

5500 DUNDAS STREET WEST URBAN TRANSPORTATION CONSIDERATIONS

Zoning By-law Amendment Application
City of Toronto



PART 2

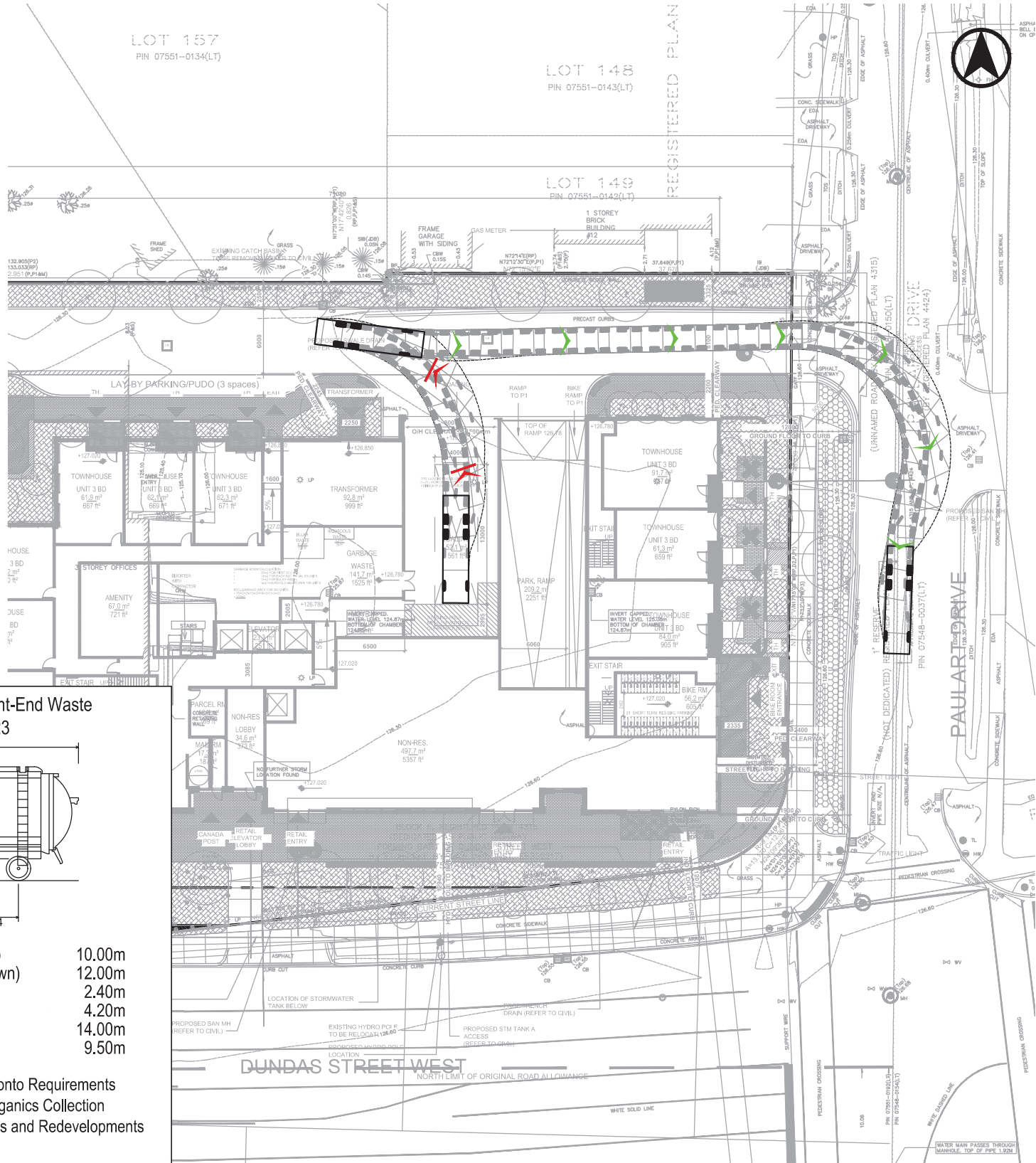
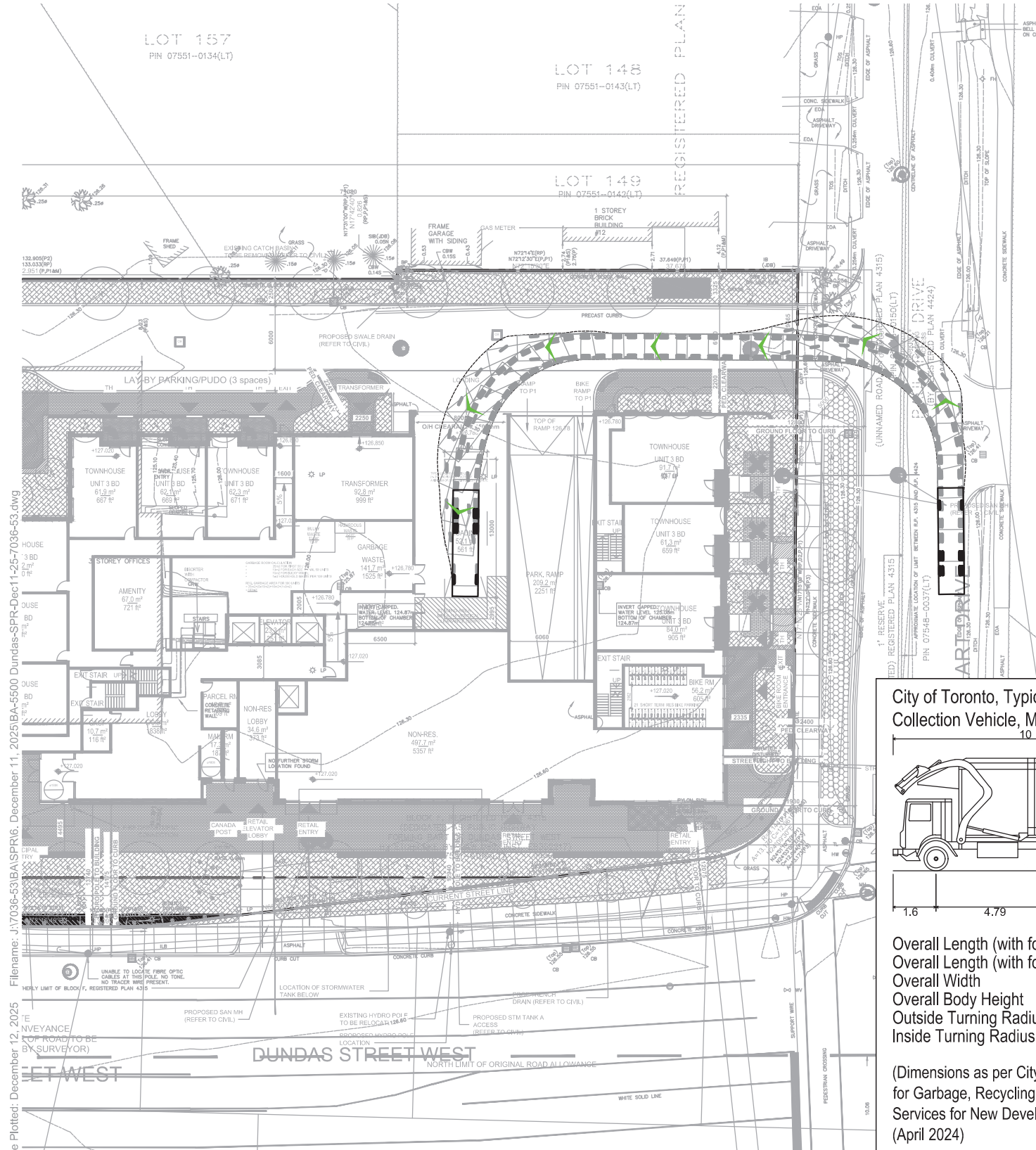
Prepared For: FCHT Holdings (Ontario) Corp
December 2025



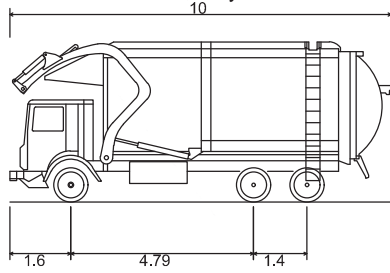
BA Group

Appendix B: Vehicle Manoeuvring Diagrams (VMDs)





City of Toronto, Typical Front-End Waste Collection Vehicle, May 2023



Overall Length (with forks up) 10.00m
Overall Length (with forks down) 12.00m
Overall Width 2.40m
Overall Body Height 4.20m
Outside Turning Radius 14.00m
Inside Turning Radius 9.50m

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments (April 2024))

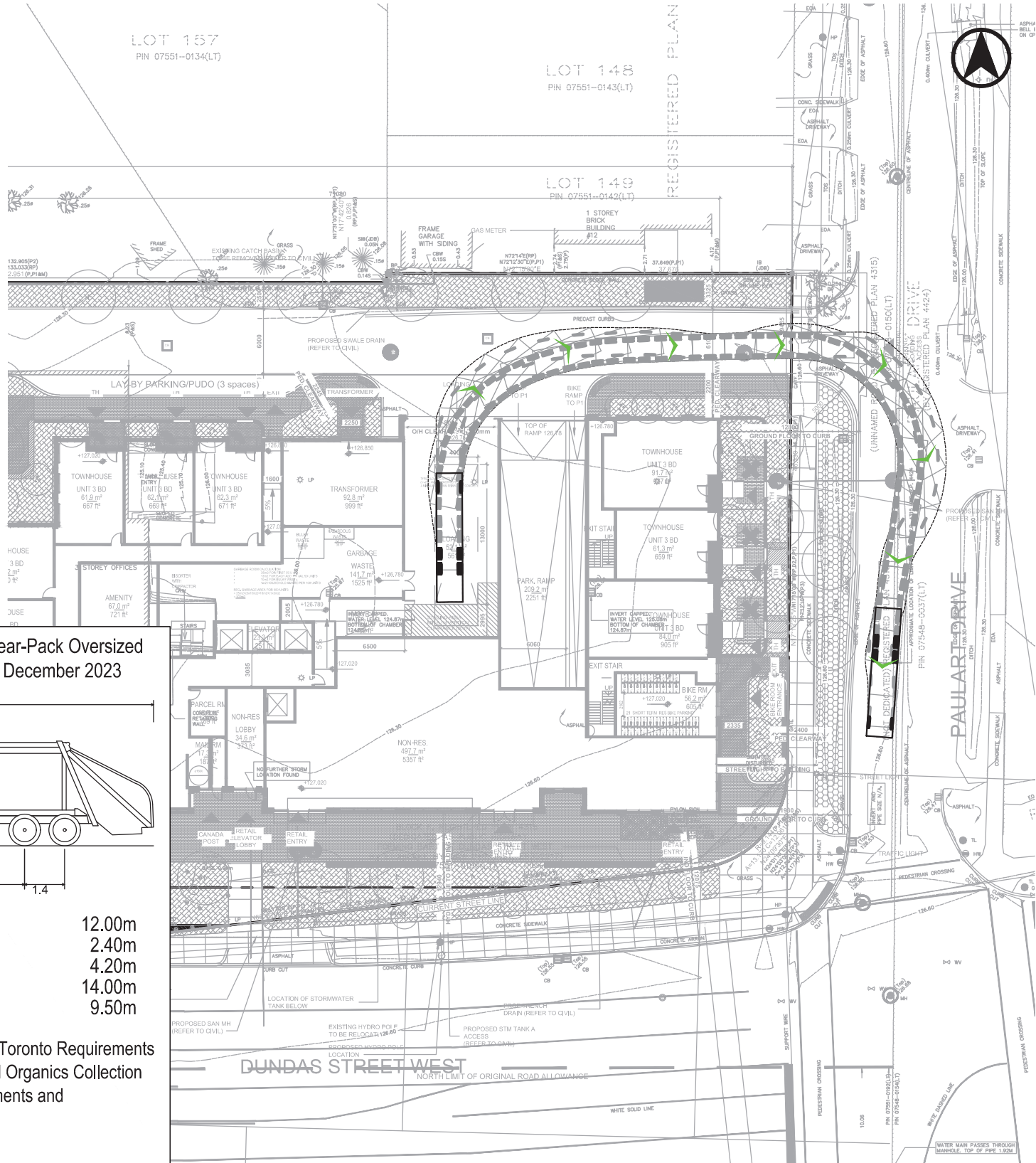
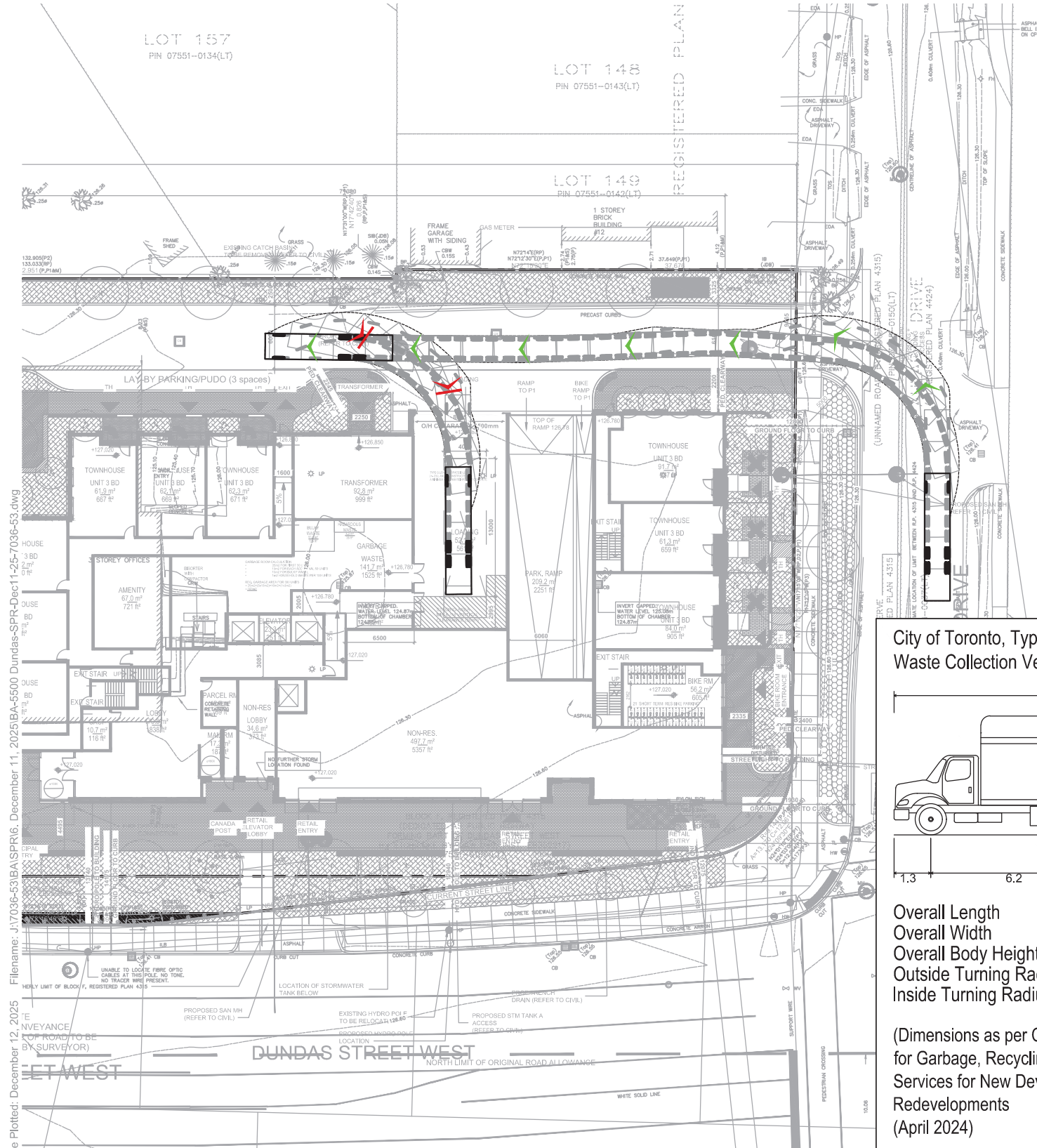
5500 DUNDAS STREET WEST
Vehicle Manoeuvring Diagram
Building A
City of Toronto Front-End Waste Collection Vehicle



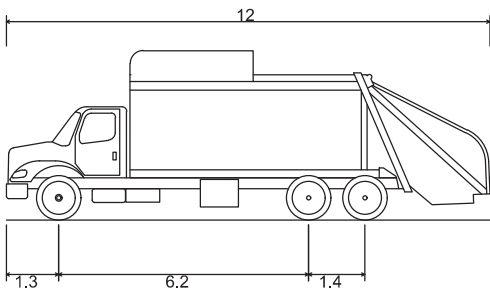
Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale 1:500
0 5 10 15 20m

Drawing No. VMD-01



City of Toronto, Typical Rear-Pack Oversized Waste Collection Vehicle, December 2023



Overall Length 12.00m
Overall Width 2.40m
Overall Body Height 4.20m
Outside Turning Radius 14.00m
Inside Turning Radius 9.50m

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments (April 2024))



