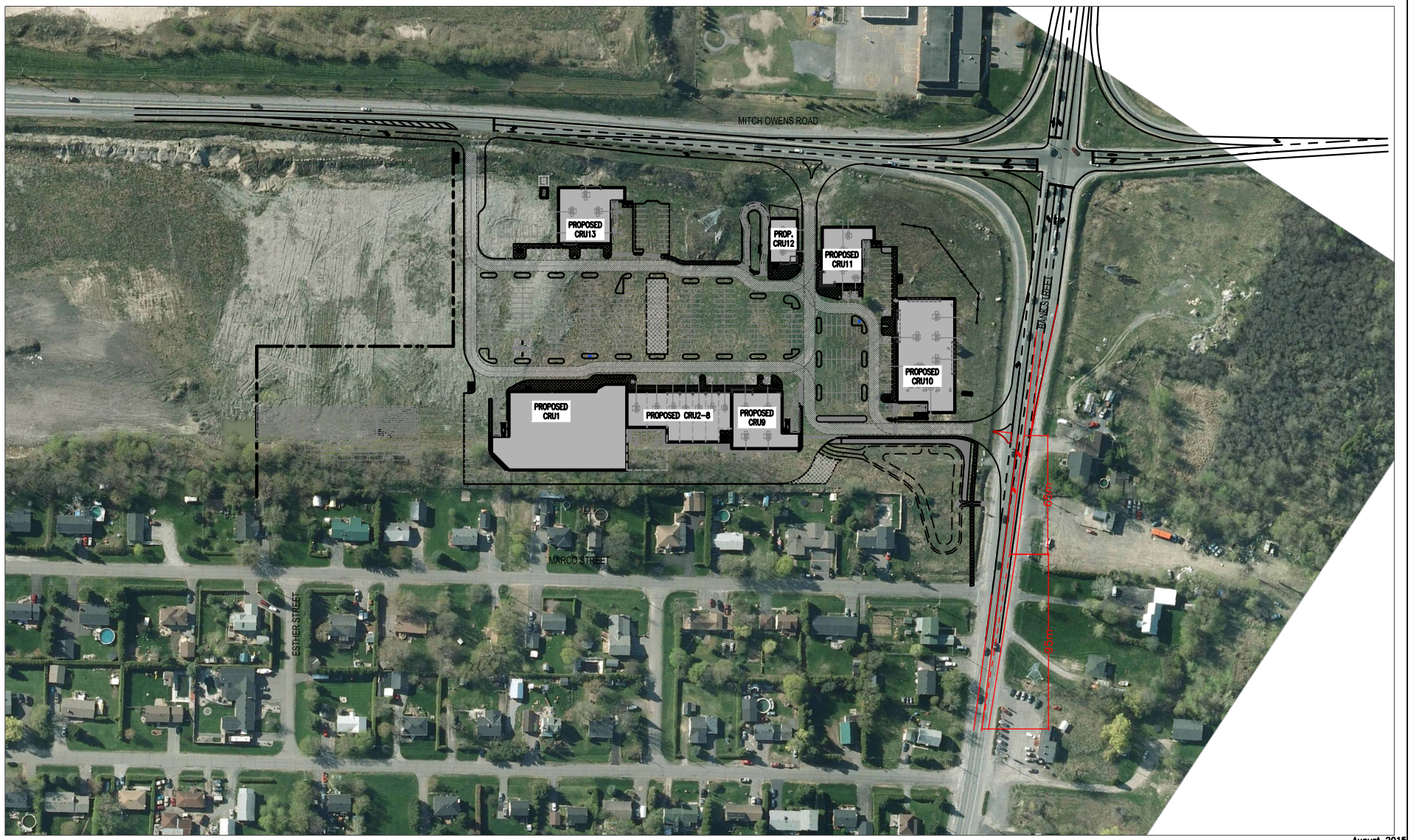
Attachments: Appendix A – Intersection Turning Movement Counts
Appendix B – Detailed Intersection Analysis Worksheets
Figure 1 – Bank Street at Mitch Owens Road – Conceptual (without weave on Bank Street)
Figure 2 – Bank Street at Mitch Owens Road – Conceptual (with weave on Bank Street)

ATTATCHMENT 2 – CONCEPTUAL DESIGN



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2015/08/11 9:15 AM By: O'Grady, Lauren

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Client/Project
OTIS
Bank Street at Mitch Owens Road
Commercial Development

Figure No.
1

Title
Bank Street and Site Access #2 Intersection Concept

Notes: Not To Scale
Not Accepted / Approved by City of Ottawa