5500 DUNDAS STREET WEST

Vehicle Manoeuvring Diagram

Building A

City of Toronto Rear-Pack Oversized Waste Collection Vehicle

Project: 5500 Dundas Street West

Project No. 7036-53

Date: December 11, 2025

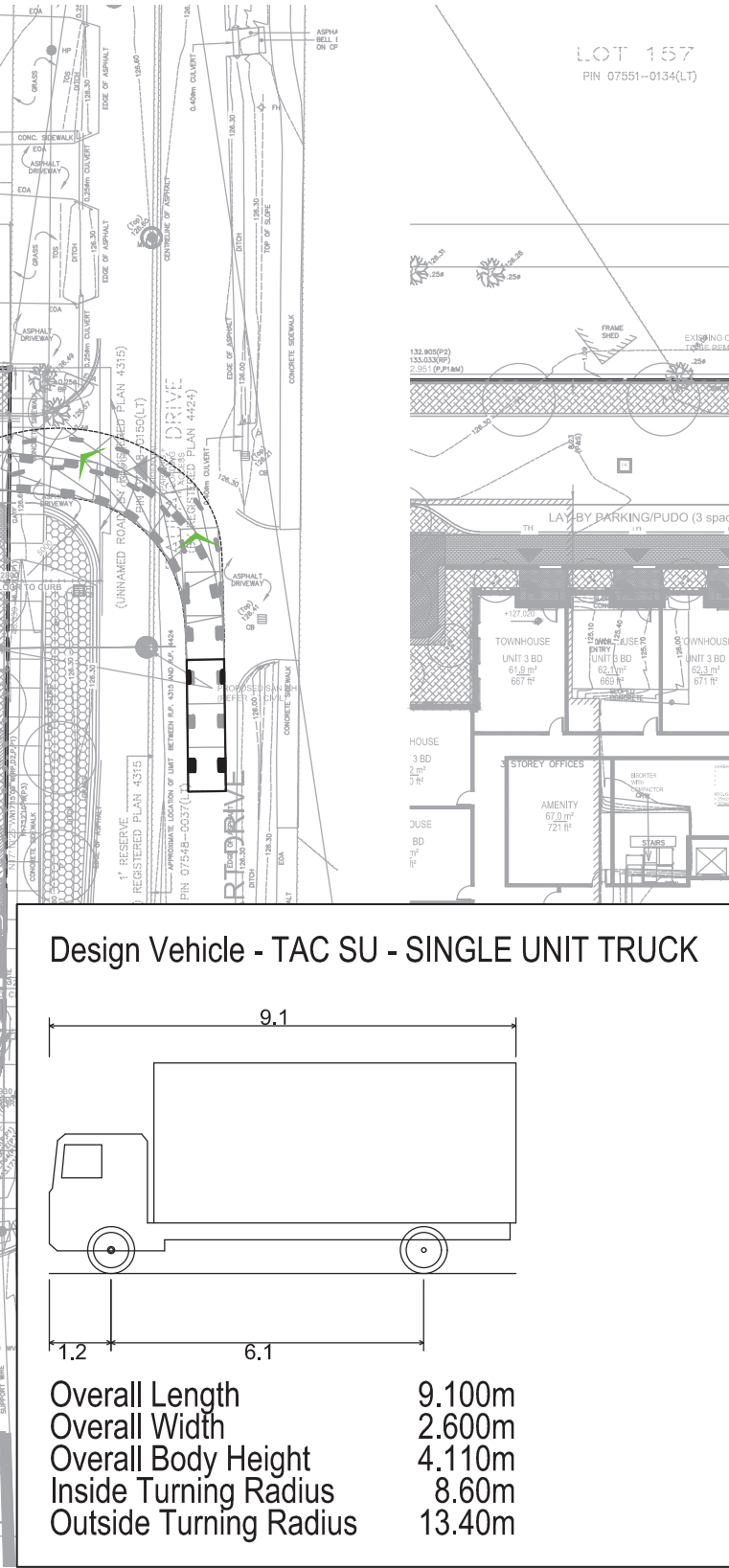
Revised: -

Scale

0 5 10 15 20m

1:500

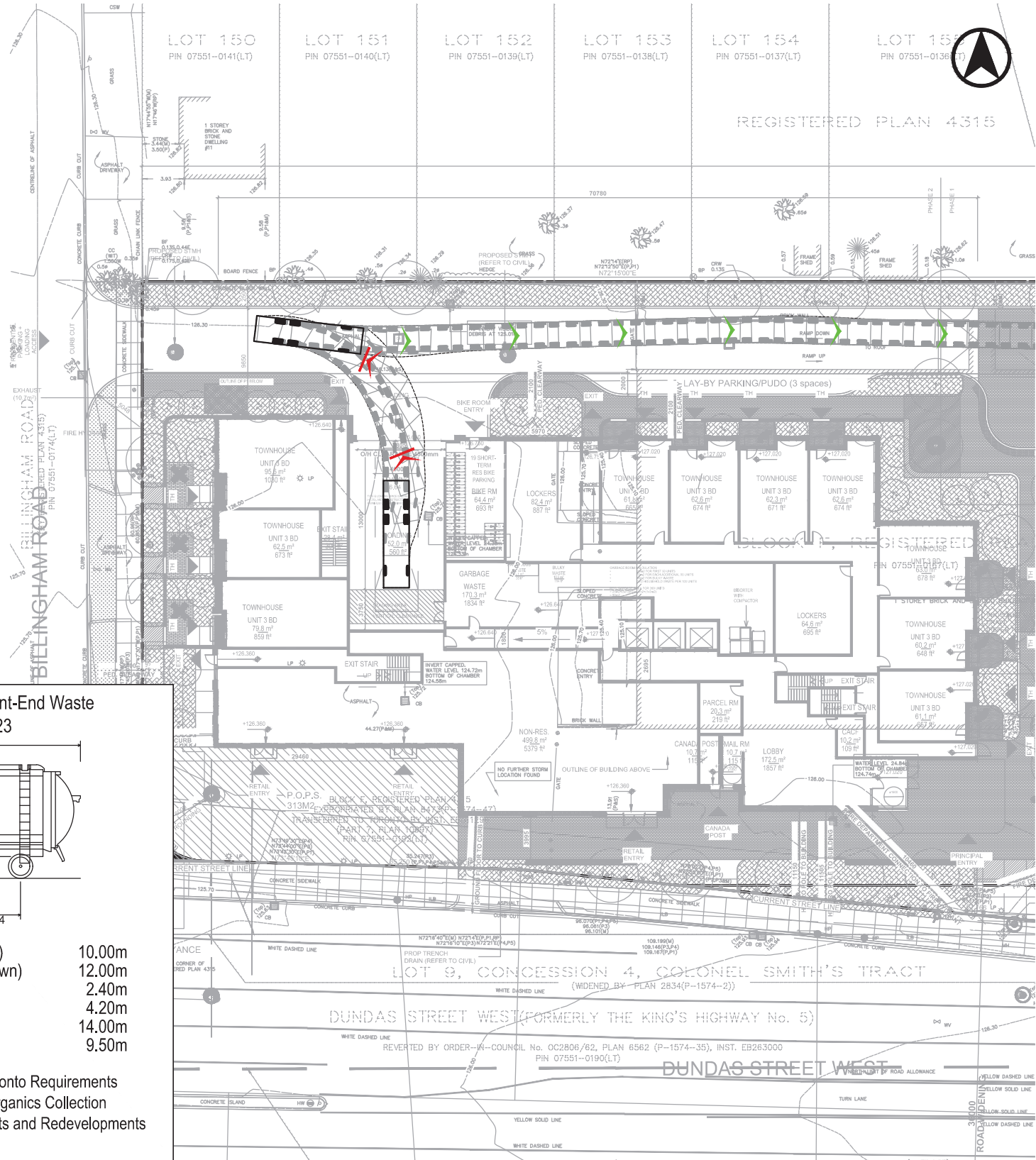
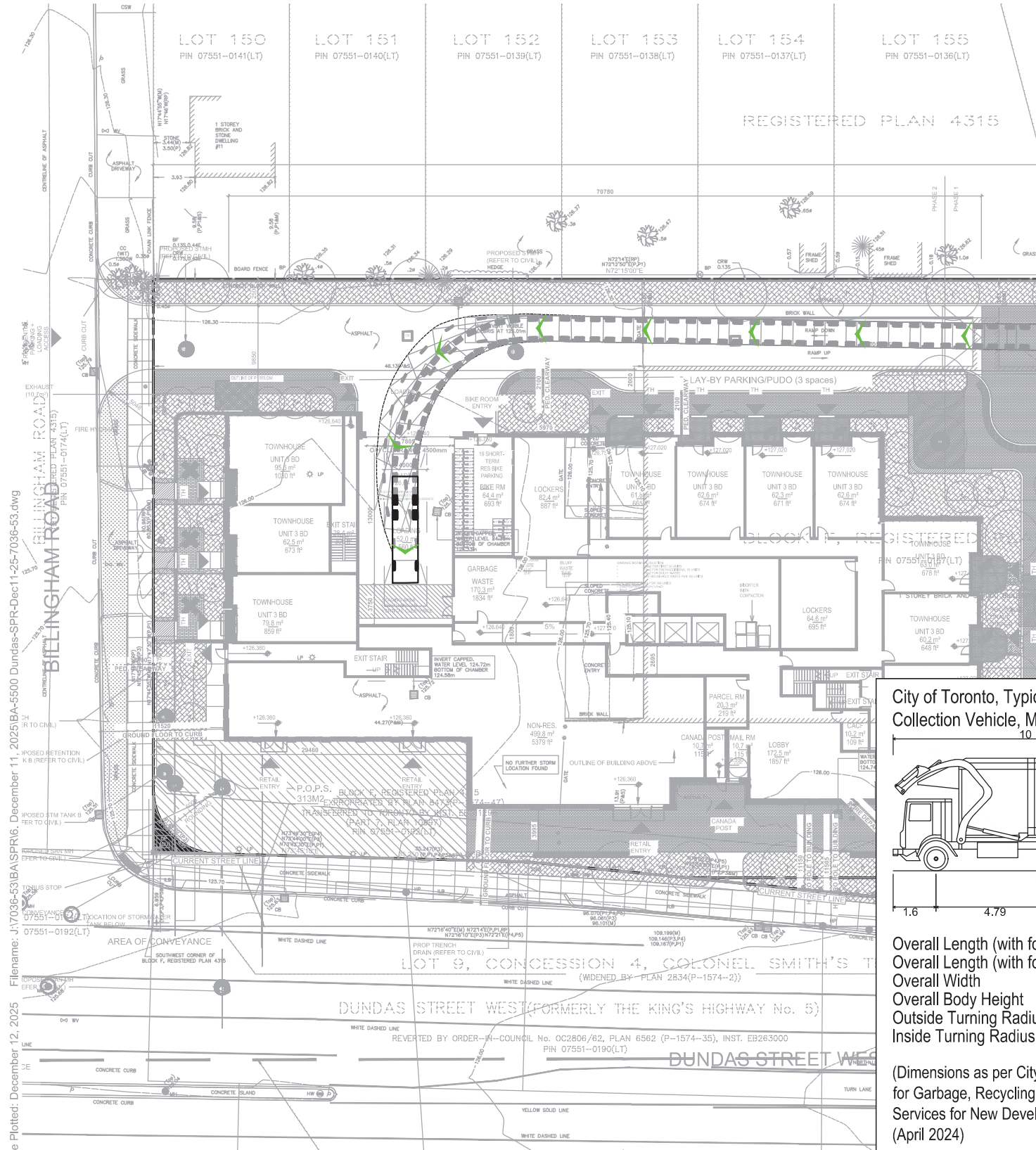
Drawing No. VMD-02



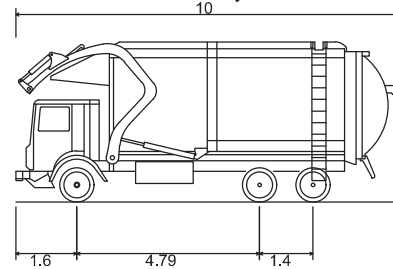
5500 DUNDAS STREET WEST
Vehicle Manoeuvring Diagram
Building A
Single-Unit (SU) Truck

Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale
1:500
0 5 10 15 20m
Drawing No. VMD-03



City of Toronto, Typical Front-End Waste Collection Vehicle, May 2023



Overall Length (with forks up) 10.00m
Overall Length (with forks down) 12.00m
Overall Width 2.40m
Overall Body Height 4.20m
Outside Turning Radius 14.00m
Inside Turning Radius 9.50m

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments (April 2024))

Filename: J:\7036-53\BASPR16, December 11, 2025\BA-5500 Dundas-SPR-Dec11-25-7036-53.dwg
Date Plotted: December 12, 2025



5500 DUNDAS STREET WEST

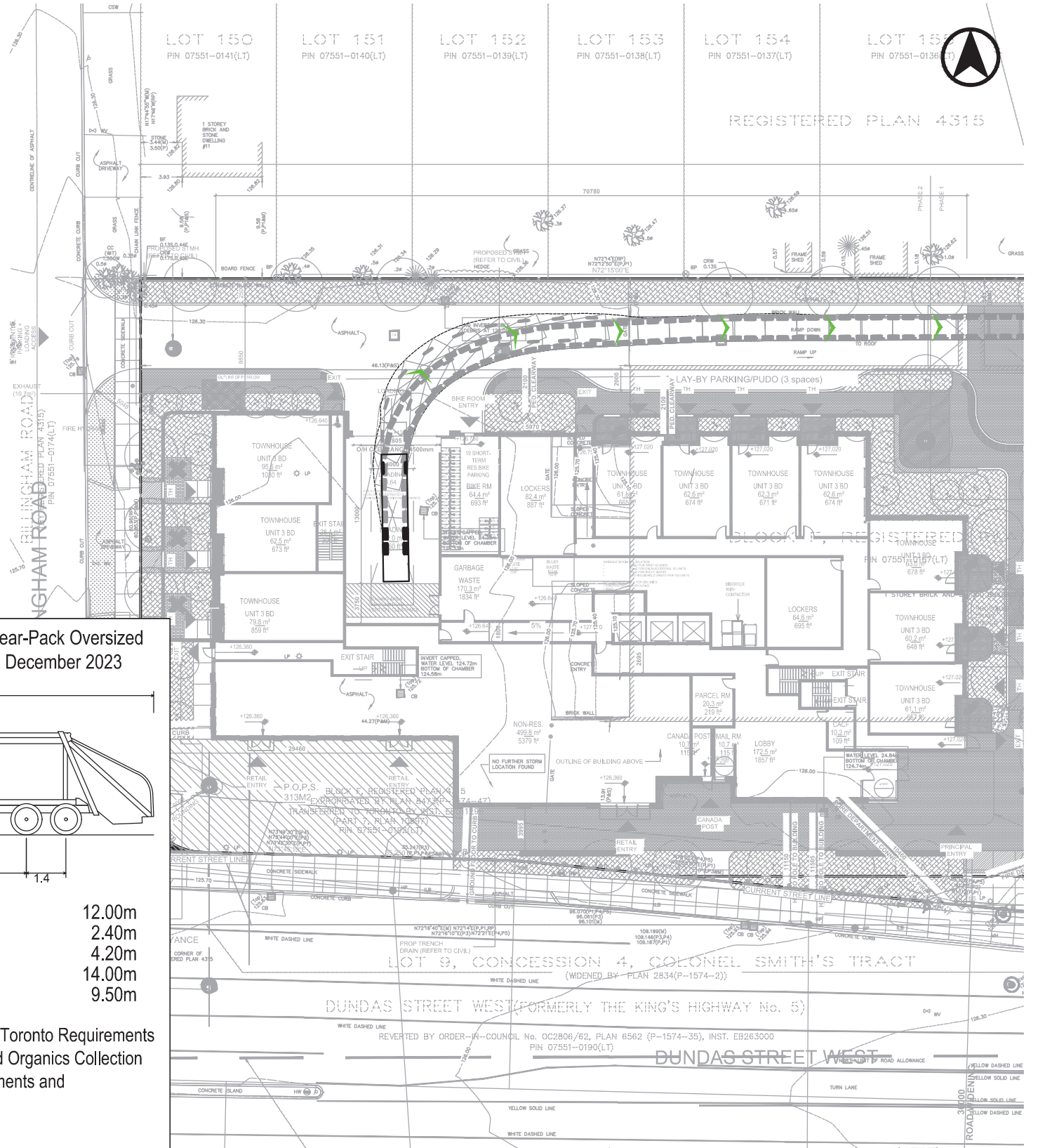
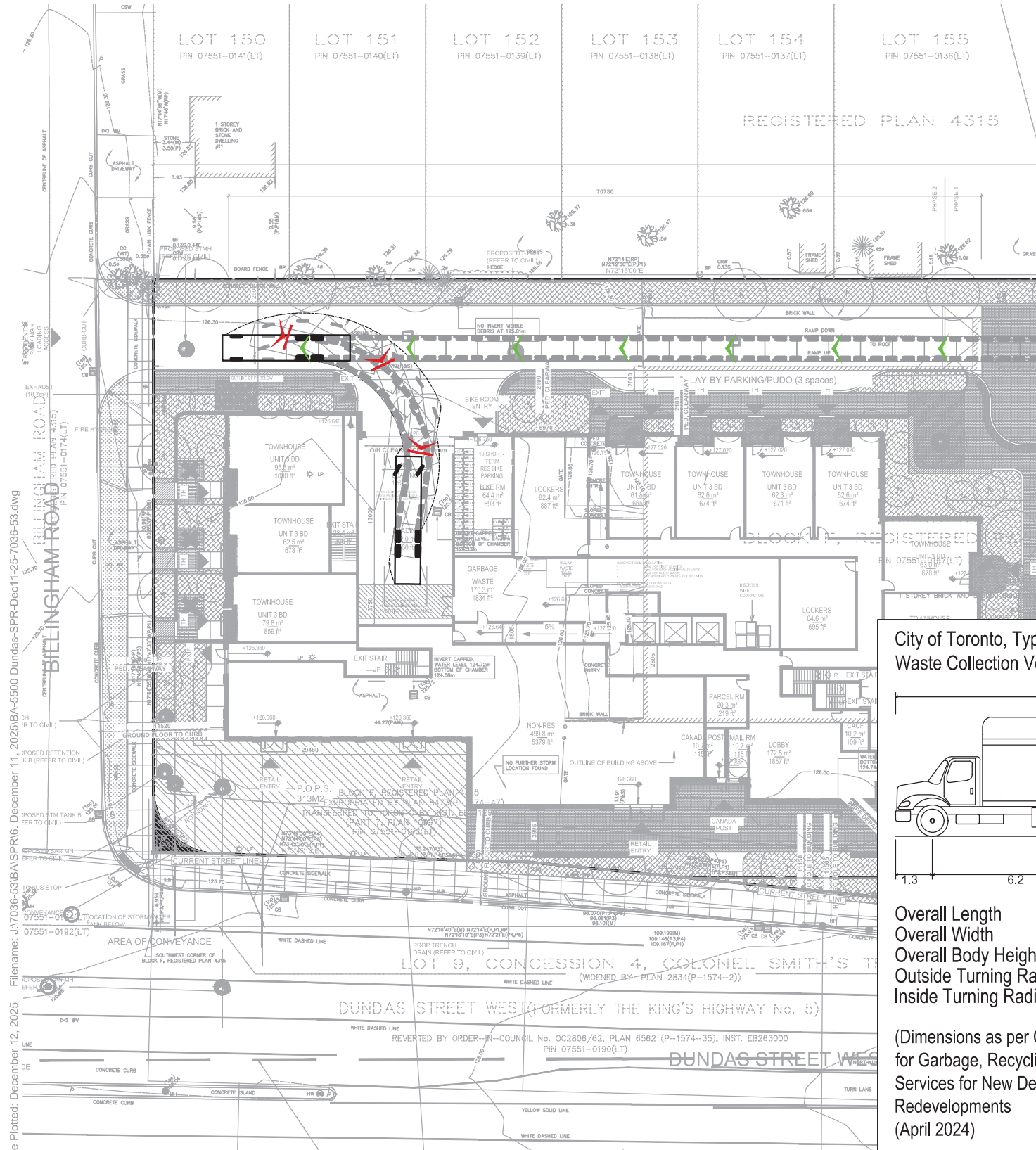
Vehicle Manoeuvring Diagram

Building B

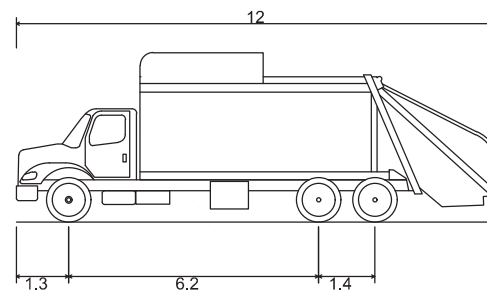
City of Toronto Front-End Waste Collection Vehicle

Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale 1:500
Drawing No. VMD-04



City of Toronto, Typical Rear-Pack Oversized Waste Collection Vehicle, December 2023



Overall Length 12.00m
Overall Width 2.40m
Overall Body Height 4.20m
Outside Turning Radius 14.00m
Inside Turning Radius 9.50m

(Dimensions as per City of Toronto Requirements for Garbage, Recycling and Organics Collection Services for New Developments and Redevelopments (April 2024))

Filename: J:\7036-53\BASPR16, December 11, 2025\BA-5500 Dundas-SPR-Dec11-25-7036-53.dwg
Date Plotted: December 12, 2025



5500 DUNDAS STREET WEST

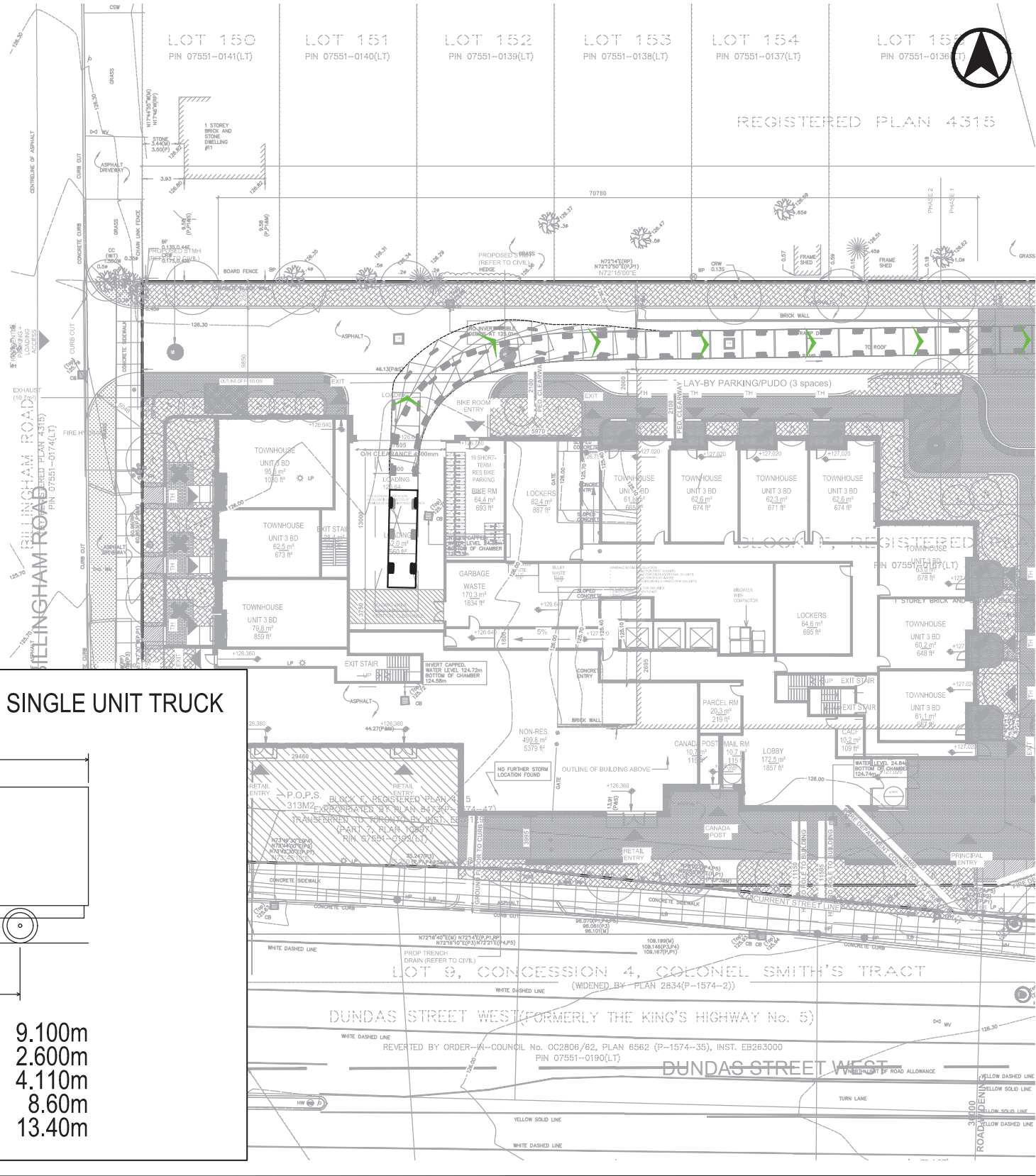
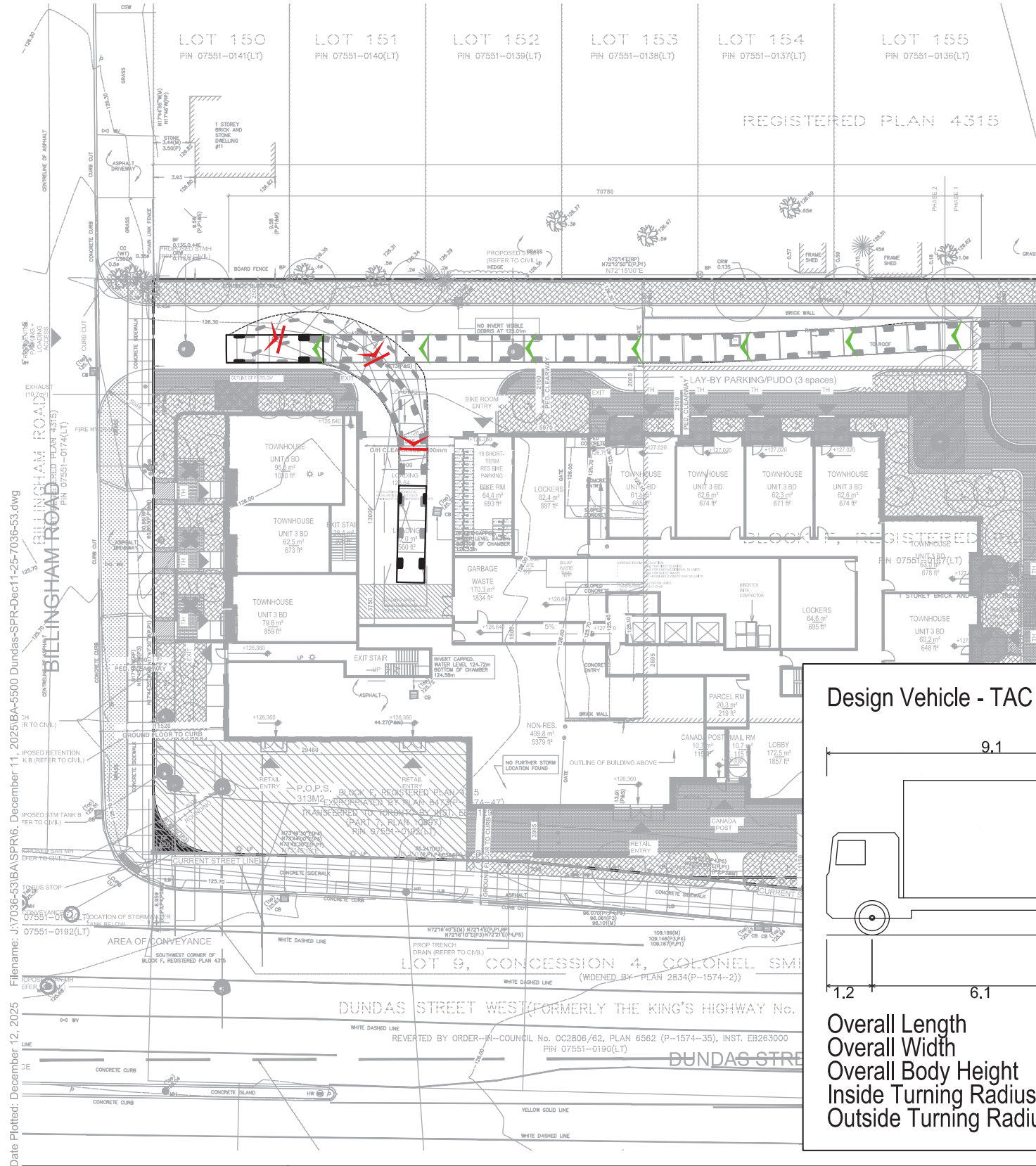
Vehicle Manoeuvring Diagram

Building B

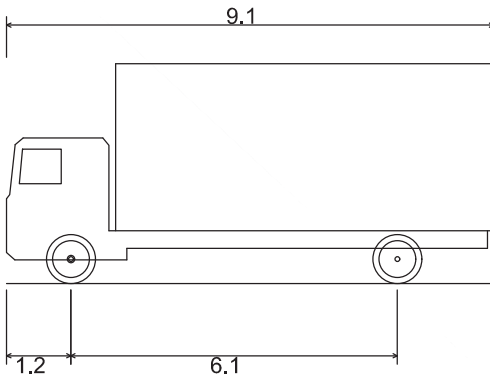
City of Toronto Rear-Pack Oversized Waste Collection Vehicle

Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale 1:500
Drawing No. VMD-05



Design Vehicle - TAC SU - SINGLE UNIT TRUCK



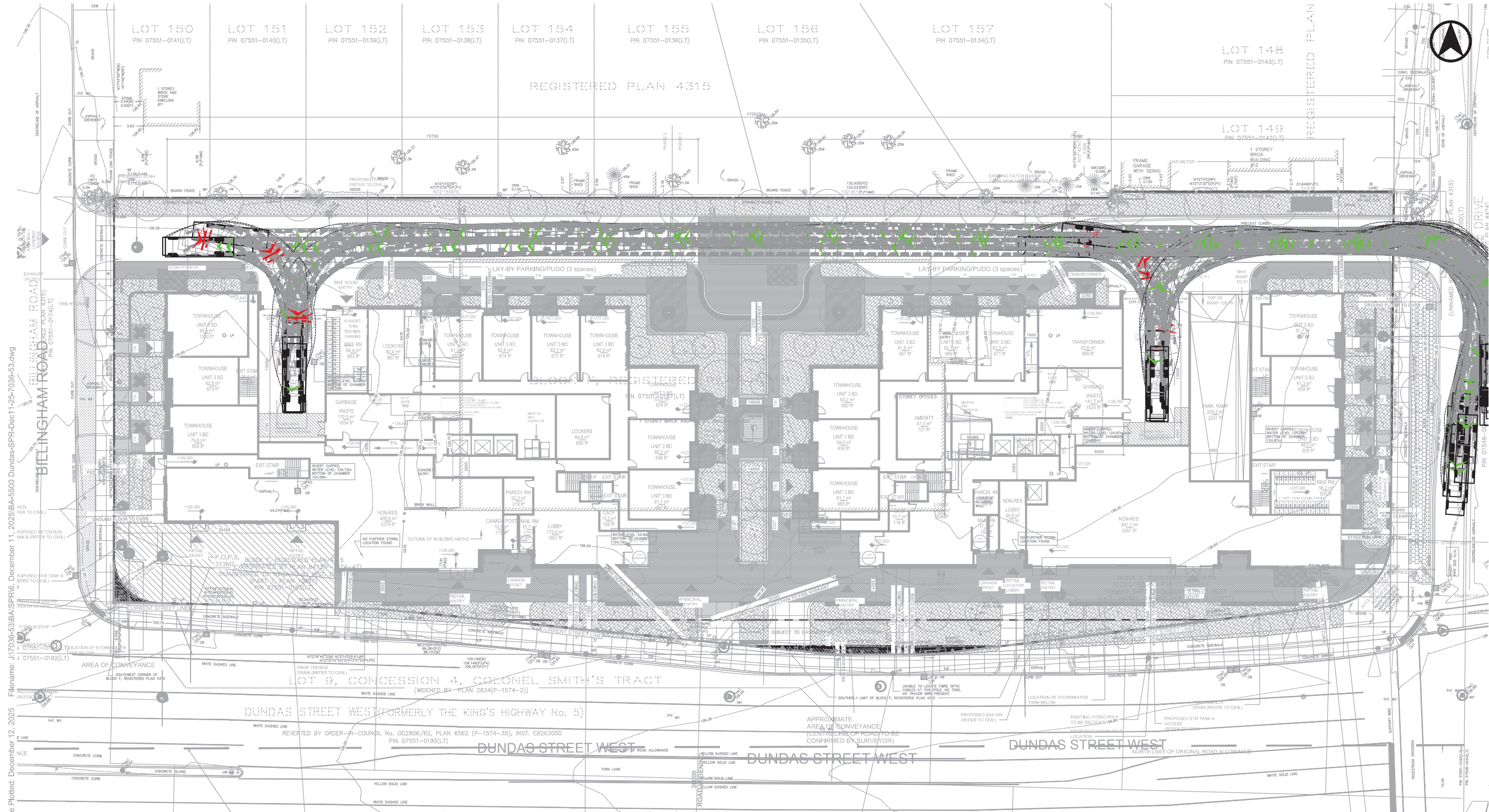
Overall Length 9.100m
Overall Width 2.600m
Overall Body Height 4.110m
Inside Turning Radius 8.60m
Outside Turning Radius 13.40m

5500 DUNDAS STREET WEST
Vehicle Manoeuvring Diagram
Building B
Single-Unit (SU) Truck



Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale 1:500
Drawing No. VMD-06



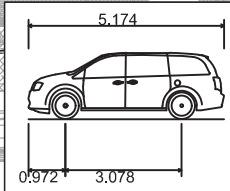
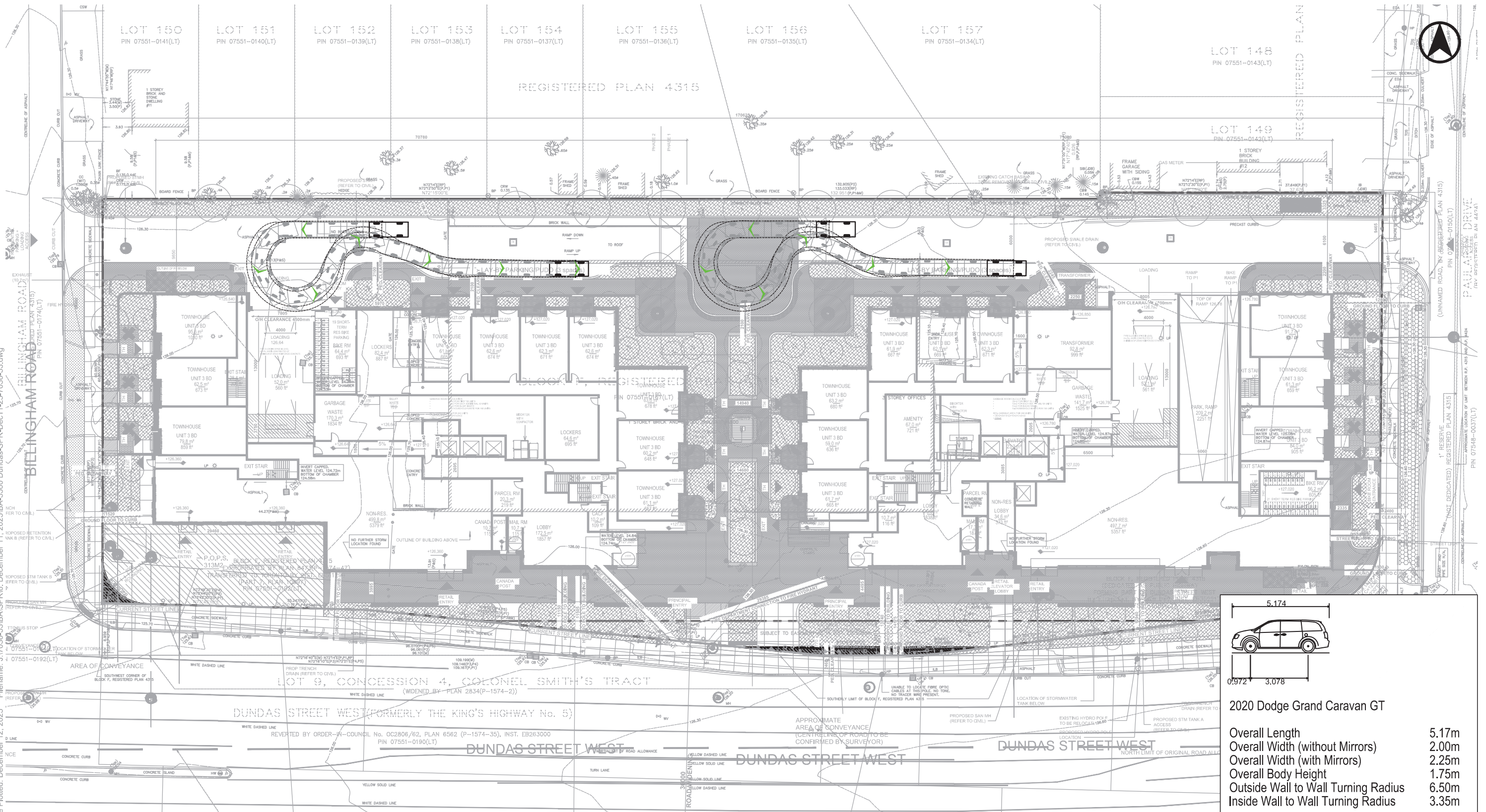
File name: J:\7036-53\BA\SPR16, December 11, 2025\BA-5500 Dundas-SPR-Dec11-25-7036-53.dwg
Date Plotted: December 12, 2025



5500 DUNDAS STREET WEST
Vehicle Manoeuvring Diagram
All Loading Manoeuvres

Project:	5500 Dundas Street West	Scale:	0 5 10 15 20m
Project No.:	7036-53		1:500
Date:	December 11, 2025	Drawing No.:	VMD-07
Revised:	-		

File Name: J:\7036-53\BA\SPR16, December 11, 2025\BA-5500 Dundas-SPR-Dec11-25-7036-53.dwg
Date Plotted: December 12, 2025



2020 Dodge Grand Caravan GT

Overall Length	5.17m
Overall Width (without Mirrors)	2.00m
Overall Width (with Mirrors)	2.25m
Overall Body Height	1.75m
Outside Wall to Wall Turning Radius	6.50m
Inside Wall to Wall Turning Radius	3.35m



5500 DUNDAS STREET WEST

Vehicle Manoeuvring Diagram

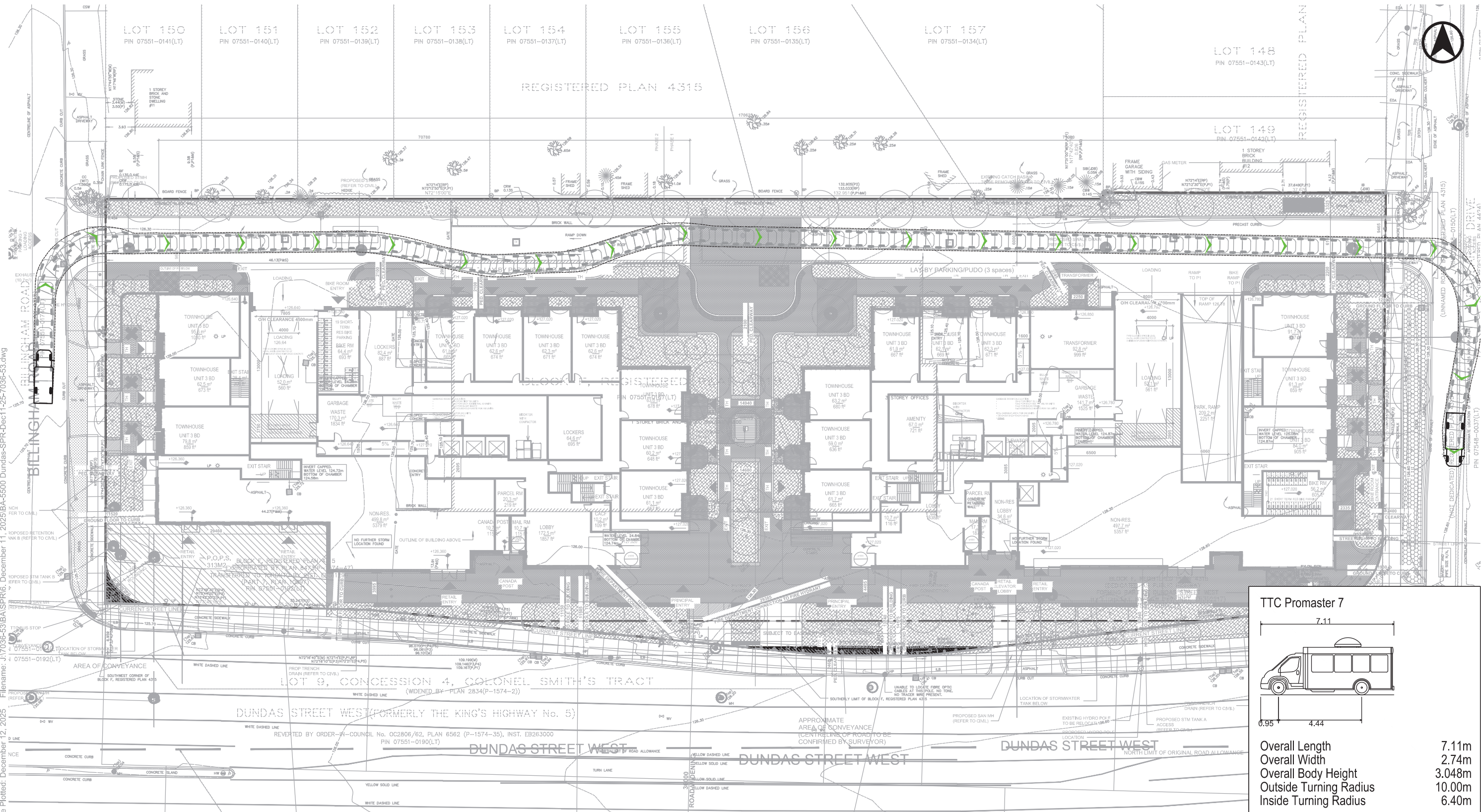
Pick-Up/Drop-Off

Dodge Grand Caravan

Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale 1:500
Drawing No. VMD-08

File Name: J:\7036-53\BAS\SPR16, December 11, 2025\BA-5500 Dundas-SPR-Dec11-25-7036-53.dwg
Date Plotted: December 12, 2025



5500 DUNDAS STREET WEST

Vehicle Manoeuvring Diagram

TTC Promaster 7

Project: 5500 Dundas Street West
Project No. 7036-53
Date: December 11, 2025
Revised: -

Scale
1:500
0 5 10 15 20m
Drawing No. VMD-09

GROUND FLOOR

PROPOSED SWALE DRAIN (REFER TO CIVIL)

TRANSFORMER

ASPHALT

2250

LOADING

8005

O/H CLEARANCE 2630mm

4000

TYPE G LOADING SPACE (B LEVEL) (W/2% AND IS CONSTRUCTED OF A MINIMUM OF 200MM REINFORCED CONCRETE)

LP

TRANSFORMER

92.8 m²

999 ft²

HAZARDOUS WASTE

2.3 m

35 ft

GARBAGE

LOADING

52.1 m²

561 ft²

13000

PRECAST CURBS

RAMP P1

TO OF RAMP 126.78

TO RAMP TO P1

2250

6100

PED CLEARWAY

9465

126.60

CONCRETE SIDEWALK

ASPH DRIVE

5000

12800

GROUND FLOOR TO CUR

46330

TH

2 P (1)

2 P (1)

TOP OF SLOPE

TOWNHOUSE

UNIT 3 BD

91.7 m²

987 ft²

TOWNHOUSE

UNIT 3 BD

61.3 m²

659 ft²

EXIT STAIR UP

P1

EV

6000

4000

RESIDENTIAL

LOBBY
45.1 m²
486 ft²

MECH
SERVICE SPACE
59.1 m²
638 ft²

SERVICE SPACE
96.6 m²
1040 ft²

2400
NON-RES
LOBBY
18.7 m²
202 ft²

300

4000

5%

120851

75%

15%

45%

75%

4355

BIKE RM
379.3 m²
4082 ft²

2100

209 LONG TERM RES. BIKE PARK

1800

2500

2394

1800

BIKE RAMP

UP TO STREET

SERVICE SPACE
94.6 m²
1018 ft²

STORM WATER TANK
79.7 m²
857 ft²

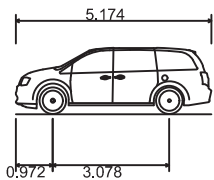
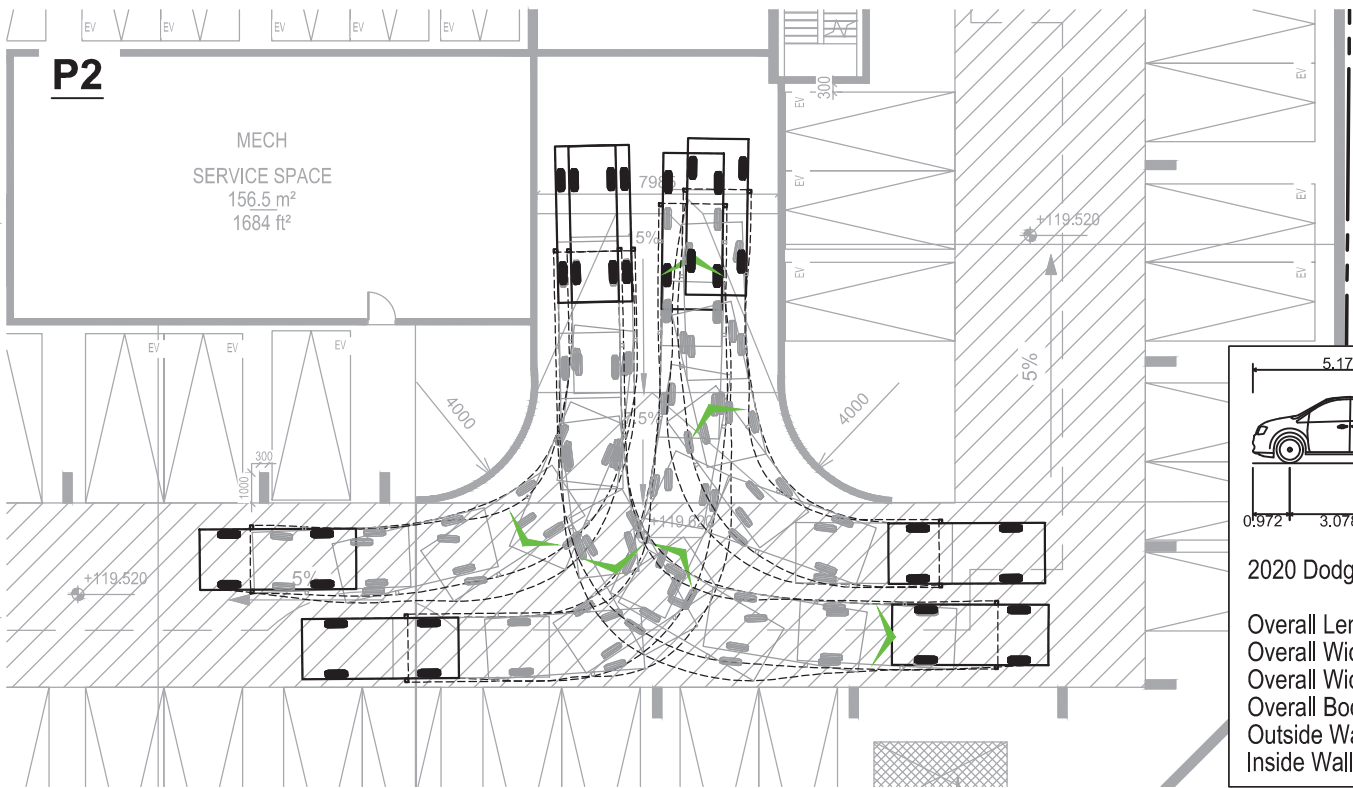
RETENTION TANK
STORM WATER TANK
20.8 m²
222 ft²

700

FRESH AIR
INTAKE
(10 m²)

675

5.17m
2.00m
2.25m
1.75m
6.50m
3.35m



2020 Dodge Grand Caravan GT

Overall Length	5.17m
Overall Width (without Mirrors)	2.00m
Overall Width (with Mirrors)	2.25m
Overall Body Height	1.75m
Outside Wall to Wall Turning Radius	6.50m
Inside Wall to Wall Turning Radius	3.35m

Appendix C: TTS Queries



Cross Tabulation Query Form - Trip - 2016 2022

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:

(Trip purpose of origin - purp_orig In H
and

Start time of trip - start_time In 600-859
and

Primary travel mode of trip - mode_prime In D M P T U
and
2006 GTA zone of origin - gta06_orig In 323 324 329 326)

Trip 2016

Table:

	323	324	326	329
PD 1 of Toronto	38	115	35	142
PD 2 of Toronto	0	36	0	13
PD 3 of Toronto	125	31	42	25
PD 4 of Toronto	0	0	57	0
PD 5 of Toronto	0	0	18	0
PD 7 of Toronto	0	72	0	60
PD 8 of Toronto	223	391	368	478
PD 9 of Toronto	37	77	24	0
PD 10 of Toronto	0	7	0	47
PD 14 of Toronto	0	22	0	0
Aurora	0	34	0	0
Richmond Hill	0	18	18	0
Markham	0	46	18	24
Vaughan	0	26	14	61
Caledon	0	0	13	0
Brampton	109	65	40	47
Mississauga	130	183	210	110
Milton	0	7	0	0
Oakville	37	50	10	0
Burlington	0	20	0	13
Hamilton	0	25	0	47
Cambridge	0	0	18	0

Trip 2022

Table:

	323	324	326	329	TOTALS
PD 1 of Toronto	8	0	45	0	53
PD 3 of Toronto	9	46	14	0	69
PD 4 of Toronto	25	0	9	6	40
PD 5 of Toronto	0	29	24	0	53
PD 7 of Toronto	22	15	0	9	46
PD 8 of Toronto	365	377	219	491	1452
299	0	0	0	10	10
300	23	0	0	0	23
306	19	0	92	0	111
307	0	14	53	8	75
308	15	22	0	0	37
309	0	0	0	88	88
311	0	24	0	9	33
312	22	0	0	12	34
313	19	13	0	0	32
314	0	0	0	63	63
318	27	0	0	0	27
319	0	3	0	0	3
322	54	0	0	77	131
324	45	28	28	11	112
325	0	21	0	0	21
329	0	12	0	0	12
335	34	0	46	15	95
336	108	93	0	198	399
344	0	32	0	0	32
345	0	116	0	0	116
PD 9 of Toronto	11	117	9	11	148
PD 13 of Toronto	9	0	38	0	47
Vaughan	0	0	9	0	9
Brampton	6	0	27	0	33
Mississauga	156	165	37	70	428
Milton	0	0	77	0	77
Oakville	20	0	0	16	36

2493

Cross Tabul 2022

Row: 2006 GTA zone of destination - gta06_dest
Column: 2006 GTA zone of origin - gta06_orig

Filters:

(Trip purpose of origin - purp_orig In H
and

Start time of trip - start_time In 600-859
and

Primary trav M P T U
and
Planning district of destination - pd_dest In 8
and
2006 GTA z 324 329 326)

Trip 2016

Table:

	323	324	326	329
285	0	0	40	0
299	0	18	0	0
307	0	0	16	8
308	0	0	0	49
309	0	12	16	0
310	0	13	11	0
312	0	0	0	15
314	0	0	0	49
315	0	11	0	0
316	0	0	0	13
319	0	22	0	0
320	0	0	0	101
322	36	20	14	65
323	0	33	63	0
324	0	56	23	0
325	0	52	81	0
326	0	28	32	0
327	62	12	23	19
329	0	0	0	62
330	0	18	0	0
333	0	34	0	13
336	125	42	47	0
344	0	20	0	26
345	0	0	0	59

Trip 2022

Table:

	323	324	326	329
299	0	0	0	10
300	23	0	0	0
306	19	0	92	0
307	0	14	53	8
308	15	22	0	0
309	0	0	0	88
311	0	24	0	9
312	22	0	0	12
313	19	13	0	0
314	0	0	0	63
318	27	0	0	0
319	0	3	0	0
322	54	0	0	77
324	45	28	28	11
325	0	21	0	0
329	0	12	0	0
335	34	0	46	15
336	108	93	0	198
344	0	32	0	0
345	0	116	0	0

Cross Tabulation Query For 2022

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:

(Trip purpose of destination - purp_dest In H
and
Start time of trip - start_time In 1500-1759
and

Primary travel mode of trip - M P T U
and
2006 GTA zone of destination 324 329 326)

Trip 2016
Table:

	323	324	326	329	
PD 1 of Toronto	38	34	105	64	241
PD 2 of Toronto	39	24	0	13	76
PD 3 of Toronto	125	18	13	25	181
PD 4 of Toronto	0	0	57	0	57
PD 5 of Toronto	36	0	18	20	74
PD 7 of Toronto	21	24	0	25	70
PD 8 of Toronto	280	361	389	557	1587
PD 9 of Toronto	56	59	24	0	139
PD 14 of Toronto	0	22	0	0	22
Aurora	0	34	0	0	34
Markham	0	46	0	24	70
Vaughan	0	26	14	51	91
Caledon	0	0	13	0	13
Brampton	47	96	40	47	230
Mississauga	177	311	228	110	826
Halton Hills	0	13	0	0	13
Milton	0	7	0	0	7
Oakville	37	21	10	0	68
Hamilton	0	0	0	47	47
External	0	11	0	0	11

Trip 2022
Table:

	323	324	326	329	TOTAL
PD 1 of Toronto	8	37	28	19	92
PD 2 of Toronto	0	0	8	0	8
PD 3 of Toronto	9	62	0	83	154
PD 4 of Toronto	25	0	9	21	55
PD 5 of Toronto	0	29	24	0	53
PD 7 of Toronto	43	34	0	65	142
PD 8 of Toronto	238	409	329	155	1131
299	0	0	0	41	41
300	23	0	0	0	23
301	9	13	0	0	22
305	0	0	0	37	37
307	0	23	53	0	76
308	0	22	0	0	22
309	42	58	14	9	123
311	9	11	0	0	20
312	22	0	0	0	22
313	0	13	0	0	13
314	0	0	0	20	20
316	0	0	0	11	11
319	0	3	0	0	3
322	54	0	0	0	54
323	66	36	14	10	126
324	0	28	28	0	56
325	0	8	154	0	162
329	12	0	0	9	21
330	0	42	0	0	42
331	0	0	0	17	17
334	0	0	21	0	21
335	0	24	46	0	70
338	0	12	0	0	12
345	0	116	0	0	116
PD 9 of Toronto	23	124	9	0	156
PD 11 of Toronto	0	10	0	0	10
PD 13 of Toronto	9	0	38	0	47
Markham	0	7	17	0	24
Vaughan	0	0	86	0	86
Brampton	0	22	27	0	49
Mississauga	193	171	62	89	515
Milton	0	9	77	0	86
Oakville	9	0	0	0	9
Hamilton	0	0	14	0	14
Grimsby	0	0	16	0	16

Cross Tabulation (2022

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:

(Trip purpose of destination - purp_dest In H
and
Start time of trip - start_time In 1500-1759
and

Primary travel mode M P T U
and
Planning district of origin - pd_orig In 8
and
2006 GTA zone of 324 329 326)

Trip 2016
Table:

	323	324	326	329
285	0	0	40	0
299	0	33	0	0
301	0	20	0	0
307	0	0	8	24
308	0	13	0	0
309	13	31	72	31
311	0	8	0	19
312	0	0	45	0
315	0	0	0	13
319	0	22	0	0
320	0	0	0	58
322	36	20	0	57
323	54	51	0	34
324	0	13	23	0
325	0	48	68	0
326	0	63	42	0
327	62	0	23	0
328	0	0	10	69
329	0	0	27	62
330	0	18	0	0
334	0	0	0	16
335	39	0	30	0
336	75	0	0	0
337	0	0	0	31
343	0	0	0	58
344	0	20	0	26
345	0	0	0	59
	279	360	388	557

Trip 2022
Table:

	323	324	326	329
299	0	0	0	41
300	23	0	0	0
301	9	13	0	0
305	0	0	0	37
307	0	23	53	0
308	0	22	0	0
309	42	58	14	9
311	9	11	0	0
312	22	0	0	0
313	0	13	0	0
314	0	0	0	20
316	0	0	0	11
319	0	3	0	0
322	54	0	0	0
323	66	36	14	10
324	0	28	28	0
325	0	8	154	0
329	12	0	0	9
330	0	42	0	0
331	0	0	0	17
334	0	0	21	0
335	0	24	46	0
338	0	12	0	0
345	0	116	0	0
	237	409	330	154

AM Peak Hour
Outbound
27-11-25

TTS Morning Peak Hour											
Traffic Volume Allocation											
Zone	Trips	%	NORTH East Mall	SOUTH East Mall	NORTH Hwy 427	SOUTH Hwy 427	EAST Dundas St W	WEST Dundas St W	SOUTH Shorncliffe	NORTH Paulart Dr	TOTAL
PD 1 of Toronto	53	2%			40%		60%				100.00%
PD 2 of Toronto	0	0%			30%		35%			35%	100.00%
PD 3 of Toronto	69	3%			60%		40%				100.00%
PD 4 of Toronto	40	2%			80%		20%				100.00%
PD 5 of Toronto	53	2%			95%	5%					100.00%
PD 7 of Toronto	46	2%			50%				50%		100.00%
299	10	0%		50%					50%		100.00%
300	23	1%		50%					50%		100.00%
306	111	4%					100%				100.00%
307	75	3%					100%				100.00%
308	37	1%							100%		100.00%
309	88	4%						100%			100.00%
311	33	1%		100%							100.00%
312	34	1%					100%				100.00%
313	32	1%					50%			50%	100.00%
314	63	3%					50%			50%	100.00%
318	27	1%					50%			50%	100.00%
319	3	0%					50%			50%	100.00%
322	131	5%								100%	100.00%
324	112	4%	50%					50%			100.00%
325	21	1%	50%					50%			100.00%
329	12	0%	50%							50%	100.00%
335	95	4%	65%					35%			100.00%
336	399	16%	65%					35%			100.00%
344	32	1%					50%			50%	100.00%
345	116	5%					50%			50%	100.00%
PD 9 of Toronto	148	6%					50%				100.00%
PD 13 of Toronto	47	2%			100%						100.00%
Vaughan	9	0%			100%						100.00%
Brampton	33	1%			100%						100.00%
Mississauga	428	17%						100%			100.00%
Milton	77	3%			100%						100.00%
Oakville	36	1%				100%					100.00%
		0%									0.00%
		0%									0.00%
		0%									0.00%
		0%									0.00%
TOTAL TRIPS	2493	100%									0.00%

Route Split Totals									
NORTH East Mall	SOUTH East Mall	NORTH Hwy 427	SOUTH Hwy 427	EAST Dundas St W	WEST Dundas St W	SOUTH Shorncliffe	NORTH Paulart Dr		TOTAL
0.00%	0.00%	0.00%	0.85%	1.28%	0.00%	0.00%	0.00%		2.13%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.00%
0.00%	0.00%	0.00%	1.66%	0.00%	1.11%	0.00%	0.00%		2.8%
0.00%	0.00%	1.28%	0.00%	0.32%	0.00%	0.00%	0.00%		1.6%
0.00%	0.00%	2.02%	0.11%	0.00%	0.00%	0.00%	0.00%		2.13%
0.00%	0.00%	0.92%	0.00%	0.00%	0.00%	0.00%	0.00%		1.8%
0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%		0.4%
0.00%	0.46%	0.00%	0.00%	0.00%	0.00%	0.46%	0.00%		0.9%
0.00%	0.00%	0.00%	0.00%	4.45%	0.00%	0.00%	0.00%		4.5%
0.00%	0.00%	0.00%	0.00%	3.01%	0.00%	0.00%	0.00%		3.0%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.48%	0.00%		1.5%
0.00%	0.00%	0.00%	0.00%	0.00%	3.53%	0.00%	0.00%		3.5%
0.00%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		1.3%
0.00%	0.00%	0.00%	0.00%	1.36%	0.00%	0.00%	0.00%		1.4%
0.00%	0.00%	0.00%	0.00%	0.64%	0.00%	0.00%	0.64%		1.3%
0.00%	0.00%	0.00%	0.00%	1.26%	0.00%	0.00%	1.26%		2.5%
0.00%	0.00%	0.00%	0.00%	0.54%	0.00%	0.00%	0.54%		1.1%
0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	0.00%	0.06%		0.1%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.25%		5.3%
2.25%	0.00%	0.00%	0.00%	0.00%	2.25%	0.00%	0.00%		4.5%
0.42%	0.00%	0.00%	0.00%	0.00%	0.42%	0.00%	0.00%		0.8%
0.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%		0.5%
2.48%	0.00%	0.00%	0.00%	1.33%	0.00%	0.00%	0.00%		3.8%
10.40%	0.00%	0.00%	0.00%	0.00%	5.60%	0.00%	0.00%		16.0%
0.00%	0.00%	0.00%	0.00%	0.64%	0.00%	0.00%	0.64%		1.3%
0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	2.33%		4.7%
0.00%	0.00%	5.94%	0.00%	0.00%	0.00%	0.00%	0.00%		5.9%
0.00%	0.00%	1.89%	0.00%	0.00%	0.00%	0.00%	0.00%		1.9%
0.00%	0.00%	0.36%	0.00%	0.00%	0.00%	0.00%	0.00%		0.4%
0.00%	0.00%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%		1.3%
0.00%	0.00%	0.00%	0.00%	0.00%	17.17%	0.00%	0.00%		17.2%
0.00%	0.00%	3.09%	0.00%	0.00%	0.00%	0.00%	0.00%		3.1%
0.00%	0.00%	0.00%	1.44%	0.00%	0.00%	0.00%	0.00%		1.4%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.0%
16%	2%	18%	3%	17%	30%	3%	11%		100.00%

Route	IN	OUT
The East Mall North	8%	16%
The East Mall South	2%	2%
Paulart North	12%	11%
West Via Dundas	60%	51%
East Via Dundas	13%	17%
Shorncliffe South	5%	3%
TOTAL	100%	100%

TTS Afternoon Peak Hour											
Traffic Volume Allocation											
Zone	Trips	%	NORTH East Mall	SOUTH East Mall	NORTH Hwy 427	SOUTH Hwy 427	EAST Dundas St W	WEST Dundas St W	SOUTH Shorncliffe	NORTH Paulart Dr	TOTAL
PD 1 of Toronto	92	3%			40%		60%				100.00%
PD 2 of Toronto	8	0%			30%		35%			35%	100.00%
PD 3 of Toronto	154	6%			60%		40%				100.00%
PD 4 of Toronto	55	2%			80%		20%				100.00%
PD 5 of Toronto	53	2%			95%	5%					100.00%
PD 7 of Toronto	142	5%			50%				50%		100.00%
299	41	2%		50%					50%		100.00%
300	23	1%		50%					50%		100.00%
301	22	1%		25%		35%			40%		100.00%
305	37	1%					100%				100.00%
307	76	3%					100%				100.00%
308	22	1%							100%		100.00%
309	123	5%						100%			100.00%
311	20	1%		100%							100.00%
312	22	1%					100%				100.00%
313	13	0%					50%			50%	100.00%
314	20	1%				50%	50%				100.00%
316	11	0%					50%				100.00%
319	3	0%					50%				100.00%
322	54	2%							100%		100.00%
323	126	5%								100%	100.00%
324	56	2%	50%					50%			100.00%
325	162	6%	50%					50%			100.00%
329	21	1%	50%							50%	100.00%
330	42	2%	50%							50%	100.00%
331	17	1%	50%							50%	100.00%
334	21	1%	50%					50%			100.00%
335	70	3%	65%					35%			100.00%
336	12	0%					50%			50%	100.00%
345	116	4%					50%			50%	100.00%
PD 9 of Toronto	156	6%			100%						100.00%
PD 11 of Toronto	10	0%			100%						100.00%
PD 13 of Toronto	47	2%			100%						100.00%
Markham	24	1%			100%						100.00%
Vaughan	86	3%			100%						100.00%
Brampton	49	2%			100%						100.00%
Mississauga	515	19%						100%			100.00%
Milton	86	3%			100%						100.00%
Oakville	9	0%				100%					100.00%
Hamilton	14	1%				100%					100.00%
Grimsey	16	1%				100%					100.00%
TOTAL TRIPS	2646	100%									
	2646										

Route Split Totals									
NORTH East Mall	SOUTH East Mall	NORTH Hwy 427	SOUTH Hwy 427	EAST Dundas St W	WEST Dundas St W	SOUTH Shorncliffe	NORTH Paulart Dr		TOTAL
0.00%	0.00%	0.00%	1.39%	2.09%	0.00%	0.00%	0.00%		3.5%
0.00%	0.00%	0.00%	0.09%	0.11%	0.00%	0.00%	0.11%		0.3%
0.00%	0.00%	0.00%	0.00%	2.33%	0.00%	0.00%	0.00%		5.8%
0.00%	0.00%	1.66%	0.00%	0.42%	0.00%	0.00%	0.00%		2.1%
0.00%	0.00%	1.90%	0.10%	0.00%	0.00%	0.00%	0.00%		2.0%
0.00%	0.00%	0.00%	2.68%	0.00%	0.00%	0.00%	0.00%		5.4%
0.00%	0.77%	0.00%	0.00%	0.00%	0.00%	0.77%	0.00%		1.5%
0.00%	0.43%	0.00%	0.00%	0.00%	0.00%	0.43%	0.00%		0.9%
0.00%	0.21%	0.00%	0.29%	0.00%	0.00%	0.33%	0.00%		0.8%
0.00%	0.00%	0.00%	0.00%	1.40%	0.00%	0.00%	0.00%		1.4%
0.00%	0.00%	0.00%	0.00%	2.87%	0.00%	0.00%	0.00%		2.9%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%		0.8%
0.00%	0.00%	0.00%	0.00%	0.00%	4.65%	0.00%	0.00%		4.6%
0.00%	0.76%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.8%
0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%	0.00%		0.8%
0.00%	0.00%	0.00%	0.00%	0.25%	0.00%	0.00%	0.25%		0.5%
0.00%	0.00%	0.00%	0.00%	0.38%	0.00%	0.00%	0.38%		0.8%
0.00%	0.00%	0.00%	0.00%	0.21%	0.00%	0.00%	0.21%		0.4%
0.00%	0.00%	0.00%	0.00%	0.06%	0.00%	0.00%	0.06%		0.1%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.04%		2.0%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.76%		4.8%
1.06%	0.00%	0.00%	0.00%	0.00%	1.06%	0.00%	0.00%		2.1%
3.06%	0.00%	0.00%	0.00%	0.00%	3.06%	0.00%	0.00%		6.1%
0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%		0.8%
0.79%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%		1.6%
0.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%		0.6%
0.40%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.00%		0.8%
1.72%	0.00%	0.00%	0.00%	0.00%	0.93%	0.00%	0.00%		2.6%
0.00%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.23%		0.5%
0.00%	0.00%	0.00%	0.00%	2.19%	0.00%	0.00%	2.19%		4.4%
0.00%	0.00%	5.90%	0.00%	0.00%	0.00%	0.00%	0.00%		5.9%
0.00%	0.00%	0.38%	0.00%	0.00%	0.00%	0.00%	0.00%		0.4%
0.00%	0.00%	1.78%	0.00%	0.00%	0.00%	0.00%	0.00%		1.8%
0.00%	0.00%	0.91%	0.00%	0.00%	0.00%	0.00%	0.00%		0.9%
0.00%	0.00%	3.25%	0.00%	0.00%	0.00%	0.00%	0.00%		3.3%
0.00%	0.00%	1.85%	0.00%	0.00%	0.00%	0.00%	0.00%		1.9%
0.00%	0.00%	0.00%	0.00%	0.00%	19.46%	0.00%	0.00%		19.5%
0.00%	0.00%	3.25%	0.00%	0.00%	0.00%	0.00%	0.00%		3.3%
0.00%	0.00%	0.00%	0.34%	0.00%	0.00%	0.00%	0.00%		0.3%
0.00%	0.00%	0.00%	0.53%	0.00%	0.00%	0.00%	0.00%		0.5%
0.00%	0.00%	0.00%	0.60%	0.00%	0.00%	0.00%	0.00%		0.6%
8%	2%	24%	6%	13%	30%	5%	12%		100.0%

Route	IN	OUT
The East Mall North	8%	15%
The East Mall South	2%	2%
Paulart North	12%	11%
West via Dundas	60%	51%
East Via Dundas	13%	17%
Shorncliffe South	5%	3%
TOTAL	100%	100%

Appendix D: Turning Movement Counts





Turning Movement Count (6 . BILLINGHAM RD & 550 DUNDAS ST W ACCESS)

Start Time	N Approach BILLINGHAM RD						E Approach 550 DUNDAS ST W ACCESS						S Approach BILLINGHAM RD						W Approach WEST ACCESS						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
2025-10-29 07:30:00	0	4	0	0	1	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	4		
2025-10-29 07:45:00	0	3	0	1	0	4	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	5		
2025-10-29 08:00:00	0	3	0	0	0	3	0	0	0	0	1	0	0	1	0	0	2	1	0	0	0	0	1	0	4		
2025-10-29 08:15:00	0	4	0	0	0	4	0	0	0	0	2	0	0	3	0	0	1	3	0	0	0	0	2	0	7	20	
2025-10-29 08:30:00	0	4	0	0	1	4	0	0	0	0	1	0	0	1	0	1	0	2	0	0	0	0	1	0	6	22	
2025-10-29 08:45:00	3	3	0	0	0	6	0	0	0	0	1	0	0	2	1	0	0	3	3	0	1	0	2	4	13	30	
2025-10-29 09:00:00	1	4	0	1	0	6	0	0	0	0	0	0	0	3	0	0	0	3	1	0	0	0	4	1	10	36	
2025-10-29 09:15:00	1	8	0	0	0	9	0	0	0	0	0	0	0	1	1	1	1	3	1	0	1	0	1	2	14	43	
BREAK																											
2025-10-29 16:00:00	0	4	0	0	0	4	0	0	0	0	1	0	0	3	0	0	0	3	2	0	0	0	1	2	9		
2025-10-29 16:15:00	0	3	0	0	1	3	0	0	0	0	2	0	0	3	0	0	2	3	4	0	1	0	8	5	11		
2025-10-29 16:30:00	0	5	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	2	7		
2025-10-29 16:45:00	0	3	0	0	0	3	0	0	0	0	2	0	0	4	0	0	1	4	4	0	1	0	1	5	12	39	
2025-10-29 17:00:00	0	8	0	0	1	8	0	0	0	0	2	0	0	0	0	1	3	1	2	0	1	0	6	3	12	42	
2025-10-29 17:15:00	0	2	0	0	4	2	0	0	0	0	4	0	0	4	0	0	2	4	1	0	0	0	5	1	7	38	
2025-10-29 17:30:00	0	5	0	0	0	5	0	0	0	0	3	0	0	3	0	0	0	3	2	0	0	0	0	2	10	41	
2025-10-29 17:45:00	0	4	0	0	1	4	0	0	0	0	6	0	0	2	0	0	1	2	0	0	0	0	2	0	6	35	
Grand Total	5	67	0	2	9	74	0	0	0	0	27	0	0	30	2	4	14	36	22	0	5	0	38	27	137	-	
Approach%	6.8%	90.5%	0%	2.7%		-	0%	0%	0%	0%		-	0%	83.3%	5.6%	11.1%		-	81.5%	0%	18.5%	0%		-	-	-	
Totals %	3.6%	48.9%	0%	1.5%		54%	0%	0%	0%	0%	0%	0%	0%	21.9%	1.5%	2.9%		26.3%	16.1%	0%	3.6%	0%		19.7%	-	-	
Heavy	0	1	0	0		-	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	-	-	
Heavy %	0%	1.5%	0%	0%		-	0%	0%	0%	0%		-	0%	6.7%	0%	0%		-	0%	0%	0%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)

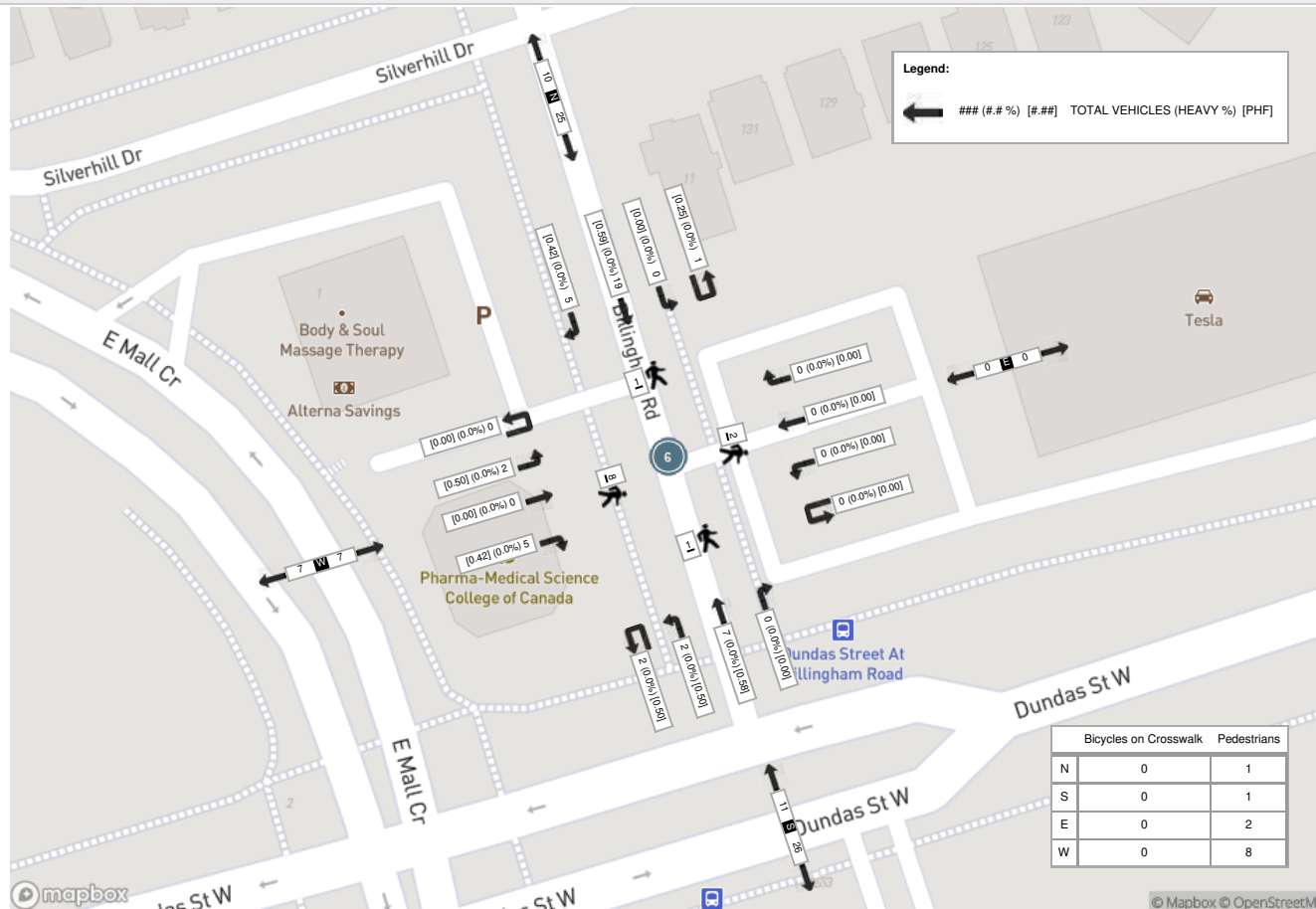
Start Time	N Approach BILLINGHAM RD						E Approach 550 DUNDAS ST W ACCESS						S Approach BILLINGHAM RD						W Approach WEST ACCESS						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:30:00	0	4	0	0	1	4	0	0	0	0	1	0	0	1	0	1	0	2	0	0	0	0	1	0	6
2025-10-29 08:45:00	3	3	0	0	0	6	0	0	0	0	1	0	0	2	1	0	0	3	3	0	1	0	2	4	13
2025-10-29 09:00:00	1	4	0	1	0	6	0	0	0	0	0	0	0	3	0	0	0	3	1	0	0	0	4	1	10
2025-10-29 09:15:00	1	8	0	0	0	9	0	0	0	0	0	0	0	1	1	1	1	3	1	0	1	0	1	2	14
Grand Total	5	19	0	1	1	25	0	0	0	0	2	0	0	7	2	2	1	11	5	0	2	0	8	7	43
Approach%	20%	76%	0%	4%		-	0%	0%	0%	0%		-	0%	63.6%	18.2%	18.2%		-	71.4%	0%	28.6%	0%		-	-
Totals %	11.6%	44.2%	0%	2.3%		58.1%	0%	0%	0%	0%		0%	0%	16.3%	4.7%	4.7%		25.6%	11.6%	0%	4.7%	0%		16.3%	-
PHF	0.42	0.59	0	0.25		0.69	0	0	0	0		0	0	0.58	0.5	0.5		0.92	0.42	0	0.5	0		0.44	0.77
Heavy	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Lights	5	19	0	1		25	0	0	0	0		0	0	7	2	2		11	5	0	2	0		7	43
Lights %	100%	100%	0%	100%		100%	0%	0%	0%	0%		0%	0%	100%	100%	100%		100%	100%	0%	100%	0%		100%	100%
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	-	8	-	-
Pedestrians%	-	-	-	-	8.3%	-	-	-	-	16.7%	-	-	-	-	-	8.3%	-	-	-	-	-	-	66.7%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-



Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach BILLINGHAM RD						E Approach 550 DUNDAS ST W ACCESS						S Approach BILLINGHAM RD						W Approach WEST ACCESS						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:15:00	0	3	0	0	1	3	0	0	0	0	2	0	0	3	0	0	2	3	4	0	1	0	8	5	11
2025-10-29 16:30:00	0	5	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	2	7
2025-10-29 16:45:00	0	3	0	0	0	3	0	0	0	0	2	0	0	4	0	0	1	4	4	0	1	0	1	5	12
2025-10-29 17:00:00	0	8	0	0	1	8	0	0	0	0	2	0	0	0	0	1	3	1	2	0	1	0	6	3	12
Grand Total	0	19	0	0	2	19	0	0	0	0	7	0	0	7	0	1	6	8	12	0	3	0	16	15	42
Approach%	0%	100%	0%	0%		-	0%	0%	0%	0%		-	0%	87.5%	0%	12.5%		-	80%	0%	20%	0%		-	-
Totals %	0%	45.2%	0%	0%		45.2%	0%	0%	0%	0%		0%	0%	16.7%	0%	2.4%		19%	28.6%	0%	7.1%	0%		35.7%	-
PHF	0	0.59	0	0		0.59	0	0	0	0		0	0	0.44	0	0.25		0.5	0.75	0	0.75	0		0.75	0.88
Heavy	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	2
Heavy %	0%	5.3%	0%	0%		5.3%	0%	0%	0%	0%		0%	0%	14.3%	0%	0%		12.5%	0%	0%	0%	0%		0%	4.8%
Lights	0	18	0	0		18	0	0	0	0		0	0	6	0	1		7	12	0	3	0		15	40
Lights %	0%	94.7%	0%	0%		94.7%	0%	0%	0%	0%		0%	0%	85.7%	0%	100%		87.5%	100%	0%	100%	0%		100%	95.2%
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Single-Unit Trucks %	0%	5.3%	0%	0%		5.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	2.4%
Buses	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	1
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	14.3%	0%	0%		12.5%	0%	0%	0%	0%		0%	2.4%
Pedestrians	-	-	-	-	2	-	-	-	-	7	-	-	-	-	-	6	-	-	-	-	-	-	16	-	-
Pedestrians%	-	-	-	-	6.5%	-	-	-	-	22.6%	-	-	-	-	-	19.4%	-	-	-	-	-	-	51.6%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-

Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (1 . BLOOR ST W & SHAVER AVE)

Start Time	N Approach SHAVER AVE						E Approach BLOOR ST W						S Approach SHAVER AVE						W Approach BLOOR ST W						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
2025-10-29 07:30:00	2	4	7	0	8	13	1	182	2	0	1	185	9	6	7	0	1	22	4	259	6	0	3	269	489		
2025-10-29 07:45:00	3	8	11	0	2	22	4	235	6	0	3	245	8	2	5	0	4	15	8	279	6	0	0	293	575		
2025-10-29 08:00:00	4	11	18	0	5	33	4	228	11	0	6	243	17	15	17	0	9	49	10	268	9	0	4	287	612		
2025-10-29 08:15:00	8	14	15	0	6	37	2	271	18	0	4	291	8	7	11	0	6	26	9	292	4	0	3	305	659	2335	
2025-10-29 08:30:00	7	7	5	0	4	19	5	252	14	0	1	271	8	4	16	0	3	28	12	250	1	0	4	263	581	2427	
2025-10-29 08:45:00	3	13	8	0	6	24	1	244	13	0	1	258	17	4	15	0	3	36	19	258	5	0	5	282	600	2452	
2025-10-29 09:00:00	8	8	10	0	2	26	3	176	12	0	0	191	11	4	6	0	5	21	14	260	2	0	3	276	514	2354	
2025-10-29 09:15:00	4	6	4	0	3	14	5	161	15	0	3	181	6	1	9	0	4	16	11	208	4	0	2	223	434	2129	
BREAK																											
2025-10-29 16:00:00	3	4	3	0	10	10	4	260	16	0	6	280	13	18	13	0	5	44	13	215	7	0	8	235	569		
2025-10-29 16:15:00	4	9	9	0	8	22	8	270	12	0	1	290	27	20	28	0	4	75	11	236	3	0	12	250	637		
2025-10-29 16:30:00	5	10	8	0	1	23	5	239	22	1	2	267	22	24	19	0	7	65	23	272	8	0	0	303	658		
2025-10-29 16:45:00	9	8	10	0	8	27	4	223	12	0	0	239	24	10	19	0	2	53	19	279	7	0	1	305	624	2488	
2025-10-29 17:00:00	4	18	8	0	6	30	5	284	15	0	2	304	22	16	20	0	4	58	18	252	8	0	2	278	670	2589	
2025-10-29 17:15:00	4	18	7	0	4	29	6	265	17	0	2	288	15	16	19	0	5	50	13	242	8	0	0	263	630	2582	
2025-10-29 17:30:00	6	9	5	0	6	20	4	267	16	0	3	287	18	9	15	0	3	42	17	277	8	0	2	302	651	2575	
2025-10-29 17:45:00	3	11	9	0	6	23	11	230	12	0	2	253	28	11	13	0	0	52	16	243	8	0	2	267	595	2546	
Grand Total	77	158	137	0	85	372	72	3787	213	1	37	4073	253	167	232	0	65	652	217	4090	94	0	51	4401	9498	-	
Approach%	20.7%	42.5%	36.8%	0%	-	-	1.8%	93%	5.2%	0%	-	-	38.8%	25.6%	35.6%	0%	-	-	4.9%	92.9%	2.1%	0%	-	-	-	-	
Totals %	0.8%	1.7%	1.4%	0%	3.9%	0.8%	39.9%	2.2%	0%	42.9%	2.7%	1.8%	2.4%	0%	6.9%	2.3%	43.1%	1%	0%	46.3%	-	-	-	-	-		
Heavy	0	3	2	0	-	6	111	5	0	-	4	2	4	0	-	7	94	0	0	-	-	-	-	-	-		
Heavy %	0%	1.9%	1.5%	0%	-	8.3%	2.9%	2.3%	0%	-	1.6%	1.2%	1.7%	0%	-	3.2%	2.3%	0%	0%	-	-	-	-	-	-		
Bicycles	0	1	0	0	-	0	6	1	0	-	1	4	0	0	-	0	4	0	0	-	-	-	-	-	-		
Bicycle %	0%	0.6%	0%	0%	-	0%	0.2%	0.5%	0%	-	0.4%	2.4%	0%	0%	-	0%	0.1%	0%	0%	-	-	-	-	-	-		



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)

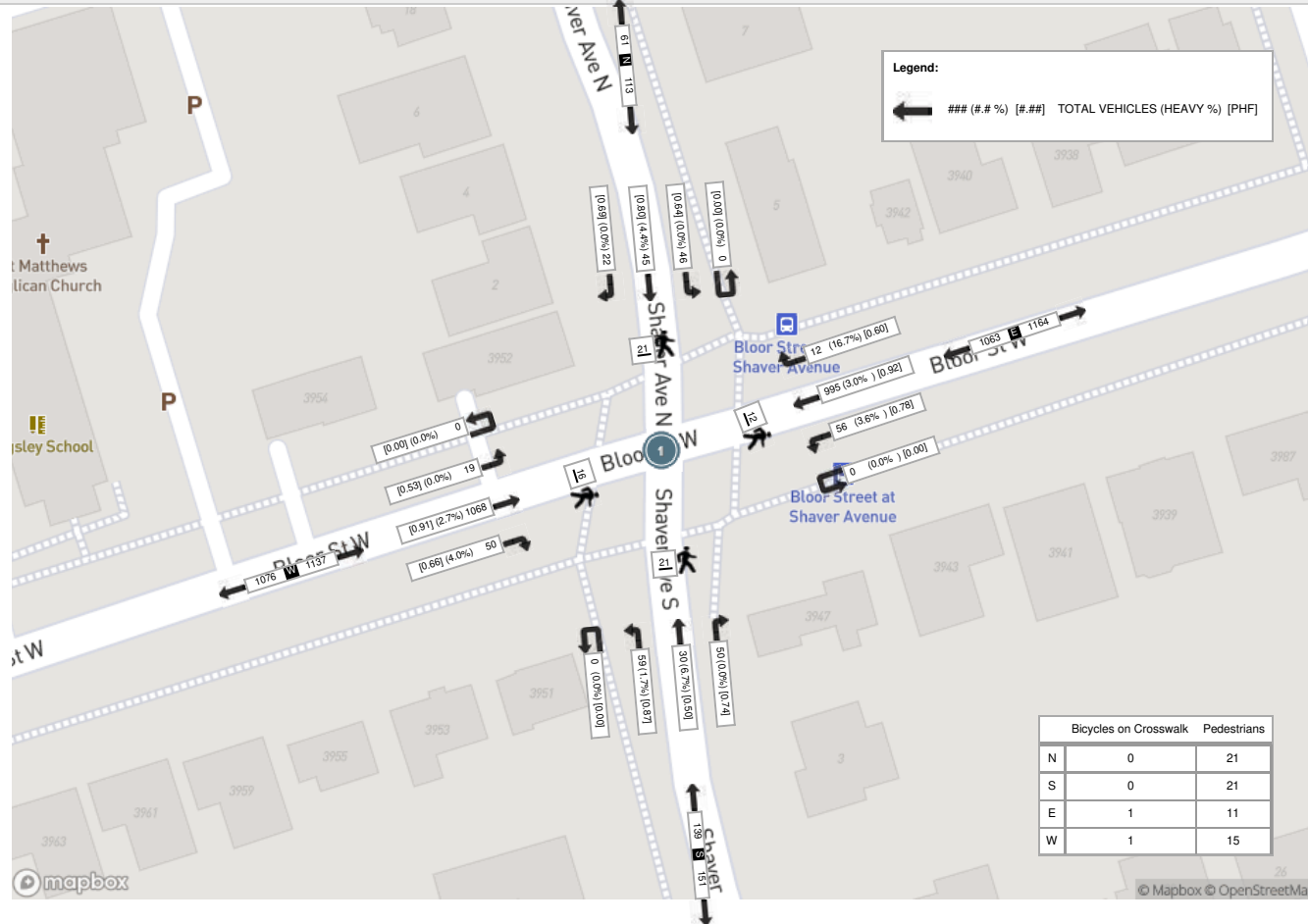
Start Time	N Approach SHAVER AVE						E Approach BLOOR ST W						S Approach SHAVER AVE						W Approach BLOOR ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:00:00	4	11	18	0	5	33	4	228	11	0	6	243	17	15	17	0	9	49	10	268	9	0	4	287	612
2025-10-29 08:15:00	8	14	15	0	6	37	2	271	18	0	4	291	8	7	11	0	6	26	9	292	4	0	3	305	659
2025-10-29 08:30:00	7	7	5	0	4	19	5	252	14	0	1	271	8	4	16	0	3	28	12	250	1	0	4	263	581
2025-10-29 08:45:00	3	13	8	0	6	24	1	244	13	0	1	258	17	4	15	0	3	36	19	258	5	0	5	282	600
Grand Total	22	45	46	0	21	113	12	995	56	0	12	1063	50	30	59	0	21	139	50	1068	19	0	16	1137	2452
Approach%	19.5%	39.8%	40.7%	0%		-	1.1%	93.6%	5.3%	0%		-	36%	21.6%	42.4%	0%		-	4.4%	93.9%	1.7%	0%		-	-
Totals %	0.9%	1.8%	1.9%	0%		4.6%	0.5%	40.6%	2.3%	0%		43.4%	2%	1.2%	2.4%	0%		5.7%	2%	43.6%	0.8%	0%		46.4%	-
PHF	0.69	0.8	0.64	0		0.76	0.6	0.92	0.78	0		0.91	0.74	0.5	0.87	0		0.71	0.66	0.91	0.53	0		0.93	0.93
Heavy	0	2	0	0		2	2	30	2	0		34	0	2	1	0		3	2	29	0	0		31	70
Heavy %	0%	4.4%	0%	0%		1.8%	16.7%	3%	3.6%	0%		3.2%	0%	6.7%	1.7%	0%		2.2%	4%	2.7%	0%	0%		2.7%	2.9%
Lights	22	43	46	0		111	10	965	54	0		1029	50	28	58	0		136	48	1039	19	0		1106	2382
Lights %	100%	95.6%	100%	0%		98.2%	83.3%	97%	96.4%	0%		96.8%	100%	93.3%	98.3%	0%		97.8%	96%	97.3%	100%	0%		97.3%	97.1%
Single-Unit Trucks	0	2	0	0		2	1	12	1	0		14	0	2	1	0		3	2	8	0	0		10	29
Single-Unit Trucks %	0%	4.4%	0%	0%		1.8%	8.3%	1.2%	1.8%	0%		1.3%	0%	6.7%	1.7%	0%		2.2%	4%	0.7%	0%	0%		0.9%	1.2%
Buses	0	0	0	0		0	1	17	1	0		19	0	0	0	0		0	0	21	0	0		21	40
Buses %	0%	0%	0%	0%		0%	8.3%	1.7%	1.8%	0%		1.8%	0%	0%	0%	0%		0%	0%	2%	0%	0%		1.8%	1.6%
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	1
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	-	21	-	-	-	-	11		-	-	-	-	-	21		-	-	-	-	15		-
Pedestrians%	-	-	-	-	30%	-	-	-	-	15.7%		-	-	-	-	-	30%		-	-	-	-	21.4%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	1		-	-	-	-	-	0		-	-	-	-	1		-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	1.4%		-	-	-	-	-	0%		-	-	-	-	1.4%		-
Bicycles on Road	0	0	0	0		-	0	3	0	0		-	0	1	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	0%	0%	0%			0%	100%	0%	0%			0%	100%	0%	0%			0%	0%	0%	0%			-



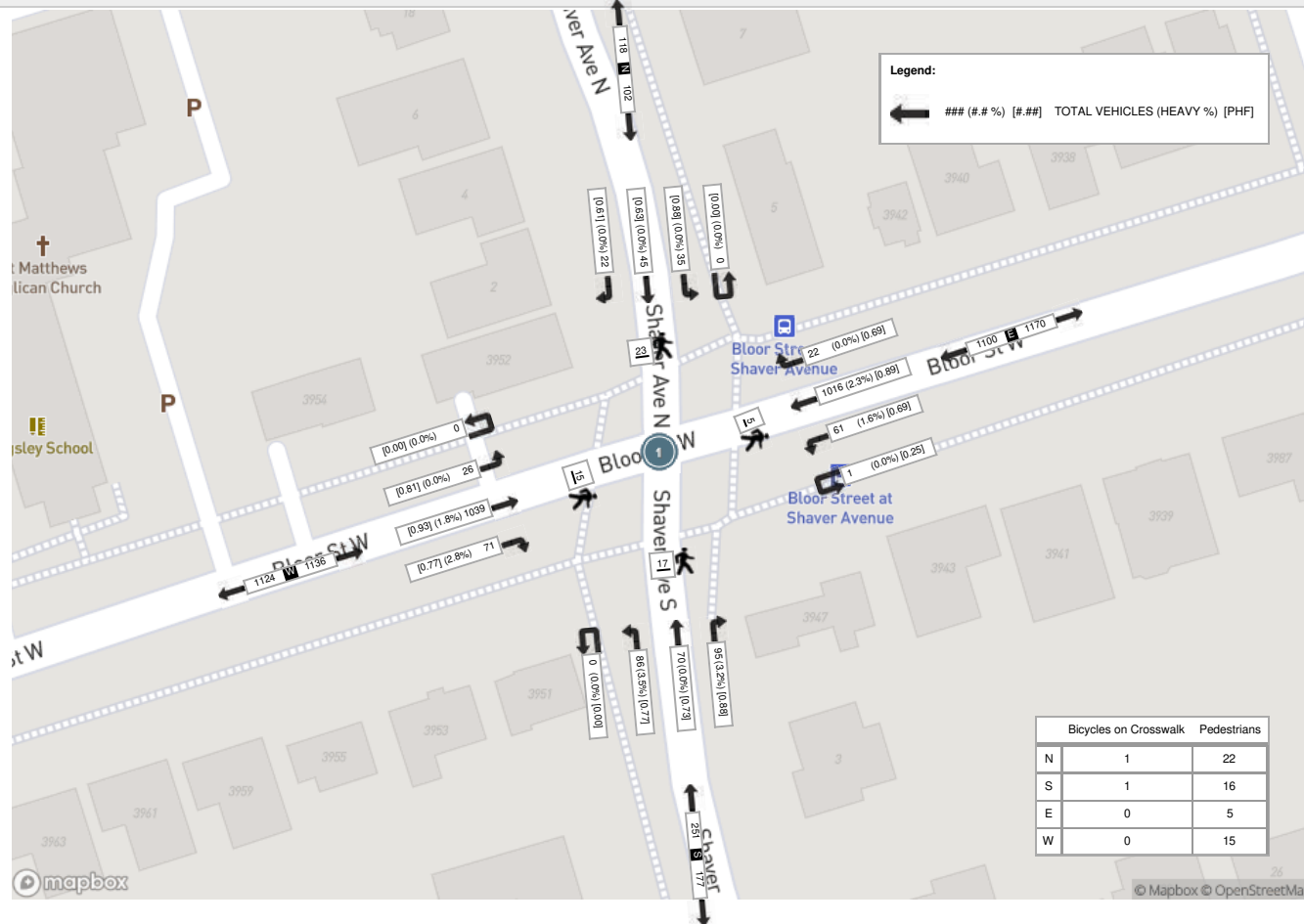
Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach SHAVER AVE						E Approach BLOOR ST W						S Approach SHAVER AVE						W Approach BLOOR ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:15:00	4	9	9	0	8	22	8	270	12	0	1	290	27	20	28	0	4	75	11	236	3	0	12	250	637
2025-10-29 16:30:00	5	10	8	0	1	23	5	239	22	1	2	267	22	24	19	0	7	65	23	272	8	0	0	303	658
2025-10-29 16:45:00	9	8	10	0	8	27	4	223	12	0	0	239	24	10	19	0	2	53	19	279	7	0	1	305	624
2025-10-29 17:00:00	4	18	8	0	6	30	5	284	15	0	2	304	22	16	20	0	4	58	18	252	8	0	2	278	670
Grand Total	22	45	35	0	23	102	22	1016	61	1	5	1100	95	70	86	0	17	251	71	1039	26	0	15	1136	2589
Approach%	21.6%	44.1%	34.3%	0%		-	2%	92.4%	5.5%	0.1%		-	37.8%	27.9%	34.3%	0%		-	6.3%	91.5%	2.3%	0%		-	-
Totals %	0.8%	1.7%	1.4%	0%		3.9%	0.8%	39.2%	2.4%	0%		42.5%	3.7%	2.7%	3.3%	0%		9.7%	2.7%	40.1%	1%	0%		43.9%	-
PHF	0.61	0.63	0.88	0		0.85	0.69	0.89	0.69	0.25		0.9	0.88	0.73	0.77	0		0.84	0.77	0.93	0.81	0		0.93	0.97
Heavy	0	0	0	0		0	0	23	1	0		24	3	0	3	0		6	2	19	0	0		21	51
Heavy %	0%	0%	0%	0%		0%	0%	2.3%	1.6%	0%		2.2%	3.2%	0%	3.5%	0%		2.4%	2.8%	1.8%	0%	0%		1.8%	2%
Lights	22	45	35	0		102	22	993	60	1		1076	92	70	83	0		245	69	1020	26	0		1115	2538
Lights %	100%	100%	100%	0%		100%	100%	97.7%	98.4%	100%		97.8%	96.8%	100%	96.5%	0%		97.6%	97.2%	98.2%	100%	0%		98.2%	98%
Single-Unit Trucks	0	0	0	0		0	0	5	1	0		6	3	0	2	0		5	2	3	0	0		5	16
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0.5%	1.6%	0%		0.5%	3.2%	0%	2.3%	0%		2%	2.8%	0.3%	0%	0%		0.4%	0.6%
Buses	0	0	0	0		0	0	18	0	0		18	0	0	1	0		1	0	15	0	0		15	34
Buses %	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1.6%	0%	0%	1.2%	0%		0.4%	0%	1.4%	0%	0%		1.3%	1.3%
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	1
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%
Pedestrians	-	-	-	-	22	-	-	-	-	-	5	-	-	-	-	-	16	-	-	-	-	-	15	-	-
Pedestrians%	-	-	-	-	36.7%	-	-	-	-	-	8.3%	-	-	-	-	-	26.7%	-	-	-	-	-	25%	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	1.7%	-	-	-	-	-	0%	-	-	-	-	-	1.7%	-	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	0%	0%	0%			0%	0%	0%	0%			0%	0%	0%	0%			0%	0%	0%	0%			-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (8 . DUNDAS ST W & 550 DUNDAS ST W ACCESS)

Start Time	N Approach 550 DUNDAS ST W ACCESS					E Approach DUNDAS ST W					W Approach DUNDAS ST W					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
2025-10-29 07:30:00	0	0	0	10	0	0	248	0	0	248	240	0	1	0	241	489	
2025-10-29 07:45:00	0	0	0	3	0	0	244	0	0	244	316	0	0	0	316	560	
2025-10-29 08:00:00	0	0	0	5	0	0	287	0	0	287	294	0	0	0	294	581	
2025-10-29 08:15:00	0	0	0	1	0	0	273	0	0	273	338	0	0	0	338	611	2241
2025-10-29 08:30:00	0	0	0	1	0	0	254	0	0	254	327	0	1	0	328	582	2334
2025-10-29 08:45:00	0	0	0	1	0	0	255	0	0	255	331	0	0	0	331	586	2360
2025-10-29 09:00:00	0	0	0	4	0	0	252	0	0	252	266	0	0	0	266	518	2297
2025-10-29 09:15:00	0	0	0	4	0	0	215	0	0	215	261	0	0	0	261	476	2162
BREAK																	
2025-10-29 16:00:00	0	0	0	9	0	0	314	0	0	314	301	1	0	0	302	616	
2025-10-29 16:15:00	12	0	0	16	12	0	349	0	0	349	340	2	1	0	343	704	
2025-10-29 16:30:00	1	0	0	5	1	1	290	0	0	291	377	0	0	0	377	669	
2025-10-29 16:45:00	3	1	0	2	4	0	295	0	0	295	323	1	0	0	324	623	2612
2025-10-29 17:00:00	5	1	0	1	6	0	310	0	0	310	309	3	0	0	312	628	2624
2025-10-29 17:15:00	8	0	0	5	8	2	307	0	0	309	352	0	0	0	352	669	2589
2025-10-29 17:30:00	5	0	0	8	5	0	319	0	0	319	327	0	0	0	327	651	2571
2025-10-29 17:45:00	0	0	0	1	0	0	291	0	0	291	365	0	0	0	365	656	2604
Grand Total	34	2	0	76	36	3	4503	0	0	4506	5067	7	3	0	5077	9619	-
Approach%	94.4%	5.6%	0%	-	-	0.1%	99.9%	0%	-	-	99.8%	0.1%	0.1%	-	-	-	-
Totals %	0.4%	0%	0%	0.4%	0.4%	0%	46.8%	0%	46.8%	46.8%	52.7%	0.1%	0%	52.8%	-	-	-
Heavy	0	0	0	-	-	0	505	0	-	-	523	0	0	-	-	-	-
Heavy %	0%	0%	0%	-	-	0%	11.2%	0%	-	-	10.3%	0%	0%	-	-	-	-
Bicycles	0	0	0	-	-	0	5	0	-	-	5	0	0	-	-	-	-
Bicycle %	0%	0%	0%	-	-	0%	0.1%	0%	-	-	0.1%	0%	0%	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)

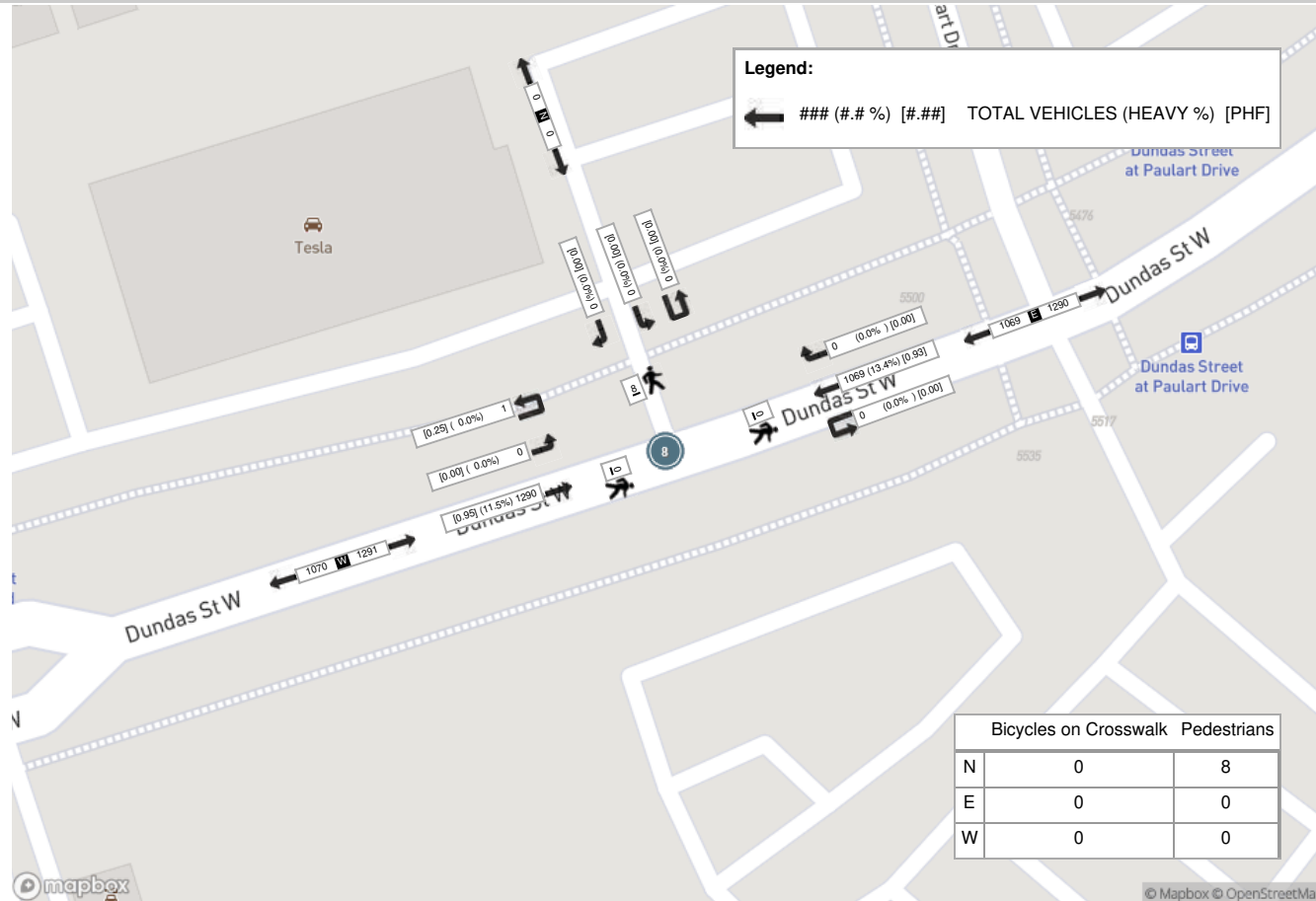
Start Time	N Approach 550 DUNDAS ST W ACCESS					E Approach DUNDAS ST W					W Approach DUNDAS ST W					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:00:00	0	0	0	5	0	0	287	0	0	287	294	0	0	0	294	581
2025-10-29 08:15:00	0	0	0	1	0	0	273	0	0	273	338	0	0	0	338	611
2025-10-29 08:30:00	0	0	0	1	0	0	254	0	0	254	327	0	1	0	328	582
2025-10-29 08:45:00	0	0	0	1	0	0	255	0	0	255	331	0	0	0	331	586
Grand Total	0	0	0	8	0	0	1069	0	0	1069	1290	0	1	0	1291	2360
Approach%	0%	0%	0%	-	-	0%	100%	0%	-	-	99.9%	0%	0.1%	-	-	-
Totals %	0%	0%	0%	0%	0%	0%	45.3%	0%	45.3%	45.3%	54.7%	0%	0%	54.7%	-	-
PHF	0	0	0	0	0	0	0.93	0	0.93	0.93	0.95	0	0.25	0.95	0.97	0.97
Heavy	0	0	0	0	0	0	143	0	143	143	148	0	0	148	291	291
Heavy %	0%	0%	0%	0%	0%	0%	13.4%	0%	13.4%	13.4%	11.5%	0%	0%	11.5%	12.3%	12.3%
Lights	0	0	0	0	0	0	926	0	926	926	1142	0	1	1143	2069	2069
Lights %	0%	0%	0%	0%	0%	0%	86.6%	0%	86.6%	86.6%	88.5%	0%	100%	88.5%	87.7%	87.7%
Single-Unit Trucks	0	0	0	0	0	0	49	0	49	49	63	0	0	63	112	112
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	4.6%	0%	4.6%	4.6%	4.9%	0%	0%	4.9%	4.7%	4.7%
Buses	0	0	0	0	0	0	81	0	81	81	66	0	0	66	147	147
Buses %	0%	0%	0%	0%	0%	0%	7.6%	0%	7.6%	7.6%	5.1%	0%	0%	5.1%	6.2%	6.2%
Articulated Trucks	0	0	0	0	0	0	13	0	13	13	19	0	0	19	32	32
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.2%	0%	1.2%	1.2%	1.5%	0%	0%	1.5%	1.4%	1.4%
Pedestrians	-	-	-	8	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	100%	-	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0	-	-	0	0	0	-	-	0	0	0	-	-	-
Bicycles on Road%	0%	0%	0%	-	-	0%	0%	0%	-	-	0%	0%	0%	-	-	-



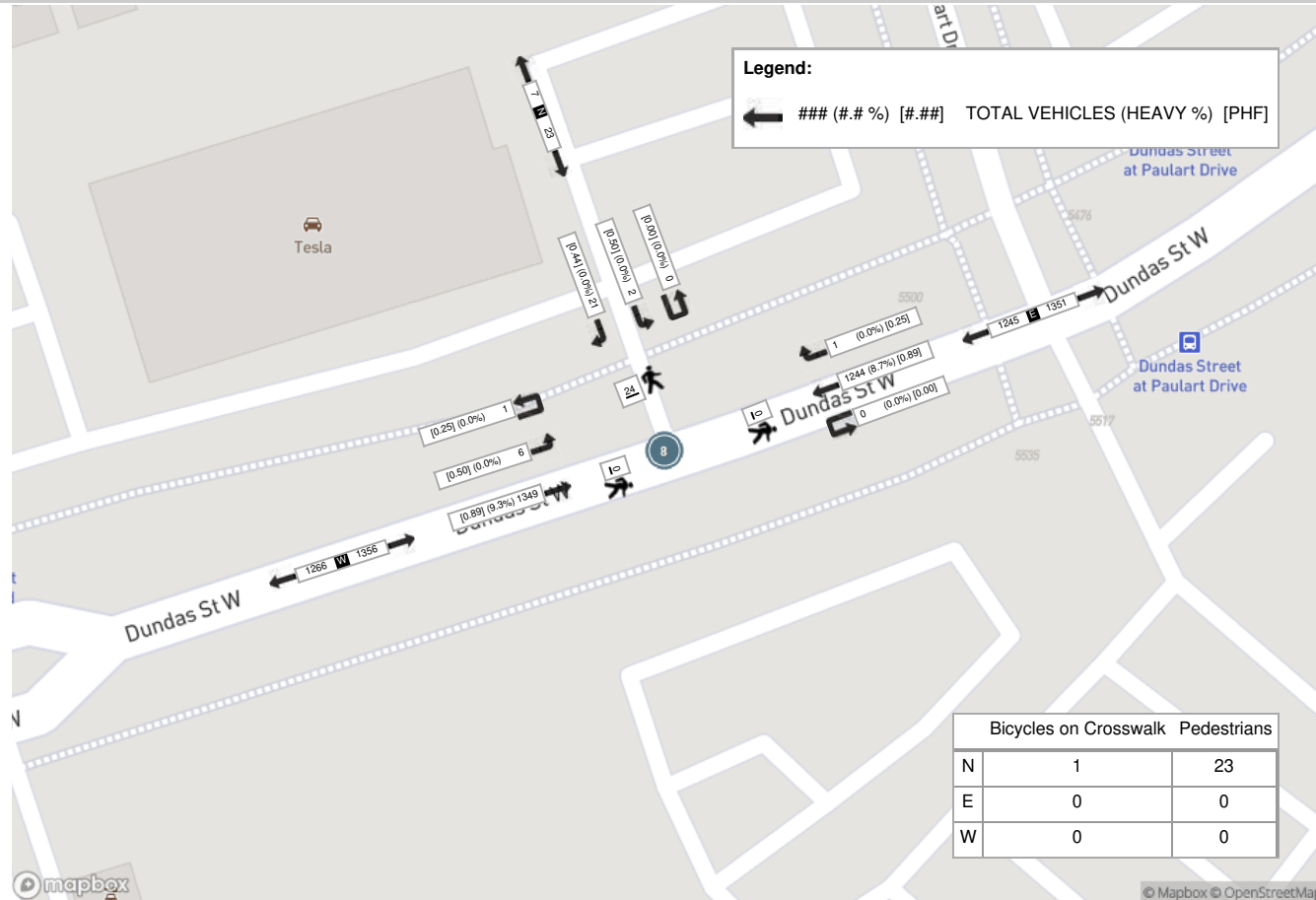
Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach 550 DUNDAS ST W ACCESS					E Approach DUNDAS ST W					W Approach DUNDAS ST W					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:15:00	12	0	0	16	12	0	349	0	0	349	340	2	1	0	343	704
2025-10-29 16:30:00	1	0	0	5	1	1	290	0	0	291	377	0	0	0	377	669
2025-10-29 16:45:00	3	1	0	2	4	0	295	0	0	295	323	1	0	0	324	623
2025-10-29 17:00:00	5	1	0	1	6	0	310	0	0	310	309	3	0	0	312	628
Grand Total	21	2	0	24	23	1	1244	0	0	1245	1349	6	1	0	1356	2624
Approach%	91.3%	8.7%	0%		-	0.1%	99.9%	0%		-	99.5%	0.4%	0.1%		-	-
Totals %	0.8%	0.1%	0%		0.9%	0%	47.4%	0%		47.4%	51.4%	0.2%	0%		51.7%	-
PHF	0.44	0.5	0		0.48	0.25	0.89	0		0.89	0.89	0.5	0.25		0.9	0.93
Heavy	0	0	0		0	0	108	0		108	126	0	0		126	234
Heavy %	0%	0%	0%		0%	0%	8.7%	0%		8.7%	9.3%	0%	0%		9.3%	8.9%
Lights	21	2	0		23	1	1136	0		1137	1223	6	1		1230	2390
Lights %	100%	100%	0%		100%	100%	91.3%	0%		91.3%	90.7%	100%	100%		90.7%	91.1%
Single-Unit Trucks	0	0	0		0	0	29	0		29	40	0	0		40	69
Single-Unit Trucks %	0%	0%	0%		0%	0%	2.3%	0%		2.3%	3%	0%	0%		2.9%	2.6%
Buses	0	0	0		0	0	67	0		67	73	0	0		73	140
Buses %	0%	0%	0%		0%	0%	5.4%	0%		5.4%	5.4%	0%	0%		5.4%	5.3%
Articulated Trucks	0	0	0		0	0	12	0		12	13	0	0		13	25
Articulated Trucks %	0%	0%	0%		0%	0%	1%	0%		1%	1%	0%	0%		1%	1%
Pedestrians	-	-	-	23	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	95.8%	-	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	4.2%	-	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0		-	0	2	0		-	3	0	0		-	-
Bicycles on Road%	0%	0%	0%			0%	100%	0%			100%	0%	0%			-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (4 . DUNDAS ST W & BILLINGHAM RD)

Start Time	N Approach BILLINGHAM RD				E Approach DUNDAS ST W					S Approach PAULART DR				W Approach DUNDAS ST W					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Right S:E	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	UTurn W:W	Peds W:	Approach Total		
2025-10-29 07:30:00	4	0	88	4	0	248	0	0	248	3	0	2	3	0	248	0	0	248	503	
2025-10-29 07:45:00	3	0	66	3	1	237	0	0	238	1	0	2	1	0	311	0	0	311	553	
2025-10-29 08:00:00	3	0	44	3	2	281	0	0	283	2	0	7	2	3	299	0	0	302	590	
2025-10-29 08:15:00	5	0	54	5	2	277	0	0	279	1	0	3	1	1	331	0	1	332	617	2263
2025-10-29 08:30:00	5	0	38	5	2	258	0	0	260	1	0	3	1	1	339	0	0	340	606	2366
2025-10-29 08:45:00	4	0	40	4	4	248	0	0	252	3	0	2	3	1	320	0	0	321	580	2393
2025-10-29 09:00:00	5	0	61	5	4	244	0	0	248	6	0	2	6	0	272	0	0	272	531	2334
2025-10-29 09:15:00	7	0	23	7	4	220	0	0	224	6	0	1	6	0	250	0	0	250	487	2204
BREAK																				
2025-10-29 16:00:00	5	0	56	5	3	294	0	0	297	5	0	5	5	5	302	0	0	307	614	
2025-10-29 16:15:00	8	0	62	8	3	373	0	0	376	3	0	5	3	3	329	0	0	332	719	
2025-10-29 16:30:00	6	0	43	6	0	281	0	0	281	4	0	6	4	2	389	0	0	391	682	
2025-10-29 16:45:00	8	0	82	8	3	321	0	0	324	4	0	5	4	1	314	0	0	315	651	2666
2025-10-29 17:00:00	9	0	58	9	2	321	0	0	323	4	0	5	4	2	320	0	0	322	658	2710
2025-10-29 17:15:00	4	0	37	4	3	306	0	0	309	3	0	6	3	2	344	0	0	346	662	2653
2025-10-29 17:30:00	6	0	55	6	3	321	0	0	324	3	0	3	3	0	325	0	0	325	658	2629
2025-10-29 17:45:00	4	0	50	4	2	285	0	0	287	3	0	2	3	0	359	0	0	359	653	2631
Grand Total	86	0	857	86	38	4515	0	0	4553	52	0	59	52	21	5052	0	1	5073	9764	-
Approach%	100%	0%	-	-	0.8%	99.2%	0%	-	-	100%	0%	-	-	0.4%	99.6%	0%	-	-	-	-
Totals %	0.9%	0%	-	0.9%	0.4%	46.2%	0%	-	46.6%	0.5%	0%	-	0.5%	0.2%	51.7%	0%	-	52%	-	-
Heavy	1	0	-	-	2	501	0	-	-	0	0	-	-	0	520	0	-	-	-	-
Heavy %	1.2%	0%	-	-	5.3%	11.1%	0%	-	-	0%	0%	-	-	0%	10.3%	0%	-	-	-	-
Bicycles	0	0	-	-	0	5	0	-	-	1	0	-	-	0	4	0	-	-	-	-
Bicycle %	0%	0%	-	-	0%	0.1%	0%	-	-	1.9%	0%	-	-	0%	0.1%	0%	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)

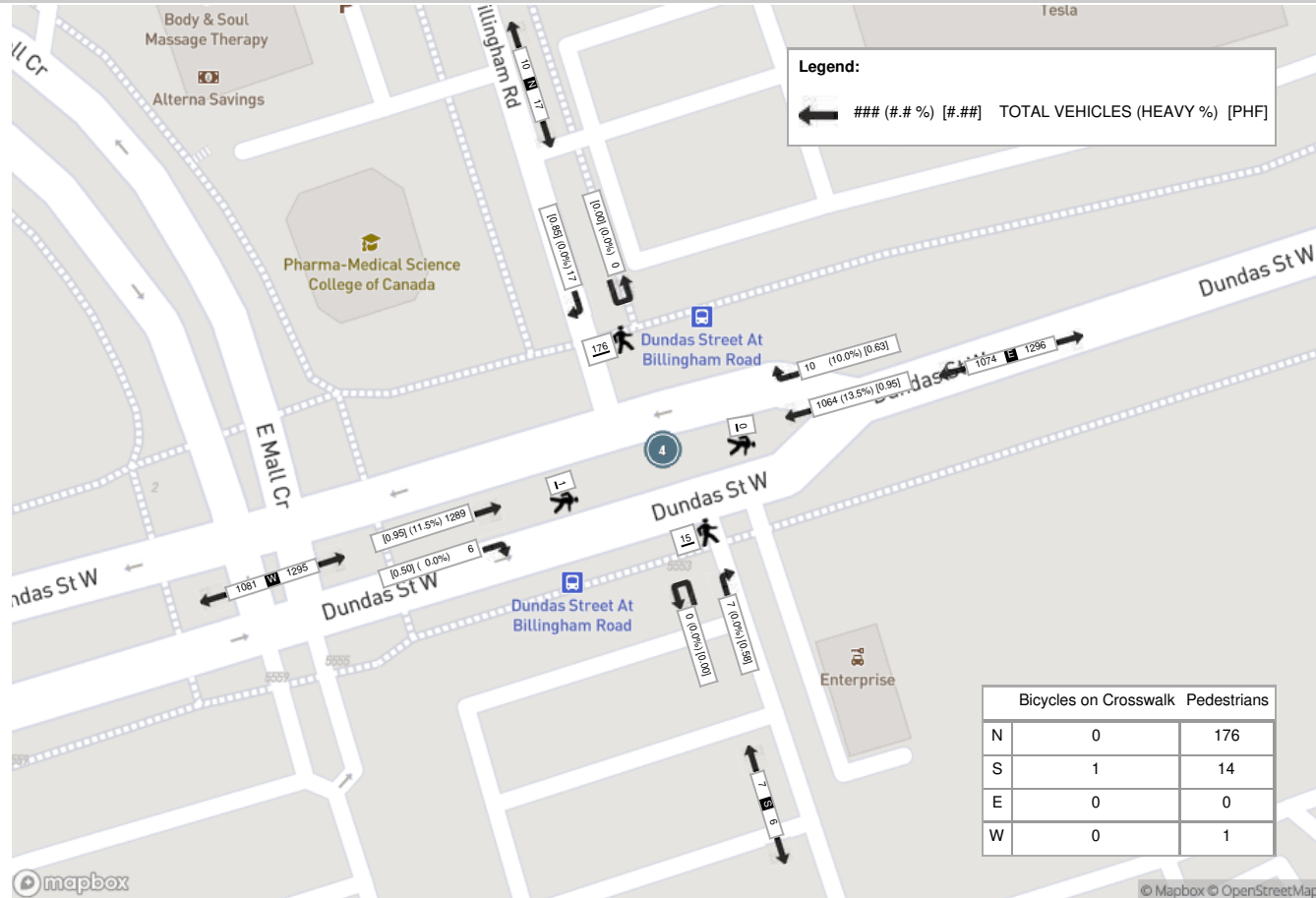
Start Time	N Approach BILLINGHAM RD				E Approach DUNDAS ST W					S Approach PAULART DR				W Approach DUNDAS ST W					Int. Total (15 min)
	Right	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Right	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
2025-10-29 08:00:00	3	0	44	3	2	281	0	0	283	2	0	7	2	3	299	0	0	302	590
2025-10-29 08:15:00	5	0	54	5	2	277	0	0	279	1	0	3	1	1	331	0	1	332	617
2025-10-29 08:30:00	5	0	38	5	2	258	0	0	260	1	0	3	1	1	339	0	0	340	606
2025-10-29 08:45:00	4	0	40	4	4	248	0	0	252	3	0	2	3	1	320	0	0	321	580
Grand Total	17	0	176	17	10	1064	0	0	1074	7	0	15	7	6	1289	0	1	1295	2393
Approach%	100%	0%		-	0.9%	99.1%	0%		-	100%	0%		-	0.5%	99.5%	0%		-	-
Totals %	0.7%	0%		0.7%	0.4%	44.5%	0%		44.9%	0.3%	0%		0.3%	0.3%	53.9%	0%		54.1%	-
PHF	0.85	0		0.85	0.63	0.95	0		0.95	0.58	0		0.58	0.5	0.95	0		0.95	0.97
Heavy	0	0		0	1	144	0		145	0	0		0	0	148	0		148	293
Heavy %	0%	0%		0%	10%	13.5%	0%		13.5%	0%	0%		0%	0%	11.5%	0%		11.4%	12.2%
Lights	17	0		17	9	920	0		929	7	0		7	6	1141	0		1147	2100
Lights %	100%	0%		100%	90%	86.5%	0%		86.5%	100%	0%		100%	100%	88.5%	0%		88.6%	87.8%
Single-Unit Trucks	0	0		0	0	50	0		50	0	0		0	0	63	0		63	113
Single-Unit Trucks %	0%	0%		0%	0%	4.7%	0%		4.7%	0%	0%		0%	0%	4.9%	0%		4.9%	4.7%
Buses	0	0		0	1	81	0		82	0	0		0	0	67	0		67	149
Buses %	0%	0%		0%	10%	7.6%	0%		7.6%	0%	0%		0%	0%	5.2%	0%		5.2%	6.2%
Articulated Trucks	0	0		0	0	13	0		13	0	0		0	0	18	0		18	31
Articulated Trucks %	0%	0%		0%	0%	1.2%	0%		1.2%	0%	0%		0%	0%	1.4%	0%		1.4%	1.3%
Pedestrians	-	-	176	-	-	-	-	0	-	-	-	14	-	-	-	-	1	-	-
Pedestrians%	-	-	91.7%	-	-	-	-	0%	-	-	-	7.3%	-	-	-	-	0.5%	-	-
Bicycles on Crosswalk	-	-	0	-	-	-	-	0	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	0%	-	-	-	-	0%	-	-	-	0.5%	-	-	-	-	0%	-	-
Bicycles on Road	0	0		-	0	0	0		-	0	0		-	0	0	0		-	-
Bicycles on Road%	0%	0%			0%	0%	0%			0%	0%			0%	0%	0%			-



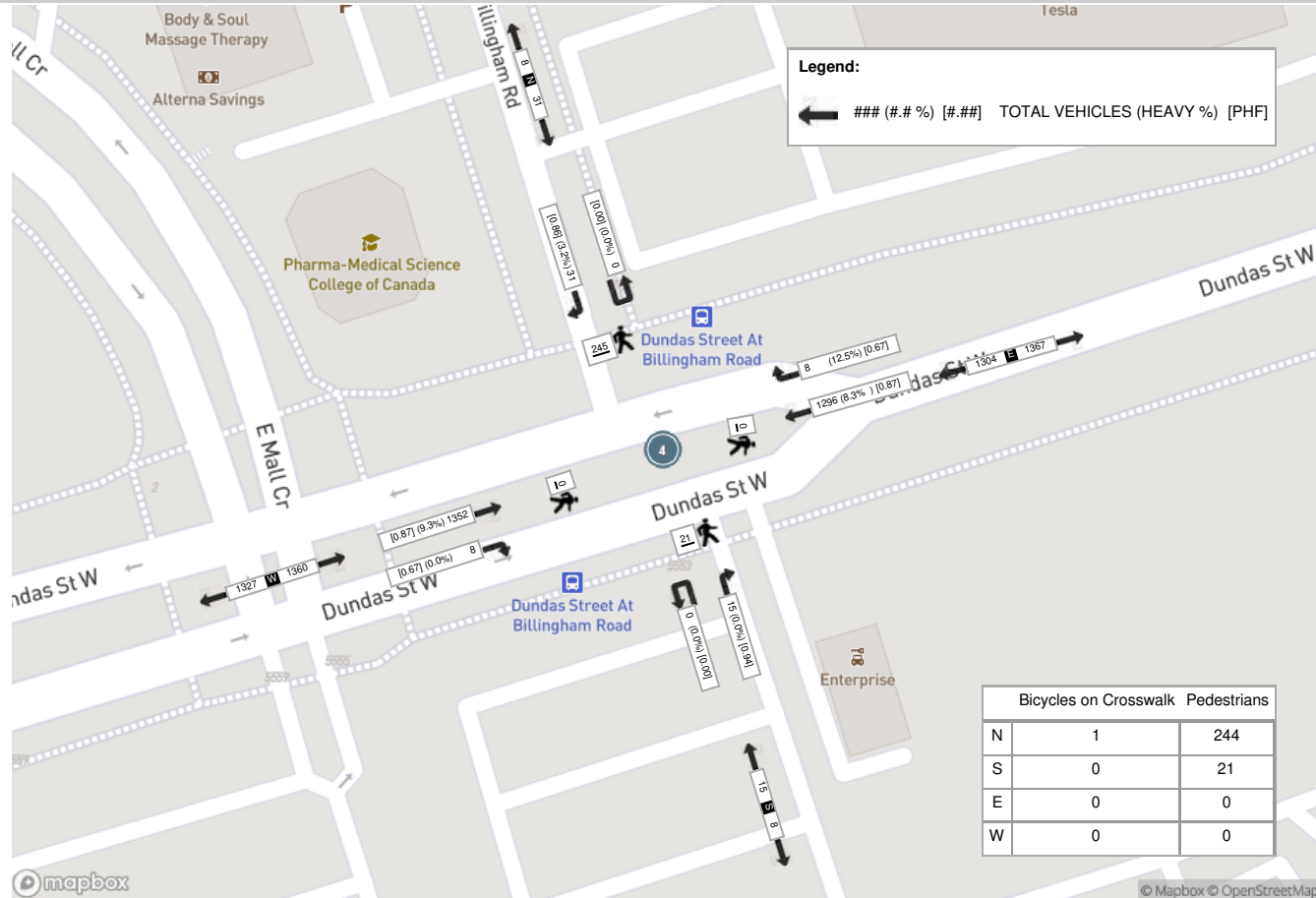
Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach BILLINGHAM RD				E Approach DUNDAS ST W					S Approach PAULART DR				W Approach DUNDAS ST W					Int. Total (15 min)
	Right	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Right	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
2025-10-29 16:15:00	8	0	62	8	3	373	0	0	376	3	0	5	3	3	329	0	0	332	719
2025-10-29 16:30:00	6	0	43	6	0	281	0	0	281	4	0	6	4	2	389	0	0	391	682
2025-10-29 16:45:00	8	0	82	8	3	321	0	0	324	4	0	5	4	1	314	0	0	315	651
2025-10-29 17:00:00	9	0	58	9	2	321	0	0	323	4	0	5	4	2	320	0	0	322	658
Grand Total	31	0	245	31	8	1296	0	0	1304	15	0	21	15	8	1352	0	0	1360	2710
Approach%	100%	0%	-	-	0.6%	99.4%	0%	-	-	100%	0%	-	-	0.6%	99.4%	0%	-	-	-
Totals %	1.1%	0%	-	1.1%	0.3%	47.8%	0%	-	48.1%	0.6%	0%	-	0.6%	0.3%	49.9%	0%	-	50.2%	-
PHF	0.86	0	-	0.86	0.67	0.87	0	-	0.87	0.94	0	-	0.94	0.67	0.87	0	-	0.87	0.94
Heavy	1	0	-	1	1	107	0	-	108	0	0	-	0	0	126	0	-	126	235
Heavy %	3.2%	0%	-	3.2%	12.5%	8.3%	0%	-	8.3%	0%	0%	-	0%	0%	9.3%	0%	-	9.3%	8.7%
Lights	30	0	-	30	7	1189	0	-	1196	15	0	-	15	8	1226	0	-	1234	2475
Lights %	96.8%	0%	-	96.8%	87.5%	91.7%	0%	-	91.7%	100%	0%	-	100%	100%	90.7%	0%	-	90.7%	91.3%
Single-Unit Trucks	1	0	-	1	0	28	0	-	28	0	0	-	0	0	40	0	-	40	69
Single-Unit Trucks %	3.2%	0%	-	3.2%	0%	2.2%	0%	-	2.1%	0%	0%	-	0%	0%	3%	0%	-	2.9%	2.5%
Buses	0	0	-	0	1	67	0	-	68	0	0	-	0	0	73	0	-	73	141
Buses %	0%	0%	-	0%	12.5%	5.2%	0%	-	5.2%	0%	0%	-	0%	0%	5.4%	0%	-	5.4%	5.2%
Articulated Trucks	0	0	-	0	0	12	0	-	12	0	0	-	0	0	13	0	-	13	25
Articulated Trucks %	0%	0%	-	0%	0%	0.9%	0%	-	0.9%	0%	0%	-	0%	0%	1%	0%	-	1%	0.9%
Pedestrians	-	-	244	-	-	-	-	0	-	-	-	21	-	-	-	-	0	-	-
Pedestrians%	-	-	91.7%	-	-	-	-	0%	-	-	-	7.9%	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	1	-	-	-	-	0	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	0.4%	-	-	-	-	0%	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Road	0	0	-	-	0	2	0	-	-	0	0	-	-	0	3	0	-	-	-
Bicycles on Road%	0%	0%	-	-	0%	100%	0%	-	-	0%	0%	-	-	0%	100%	0%	-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (5 . DUNDAS ST W & PAULART DR)

Start Time	N Approach PAULART DR						E Approach DUNDAS ST W						S Approach PAULART DR						W Approach DUNDAS ST W						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
2025-10-29 07:30:00	11	0	0	0	6	11	2	235	1	0	0	238	1	0	0	0	2	1	1	249	4	0	0	254	504		
2025-10-29 07:45:00	8	0	2	0	4	10	1	221	0	0	2	222	0	0	0	0	4	0	0	272	5	0	0	277	509		
2025-10-29 08:00:00	11	0	2	1	4	14	2	276	1	0	3	279	0	0	0	0	3	0	0	320	7	0	1	327	620		
2025-10-29 08:15:00	5	0	1	0	1	6	0	259	0	0	2	259	0	0	0	0	3	0	0	331	7	1	0	339	604	2237	
2025-10-29 08:30:00	4	0	2	0	0	6	2	256	1	0	1	259	0	0	0	0	4	0	0	318	9	0	0	327	592	2325	
2025-10-29 08:45:00	10	0	2	0	1	12	4	230	0	0	0	234	0	0	0	0	2	0	0	308	10	1	0	319	565	2381	
2025-10-29 09:00:00	5	0	0	0	7	5	2	241	2	0	2	245	0	0	0	0	3	0	0	257	7	0	0	264	514	2275	
2025-10-29 09:15:00	4	0	0	0	4	4	2	202	0	0	2	204	1	0	0	0	1	1	1	231	9	0	1	241	450	2121	
BREAK																											
2025-10-29 16:00:00	5	0	4	1	4	10	1	310	2	0	0	313	0	0	0	0	5	0	1	294	10	0	2	305	628		
2025-10-29 16:15:00	7	1	3	0	11	11	0	331	3	0	0	334	3	0	0	0	6	3	0	328	20	0	2	348	696		
2025-10-29 16:30:00	2	0	2	0	5	4	1	277	1	0	2	279	0	0	1	0	5	1	0	344	17	0	0	361	645		
2025-10-29 16:45:00	4	1	1	0	2	6	2	294	2	0	0	298	0	2	0	0	5	2	0	325	9	0	0	334	640	2609	
2025-10-29 17:00:00	8	0	1	0	0	9	2	292	0	0	1	294	0	0	0	0	5	0	0	310	6	0	0	316	619	2600	
2025-10-29 17:15:00	8	0	2	0	8	10	1	298	0	0	3	299	0	0	0	0	5	0	0	324	10	1	0	335	644	2548	
2025-10-29 17:30:00	3	0	1	0	8	4	3	309	0	0	1	312	1	0	1	0	4	2	0	291	9	2	1	302	620	2523	
2025-10-29 17:45:00	6	0	2	0	1	8	3	269	0	1	2	273	0	0	0	0	3	0	0	380	8	0	0	388	669	2552	
Grand Total	101	2	25	2	66	130	28	4300	13	1	21	4342	6	2	2	0	60	10	3	4882	147	5	7	5037	9519	-	
Approach%	77.7%	1.5%	19.2%	1.5%	-	-	0.6%	99%	0.3%	0%	-	-	60%	20%	20%	0%	-	-	0.1%	96.9%	2.9%	0.1%	-	-	-		
Totals %	1.1%	0%	0.3%	0%	1.4%	0.3%	45.2%	0.1%	0%	-	45.6%	0.1%	0%	0%	0%	-	0.1%	0%	51.3%	1.5%	0.1%	-	52.9%	-	-		
Heavy	2	0	1	0	-	0	495	2	0	-	-	-	0	0	1	0	-	1	526	0	0	-	-	-	-		
Heavy %	2%	0%	4%	0%	-	0%	11.5%	15.4%	0%	-	-	-	0%	0%	50%	0%	-	33.3%	10.8%	0%	0%	-	-	-	-		
Bicycles	0	0	0	0	-	0	5	0	0	-	-	-	0	0	0	0	-	0	5	0	0	-	-	-	-		
Bicycle %	0%	0%	0%	0%	-	0%	0.1%	0%	0%	-	-	-	0%	0%	0%	0%	-	0%	0.1%	0%	0%	-	-	-	-		



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)

Start Time	N Approach PAULART DR						E Approach DUNDAS ST W						S Approach PAULART DR						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:00:00	11	0	2	1	4	14	2	276	1	0	3	279	0	0	0	0	3	0	0	320	7	0	1	327	620
2025-10-29 08:15:00	5	0	1	0	1	6	0	259	0	0	2	259	0	0	0	0	3	0	0	331	7	1	0	339	604
2025-10-29 08:30:00	4	0	2	0	0	6	2	256	1	0	1	259	0	0	0	0	4	0	0	318	9	0	0	327	592
2025-10-29 08:45:00	10	0	2	0	1	12	4	230	0	0	0	234	0	0	0	0	2	0	0	308	10	1	0	319	565
Grand Total	30	0	7	1	6	38	8	1021	2	0	6	1031	0	0	0	0	12	0	0	1277	33	2	1	1312	2381
Approach%	78.9%	0%	18.4%	2.6%	-	-	0.8%	99%	0.2%	0%	-	-	0%	0%	0%	0%	-	0%	97.3%	2.5%	0.2%	-	-	-	
Totals %	1.3%	0%	0.3%	0%	1.6%	0.3%	42.9%	0.1%	0%	43.3%	0%	0%	0%	0%	0%	0%	0%	53.6%	1.4%	0.1%	55.1%	-	-	-	
PHF	0.68	0	0.88	0.25	0.68	0.5	0.92	0.5	0	0.92	0	0	0	0	0	0	0	0	0.96	0.83	0.5	0.97	0.96	0.96	
Heavy	1	0	0	0	1	0	144	0	0	144	0	0	0	0	0	0	0	0	156	0	0	156	301	301	
Heavy %	3.3%	0%	0%	0%	2.6%	0%	14.1%	0%	0%	14%	0%	0%	0%	0%	0%	0%	0%	12.2%	0%	0%	11.9%	12.6%	12.6%	12.6%	
Lights	29	0	7	1	37	8	877	2	0	887	0	0	0	0	0	0	0	0	1121	33	2	1156	2080	2080	
Lights %	96.7%	0%	100%	100%	97.4%	100%	85.9%	100%	0%	86%	0%	0%	0%	0%	0%	0%	0%	87.8%	100%	100%	88.1%	87.4%	87.4%	87.4%	
Single-Unit Trucks	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	0	0	66	0	0	66	116	116	
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	4.9%	0%	0%	4.8%	0%	0%	0%	0%	0%	0%	0%	5.2%	0%	0%	5%	4.9%	4.9%	4.9%	
Buses	1	0	0	0	1	0	81	0	0	81	0	0	0	0	0	0	0	0	70	0	0	70	152	152	
Buses %	3.3%	0%	0%	0%	2.6%	0%	7.9%	0%	0%	7.9%	0%	0%	0%	0%	0%	0%	0%	5.5%	0%	0%	5.3%	6.4%	6.4%	6.4%	
Articulated Trucks	0	0	0	0	0	0	13	0	0	13	0	0	0	0	0	0	0	0	20	0	0	20	33	33	
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.3%	0%	0%	1.3%	0%	0%	0%	0%	0%	0%	0%	1.6%	0%	0%	1.5%	1.4%	1.4%	1.4%	
Pedestrians	-	-	-	-	6	-	-	-	-	6	-	-	-	-	-	11	-	-	-	-	1	-	-	-	
Pedestrians%	-	-	-	-	24%	-	-	-	-	24%	-	-	-	-	-	44%	-	-	-	-	4%	-	-	-	
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	0	-	-	-	
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	4%	-	-	-	-	0%	-	-	-	
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-	0	0	0	0	-	-	-	-	
Bicycles on Road%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	0%	0%	0%	0%	-	-	-	-	



Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach PAULART DR						E Approach DUNDAS ST W						S Approach PAULART DR						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:00:00	5	0	4	1	4	10	1	310	2	0	0	313	0	0	0	0	5	0	1	294	10	0	2	305	628
2025-10-29 16:15:00	7	1	3	0	11	11	0	331	3	0	0	334	3	0	0	0	6	3	0	328	20	0	2	348	696
2025-10-29 16:30:00	2	0	2	0	5	4	1	277	1	0	2	279	0	0	1	0	5	1	0	344	17	0	0	361	645
2025-10-29 16:45:00	4	1	1	0	2	6	2	294	2	0	0	298	0	2	0	0	5	2	0	325	9	0	0	334	640
Grand Total	18	2	10	1	22	31	4	1212	8	0	2	1224	3	2	1	0	21	6	1	1291	56	0	4	1348	2609
Approach%	58.1%	6.5%	32.3%	3.2%	-	-	0.3%	99%	0.7%	0%	-	-	50%	33.3%	16.7%	0%	-	-	0.1%	95.8%	4.2%	0%	-	-	-
Totals %	0.7%	0.1%	0.4%	0%	1.2%	0.2%	46.5%	0.3%	0%	46.9%	0.1%	0.1%	0%	0%	0.2%	0%	49.5%	2.1%	0%	51.7%	-	-	-	-	-
PHF	0.64	0.5	0.63	0.25	0.7	0.5	0.92	0.67	0	0.92	0.25	0.25	0.25	0	0.5	0.25	0.94	0.7	0	0.93	0.94	0.94	0.94	0.94	0.94
Heavy	0	0	1	0	1	0	114	1	0	115	0	0	1	0	1	0	132	0	0	132	0	0	132	249	249
Heavy %	0%	0%	10%	0%	3.2%	0%	9.4%	12.5%	0%	9.4%	0%	0%	100%	0%	16.7%	0%	10.2%	0%	0%	9.8%	9.5%	9.5%	9.5%	9.5%	9.5%
Lights	18	2	9	1	30	4	1098	7	0	1109	3	2	0	0	5	1	1159	56	0	1216	2360	2360	2360	2360	2360
Lights %	100%	100%	90%	100%	96.8%	100%	90.6%	87.5%	0%	90.6%	100%	100%	0%	0%	83.3%	100%	89.8%	100%	0%	90.2%	90.5%	90.5%	90.5%	90.5%	90.5%
Single-Unit Trucks	0	0	0	0	0	0	26	1	0	27	0	0	1	0	1	0	42	0	0	42	70	70	70	70	70
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	2.1%	12.5%	0%	2.2%	0%	0%	100%	0%	16.7%	0%	3.3%	0%	0%	3.1%	2.7%	2.7%	2.7%	2.7%	2.7%
Buses	0	0	1	0	1	0	71	0	0	71	0	0	0	0	0	0	73	0	0	73	145	145	145	145	145
Buses %	0%	0%	10%	0%	3.2%	0%	5.9%	0%	0%	5.8%	0%	0%	0%	0%	0%	0%	5.7%	0%	0%	5.4%	5.6%	5.6%	5.6%	5.6%	5.6%
Articulated Trucks	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	17	0	0	17	34	34	34	34	34
Articulated Trucks %	0%	0%	0%	0%	0%	0%	1.4%	0%	0%	1.4%	0%	0%	0%	0%	0%	0%	1.3%	0%	0%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Pedestrians	-	-	-	-	21	-	-	-	-	2	-	-	-	-	21	-	-	-	-	4	-	-	-	-	-
Pedestrians%	-	-	-	-	42.9%	-	-	-	-	4.1%	-	-	-	-	42.9%	-	-	-	-	8.2%	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-
Bicycles on Crosswalk%	-	-	-	-	2%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-
Bicycles on Road	0	0	0	0	-	0	2	0	0	-	0	0	0	0	-	0	4	0	0	-	-	-	-	-	-
Bicycles on Road%	0%	0%	0%	0%	-	0%	100%	0%	0%	-	0%	0%	0%	0%	-	0%	100%	0%	0%	-	-	-	-	-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (1 . DUNDAS ST W & SHORNECLIFFE RD)

Start Time	N Approach SHAVER AVE S						E Approach DUNDAS ST W						S Approach SHORNECLIFFE RD						W Approach DUNDAS ST W						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
2025-11-18 07:30:00	9	13	5	0	1	27	8	223	29	0	0	260	23	9	30	0	10	62	77	250	7	0	9	334	683	
2025-11-18 07:45:00	7	28	9	0	6	44	9	228	38	0	8	275	19	10	28	0	3	57	62	201	10	0	4	273	649	
2025-11-18 08:00:00	7	25	13	0	3	45	15	211	37	0	4	263	23	17	35	0	5	75	78	257	10	0	11	345	728	
2025-11-18 08:15:00	4	30	14	0	4	48	7	202	43	0	14	252	24	16	24	0	2	64	49	224	5	1	13	279	643	2703
2025-11-18 08:30:00	6	28	15	0	4	49	15	241	42	0	1	298	18	11	33	0	4	62	58	222	12	0	7	292	701	2721
2025-11-18 08:45:00	5	27	10	0	10	42	18	203	42	0	3	263	25	10	30	0	2	65	69	204	15	0	9	288	658	2730
2025-11-18 09:00:00	5	25	10	0	3	40	3	205	47	0	5	255	23	14	26	0	5	63	66	199	6	0	7	271	629	2631
2025-11-18 09:15:00	10	19	6	0	0	35	6	174	24	0	6	204	24	19	37	0	1	80	50	154	10	0	9	214	533	2521
BREAK																										
2025-11-18 16:00:00	13	23	10	0	10	46	11	219	36	0	25	266	37	40	62	0	14	139	46	247	13	0	3	306	757	
2025-11-18 16:15:00	14	21	7	0	8	42	11	204	43	0	15	258	61	37	64	0	9	162	44	232	11	0	7	287	749	
2025-11-18 16:30:00	14	15	8	0	11	37	12	203	61	0	9	276	49	34	60	0	13	143	48	264	9	0	5	321	777	
2025-11-18 16:45:00	7	31	12	0	12	50	15	204	54	1	23	274	56	49	70	0	13	175	49	254	21	0	3	324	823	3106
2025-11-18 17:00:00	7	16	18	0	13	41	10	236	55	0	20	301	63	41	73	0	21	177	56	282	13	0	6	351	870	3219
2025-11-18 17:15:00	11	28	8	0	3	47	13	196	58	1	14	268	51	29	49	0	11	129	47	302	10	0	7	359	803	3273
2025-11-18 17:30:00	3	24	14	0	13	41	10	216	51	1	14	278	50	24	53	0	22	127	52	296	12	0	4	360	806	3302
2025-11-18 17:45:00	7	27	16	0	9	50	18	216	53	0	20	287	51	23	45	0	12	119	53	255	16	1	7	325	781	3260
Grand Total	129	380	175	0	110	684	181	3381	713	3	181	4278	597	383	719	0	147	1699	904	3843	180	2	111	4929	11590	-
Approach%	18.9%	55.6%	25.6%	0%		-	4.2%	79%	16.7%	0.1%		-	35.1%	22.5%	42.3%	0%		-	18.3%	78%	3.7%	0%		-	-	-
Totals %	1.1%	3.3%	1.5%	0%		5.9%	1.6%	29.2%	6.2%	0%		36.9%	5.2%	3.3%	6.2%	0%		14.7%	7.8%	33.2%	1.6%	0%		42.5%	-	-
Heavy	4	5	8	0		-	1	362	54	0		-	56	13	127	0		-	159	337	2	0		-	-	-
Heavy %	3.1%	1.3%	4.6%	0%		-	0.6%	10.7%	7.6%	0%		-	9.4%	3.4%	17.7%	0%		-	17.6%	8.8%	1.1%	0%		-	-	-
Bicycles	0	2	0	0		-	0	4	1	0		-	0	2	0	0		-	0	2	0	0		-	-	-
Bicycle %	0%	0.5%	0%	0%		-	0%	0.1%	0.1%	0%		-	0%	0.5%	0%	0%		-	0%	0.1%	0%	0%		-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (2 °C)

Start Time	N Approach SHAVER AVE S						E Approach DUNDAS ST W						S Approach SHORNECLIFFE RD						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-11-18 08:00:00	7	25	13	0	3	45	15	211	37	0	4	263	23	17	35	0	5	75	78	257	10	0	11	345	728
2025-11-18 08:15:00	4	30	14	0	4	48	7	202	43	0	14	252	24	16	24	0	2	64	49	224	5	1	13	279	643
2025-11-18 08:30:00	6	28	15	0	4	49	15	241	42	0	1	298	18	11	33	0	4	62	58	222	12	0	7	292	701
2025-11-18 08:45:00	5	27	10	0	10	42	18	203	42	0	3	263	25	10	30	0	2	65	69	204	15	0	9	288	658
Grand Total	22	110	52	0	21	184	55	857	164	0	22	1076	90	54	122	0	13	266	254	907	42	1	40	1204	2730
Approach%	12%	59.8%	28.3%	0%		-	5.1%	79.6%	15.2%	0%		-	33.8%	20.3%	45.9%	0%		-	21.1%	75.3%	3.5%	0.1%		-	-
Totals %	0.8%	4%	1.9%	0%		6.7%	2%	31.4%	6%	0%		39.4%	3.3%	2%	4.5%	0%		9.7%	9.3%	33.2%	1.5%	0%		44.1%	-
PHF	0.79	0.92	0.87	0		0.94	0.76	0.89	0.95	0		0.9	0.9	0.79	0.87	0		0.89	0.81	0.88	0.7	0.25		0.87	0.94
Heavy	1	4	5	0		10	1	108	15	0		124	19	5	42	0		66	39	102	1	0		142	342
Heavy %	4.5%	3.6%	9.6%	0%		5.4%	1.8%	12.6%	9.1%	0%		11.5%	21.1%	9.3%	34.4%	0%		24.8%	15.4%	11.2%	2.4%	0%		11.8%	12.5%
Lights	21	106	47	0		174	54	749	149	0		952	71	49	80	0		200	215	805	41	1		1062	2388
Lights %	95.5%	96.4%	90.4%	0%		94.6%	98.2%	87.4%	90.9%	0%		88.5%	78.9%	90.7%	65.6%	0%		75.2%	84.6%	88.8%	97.6%	100%		88.2%	87.5%
Single-Unit Trucks	0	2	2	0		4	1	26	6	0		33	11	4	28	0		43	24	25	1	0		50	130
Single-Unit Trucks %	0%	1.8%	3.8%	0%		2.2%	1.8%	3%	3.7%	0%		3.1%	12.2%	7.4%	23%	0%		16.2%	9.4%	2.8%	2.4%	0%		4.2%	4.8%
Buses	1	2	3	0		6	0	81	9	0		90	8	0	0	0		8	0	74	0	0		74	178
Buses %	4.5%	1.8%	5.8%	0%		3.3%	0%	9.5%	5.5%	0%		8.4%	8.9%	0%	0%	0%		3%	0%	8.2%	0%	0%		6.1%	6.5%
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	1	14	0		15	15	3	0	0		18	34
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	1.9%	11.5%	0%		5.6%	5.9%	0.3%	0%	0%		1.5%	1.2%
Pedestrians	-	-	-	-	21	-	-	-	-	22	-	-	-	-	-	13	-	-	-	-	-	-	40	-	-
Pedestrians%	-	-	-	-	21.9%	-	-	-	-	22.9%	-	-	-	-	-	13.5%	-	-	-	-	-	-	41.7%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-
Bicycles on Road	0	2	0	0		-	0	0	0	0		-	0	0	0	0		-	0	1	0	0		-	-
Bicycles on Road%	0%	100%	0%	0%			0%	0%	0%	0%			0%	0%	0%	0%			0%	100%	0%	0%			-



Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (6 °C)

Start Time	N Approach SHAVER AVE S						E Approach DUNDAS ST W						S Approach SHORNECLIFFE RD						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-11-18 16:45:00	7	31	12	0	12	50	15	204	54	1	23	274	56	49	70	0	13	175	49	254	21	0	3	324	823
2025-11-18 17:00:00	7	16	18	0	13	41	10	236	55	0	20	301	63	41	73	0	21	177	56	282	13	0	6	351	870
2025-11-18 17:15:00	11	28	8	0	3	47	13	196	58	1	14	268	51	29	49	0	11	129	47	302	10	0	7	359	803
2025-11-18 17:30:00	3	24	14	0	13	41	10	216	51	1	14	278	50	24	53	0	22	127	52	296	12	0	4	360	806
Grand Total	28	99	52	0	41	179	48	852	218	3	71	1121	220	143	245	0	67	608	204	1134	56	0	20	1394	3302
Approach%	15.6%	55.3%	29.1%	0%		-	4.3%	76%	19.4%	0.3%		-	36.2%	23.5%	40.3%	0%		-	14.6%	81.3%	4%	0%		-	-
Totals %	0.8%	3%	1.6%	0%		5.4%	1.5%	25.8%	6.6%	0.1%		33.9%	6.7%	4.3%	7.4%	0%		18.4%	6.2%	34.3%	1.7%	0%		42.2%	-
PHF	0.64	0.8	0.72	0		0.9	0.8	0.9	0.94	0.75		0.93	0.87	0.73	0.84	0		0.86	0.91	0.94	0.67	0		0.97	0.95
Heavy	0	0	1	0		1	0	71	11	0		82	9	2	14	0		25	31	73	0	0		104	212
Heavy %	0%	0%	1.9%	0%		0.6%	0%	8.3%	5%	0%		7.3%	4.1%	1.4%	5.7%	0%		4.1%	15.2%	6.4%	0%	0%		7.5%	6.4%
Lights	28	99	51	0		178	48	781	207	3		1039	211	141	231	0		583	173	1061	56	0		1290	3090
Lights %	100%	100%	98.1%	0%		99.4%	100%	91.7%	95%	100%		92.7%	95.9%	98.6%	94.3%	0%		95.9%	84.8%	93.6%	100%	0%		92.5%	93.6%
Single-Unit Trucks	0	0	1	0		1	0	6	3	0		9	1	2	10	0		13	19	0	0	0		19	42
Single-Unit Trucks %	0%	0%	1.9%	0%		0.6%	0%	0.7%	1.4%	0%		0.8%	0.5%	1.4%	4.1%	0%		2.1%	9.3%	0%	0%	0%		1.4%	1.3%
Buses	0	0	0	0		0	0	63	8	0		71	8	0	0	0		8	0	72	0	0		72	151
Buses %	0%	0%	0%	0%		0%	0%	7.4%	3.7%	0%		6.3%	3.6%	0%	0%	0%		1.3%	0%	6.3%	0%	0%		5.2%	4.6%
Articulated Trucks	0	0	0	0		0	0	2	0	0		2	0	0	4	0		4	12	1	0	0		13	19
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	1.6%	0%		0.7%	5.9%	0.1%	0%	0%		0.9%	0.6%
Pedestrians	-	-	-	-	41	-	-	-	-	70	-	-	-	-	-	66	-	-	-	-	-	-	20	-	-
Pedestrians%	-	-	-	-	20.6%	-	-	-	-	35.2%	-	-	-	-	-	33.2%	-	-	-	-	-	-	10.1%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	0.5%	-	-	-	-	-	0.5%	-	-	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0	0		-	0	0	0	0		-	0	1	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	0%	0%	0%			0%	0%	0%	0%			0%	100%	0%	0%			0%	0%	0%	0%			-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (2 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Broken Clouds (6 °C)





Turning Movement Count (3 . DUNDAS ST W & THE EAST MALL CRES) CustID: 13469317

Start Time	N Approach THE EAST MALL CR						E Approach DUNDAS ST W						S Approach THE EAST MALL CR						W Approach DUNDAS ST W						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
2025-10-29 07:30:00	26	6	17	0	3	49	15	203	7	0	70	225	3	0	6	0	7	9	11	234	20	1	1	266	549		
2025-10-29 07:45:00	20	8	14	0	4	42	17	233	4	0	76	254	3	0	5	0	9	8	17	287	23	0	2	327	631		
2025-10-29 08:00:00	25	5	15	1	1	46	16	239	10	1	53	266	6	1	5	0	3	12	11	282	23	1	1	317	641		
2025-10-29 08:15:00	13	11	15	0	1	39	18	271	7	1	56	297	4	2	6	0	1	12	14	308	32	2	2	356	704	2525	
2025-10-29 08:30:00	29	17	21	0	3	67	21	206	8	0	38	235	7	2	9	0	4	18	11	312	27	1	4	351	671	2647	
2025-10-29 08:45:00	32	13	16	0	1	61	19	247	5	2	34	273	9	5	8	0	5	22	11	298	54	0	1	363	719	2735	
2025-10-29 09:00:00	34	9	23	1	3	67	19	204	3	0	64	226	6	5	6	0	2	17	8	241	31	1	2	281	591	2685	
2025-10-29 09:15:00	31	8	25	0	2	64	25	203	7	2	21	237	3	7	6	0	10	16	3	225	30	3	2	261	578	2559	
BREAK																											
2025-10-29 16:00:00	150	5	46	0	3	201	36	283	8	1	49	328	8	13	48	0	25	69	4	252	52	0	2	308	906		
2025-10-29 16:15:00	92	23	53	1	7	169	42	279	7	1	59	329	19	19	40	0	9	78	4	252	50	0	8	306	882		
2025-10-29 16:30:00	79	10	42	0	5	131	52	257	9	1	45	319	15	25	46	0	19	86	1	337	57	1	6	396	932		
2025-10-29 16:45:00	65	14	45	0	3	124	46	241	9	0	95	296	15	22	38	0	9	75	1	259	41	1	2	302	797	3517	
2025-10-29 17:00:00	65	16	35	1	7	117	47	266	10	2	53	325	17	18	27	0	18	62	0	275	24	1	5	300	804	3415	
2025-10-29 17:15:00	40	13	42	1	3	96	49	249	7	1	53	306	23	18	32	0	10	73	1	281	32	0	0	314	789	3322	
2025-10-29 17:30:00	37	11	48	0	9	96	41	281	9	0	42	331	12	16	22	0	5	50	0	258	26	0	5	284	761	3151	
2025-10-29 17:45:00	41	18	38	0	5	97	31	251	7	0	48	289	18	17	19	0	5	54	2	306	33	0	11	341	781	3135	
Grand Total	779	187	495	5	60	1466	494	3913	117	12	856	4536	168	170	323	0	141	661	99	4407	555	12	54	5073	11736	-	
Approach%	53.1%	12.8%	33.8%	0.3%	-	-	10.9%	86.3%	2.6%	0.3%	-	-	25.4%	25.7%	48.9%	0%	-	-	2%	86.9%	10.9%	0.2%	-	-	-	-	
Totals %	6.6%	1.6%	4.2%	0%	-	12.5%	4.2%	33.3%	1%	0.1%	38.7%	-	1.4%	1.4%	2.8%	0%	5.6%	0.8%	37.6%	4.7%	0.1%	-	-	43.2%	-	-	
Heavy	154	3	36	0	-	-	35	465	1	0	-	-	4	0	7	0	-	-	4	481	113	0	-	-	-	-	
Heavy %	19.8%	1.6%	7.3%	0%	-	-	7.1%	11.9%	0.9%	0%	-	-	2.4%	0%	2.2%	0%	-	-	4%	10.9%	20.4%	0%	-	-	-	-	
Bicycles	0	0	1	0	-	-	1	1	0	0	-	-	1	0	0	0	-	-	3	0	0	0	-	-	-	-	
Bicycle %	0%	0%	0.2%	0%	-	-	0.2%	0%	0%	0%	-	-	0.6%	0%	0%	0%	-	-	3%	0%	0%	0%	-	-	-	-	



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)

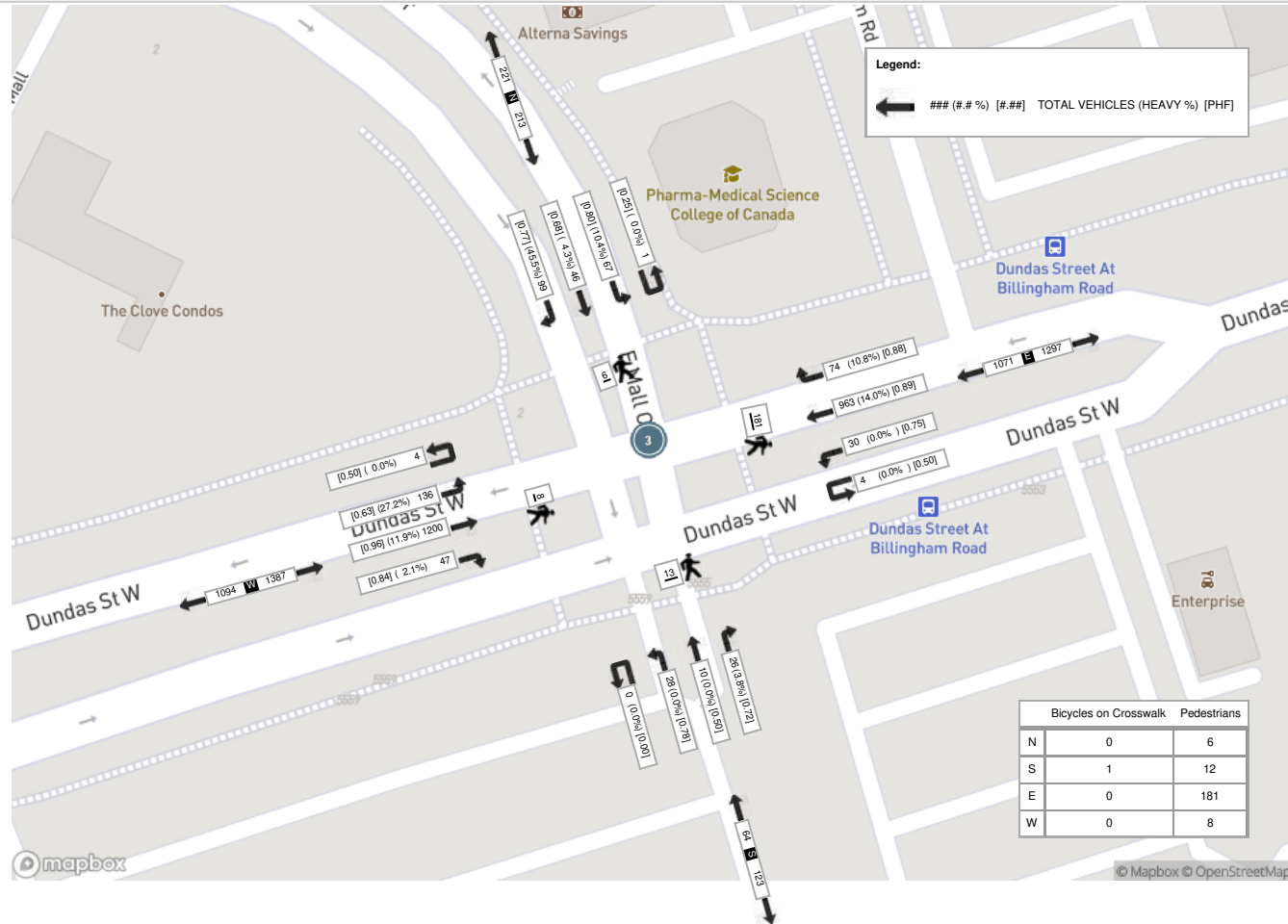
Start Time	N Approach THE EAST MALL CR						E Approach DUNDAS ST W						S Approach THE EAST MALL CR						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:00:00	25	5	15	1	1	46	16	239	10	1	53	266	6	1	5	0	3	12	11	282	23	1	1	317	641
2025-10-29 08:15:00	13	11	15	0	1	39	18	271	7	1	56	297	4	2	6	0	1	12	14	308	32	2	2	356	704
2025-10-29 08:30:00	29	17	21	0	3	67	21	206	8	0	38	235	7	2	9	0	4	18	11	312	27	1	4	351	671
2025-10-29 08:45:00	32	13	16	0	1	61	19	247	5	2	34	273	9	5	8	0	5	22	11	298	54	0	1	363	719
Grand Total	99	46	67	1	6	213	74	963	30	4	181	1071	26	10	28	0	13	64	47	1200	136	4	8	1387	2735
Approach%	46.5%	21.6%	31.5%	0.5%		-	6.9%	89.9%	2.8%	0.4%		-	40.6%	15.6%	43.8%	0%		-	3.4%	86.5%	9.8%	0.3%		-	-
Totals %	3.6%	1.7%	2.4%	0%		7.8%	2.7%	35.2%	1.1%	0.1%		39.2%	1%	0.4%	1%	0%		2.3%	1.7%	43.9%	5%	0.1%		50.7%	-
PHF	0.77	0.68	0.8	0.25		0.79	0.88	0.89	0.75	0.5		0.9	0.72	0.5	0.78	0		0.73	0.84	0.96	0.63	0.5		0.96	0.95
Heavy	45	2	7	0		54	8	135	0	0		143	1	0	0	0		1	1	143	37	0		181	379
Heavy %	45.5%	4.3%	10.4%	0%		25.4%	10.8%	14%	0%	0%		13.4%	3.8%	0%	0%	0%		1.6%	2.1%	11.9%	27.2%	0%		13%	13.9%
Lights	54	44	60	1		159	66	828	30	4		928	25	10	28	0		63	46	1057	99	4		1206	2356
Lights %	54.5%	95.7%	89.6%	100%		74.6%	89.2%	86%	100%	100%		86.6%	96.2%	100%	100%	0%		98.4%	97.9%	88.1%	72.8%	100%		87%	86.1%
Single-Unit Trucks	26	2	3	0		31	1	47	0	0		48	0	0	0	0		0	0	64	19	0		83	162
Single-Unit Trucks %	26.3%	4.3%	4.5%	0%		14.6%	1.4%	4.9%	0%	0%		4.5%	0%	0%	0%	0%		0%	0%	5.3%	14%	0%		6%	5.9%
Buses	0	0	4	0		4	7	75	0	0		82	0	0	0	0		0	0	62	2	0		64	150
Buses %	0%	0%	6%	0%		1.9%	9.5%	7.8%	0%	0%		7.7%	0%	0%	0%	0%		0%	0%	5.2%	1.5%	0%		4.6%	5.5%
Articulated Trucks	19	0	0	0		19	0	13	0	0		13	1	0	0	0		1	1	17	16	0		34	67
Articulated Trucks %	19.2%	0%	0%	0%		8.9%	0%	1.3%	0%	0%		1.2%	3.8%	0%	0%	0%		1.6%	2.1%	1.4%	11.8%	0%		2.5%	2.4%
Pedestrians	-	-	-	-	6	-	-	-	-	-	181	-	-	-	-	12		-	-	-	-	-	8	-	-
Pedestrians%	-	-	-	-	2.9%	-	-	-	-	-	87%	-	-	-	-	5.8%		-	-	-	-	-	3.8%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	1		-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	0.5%		-	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	-



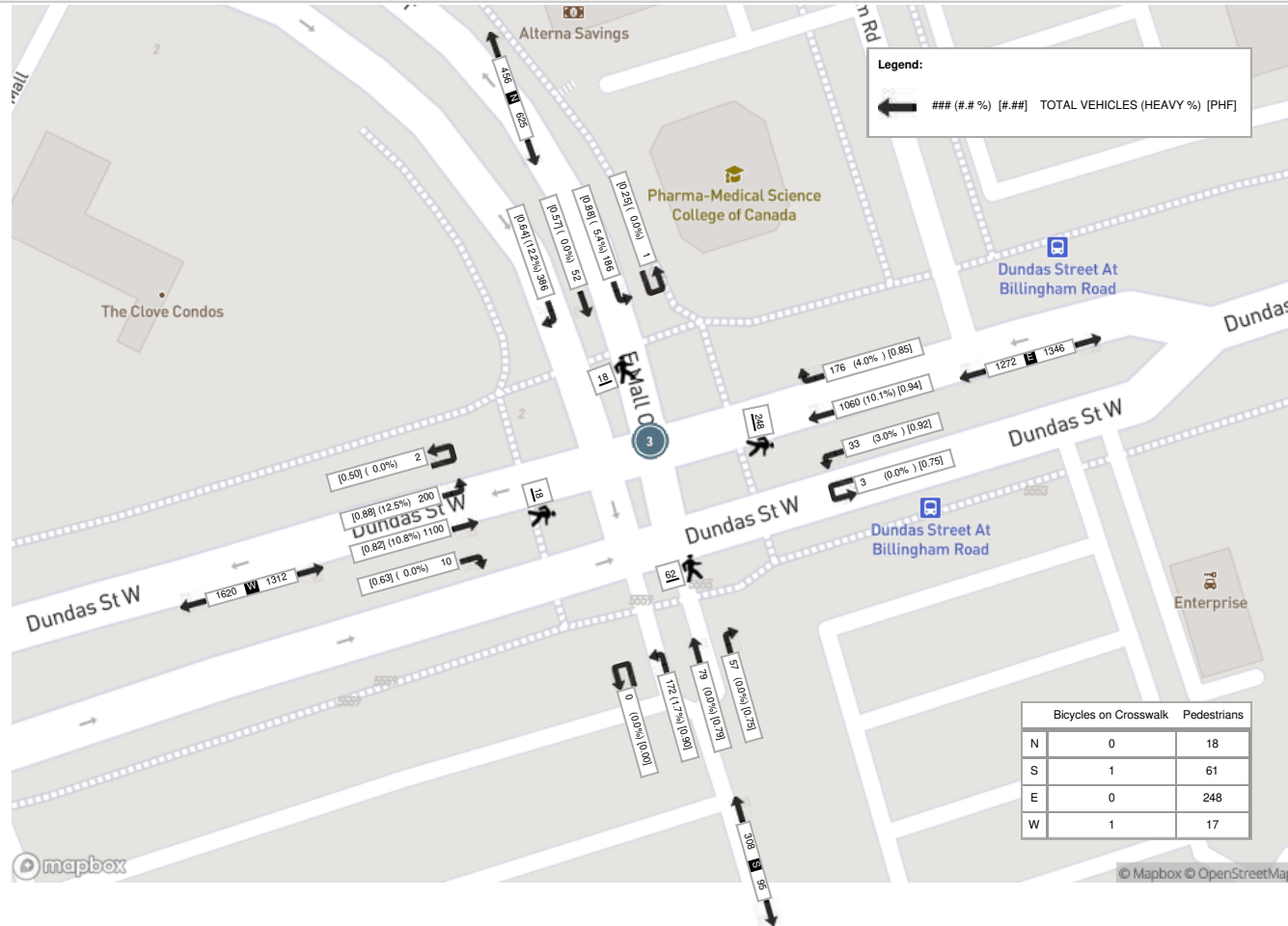
Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach THE EAST MALL CR						E Approach DUNDAS ST W						S Approach THE EAST MALL CR						W Approach DUNDAS ST W						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:00:00	150	5	46	0	3	201	36	283	8	1	49	328	8	13	48	0	25	69	4	252	52	0	2	308	906
2025-10-29 16:15:00	92	23	53	1	7	169	42	279	7	1	59	329	19	19	40	0	9	78	4	252	50	0	8	306	882
2025-10-29 16:30:00	79	10	42	0	5	131	52	257	9	1	45	319	15	25	46	0	19	86	1	337	57	1	6	396	932
2025-10-29 16:45:00	65	14	45	0	3	124	46	241	9	0	95	296	15	22	38	0	9	75	1	259	41	1	2	302	797
Grand Total	386	52	186	1	18	625	176	1060	33	3	248	1272	57	79	172	0	62	308	10	1100	200	2	18	1312	3517
Approach%	61.8%	8.3%	29.8%	0.2%		-	13.8%	83.3%	2.6%	0.2%		-	18.5%	25.6%	55.8%	0%		-	0.8%	83.8%	15.2%	0.2%		-	-
Totals %	11%	1.5%	5.3%	0%		17.8%	5%	30.1%	0.9%	0.1%		36.2%	1.6%	2.2%	4.9%	0%		8.8%	0.3%	31.3%	5.7%	0.1%		37.3%	-
PHF	0.64	0.57	0.88	0.25		0.78	0.85	0.94	0.92	0.75		0.97	0.75	0.79	0.9	0		0.9	0.63	0.82	0.88	0.5		0.83	0.94
Heavy	47	0	10	0		57	7	107	1	0		115	0	0	3	0		3	0	119	25	0		144	319
Heavy %	12.2%	0%	5.4%	0%		9.1%	4%	10.1%	3%	0%		9%	0%	0%	1.7%	0%		1%	0%	10.8%	12.5%	0%		11%	9.1%
Lights	339	52	176	1		568	169	953	32	3		1157	57	79	169	0		305	10	981	175	2		1168	3198
Lights %	87.8%	100%	94.6%	100%		90.9%	96%	89.9%	97%	100%		91%	100%	100%	98.3%	0%		99%	100%	89.2%	87.5%	100%		89%	90.9%
Single-Unit Trucks	25	0	3	0		28	0	26	1	0		27	0	0	1	0		1	0	38	11	0		49	105
Single-Unit Trucks %	6.5%	0%	1.6%	0%		4.5%	0%	2.5%	3%	0%		2.1%	0%	0%	0.6%	0%		0.3%	0%	3.5%	5.5%	0%		3.7%	3%
Buses	0	0	7	0		7	6	63	0	0		69	0	0	0	0		0	0	65	0	0		65	141
Buses %	0%	0%	3.8%	0%		1.1%	3.4%	5.9%	0%	0%		5.4%	0%	0%	0%	0%		0%	0%	5.9%	0%	0%		5%	4%
Articulated Trucks	22	0	0	0		22	1	18	0	0		19	0	0	2	0		2	0	16	14	0		30	73
Articulated Trucks %	5.7%	0%	0%	0%		3.5%	0.6%	1.7%	0%	0%		1.5%	0%	0%	1.2%	0%		0.6%	0%	1.5%	7%	0%		2.3%	2.1%
Pedestrians	-	-	-	-	18	-	-	-	-	-	248	-	-	-	-	-	61	-	-	-	-	-	17	-	-
Pedestrians%	-	-	-	-	5.2%	-	-	-	-	-	71.7%	-	-	-	-	-	17.6%	-	-	-	-	-	4.9%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0.3%	-	-	-	-	-	0.3%	-	-
Bicycles on Road	0	0	1	0		-	0	0	0	0		-	1	0	0	0		-	2	0	0	0		-	-
Bicycles on Road%	0%	0%	100%	0%		-	0%	0%	0%	0%		-	100%	0%	0%	0%		-	100%	0%	0%	0%		-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (7 . PAULART DR & 550 DUNDAS ST W ACCESS)

Start Time	N Approach PAULART DR						E Approach EAST ACCESS						S Approach PAULART DR						W Approach 550 DUNDAS ST W ACCESS						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
2025-10-29 07:30:00	0	11	0	0	0	11	0	0	0	0	1	0	0	4	3	0	0	7	0	0	0	0	0	0	18	
2025-10-29 07:45:00	0	9	0	0	0	9	0	0	0	0	2	0	0	4	1	0	0	5	0	0	0	0	0	0	14	
2025-10-29 08:00:00	0	14	0	1	0	15	0	0	0	0	3	0	0	7	2	0	0	9	0	0	0	0	0	0	24	
2025-10-29 08:15:00	0	5	0	0	0	5	0	0	0	0	1	0	0	5	1	1	0	7	0	0	0	0	0	0	12	68
2025-10-29 08:30:00	0	5	1	0	0	6	1	0	1	0	1	2	0	9	2	0	0	11	0	0	0	0	1	0	19	69
2025-10-29 08:45:00	0	12	2	0	0	14	3	0	0	0	0	3	0	9	4	0	0	13	0	0	0	0	0	0	30	85
2025-10-29 09:00:00	0	5	2	0	0	7	1	0	0	0	1	1	1	7	2	0	0	10	0	0	0	0	0	0	18	79
2025-10-29 09:15:00	0	4	3	0	0	7	2	0	0	0	3	2	1	4	4	0	0	9	0	0	0	0	0	0	18	85
BREAK																										
2025-10-29 16:00:00	0	10	0	0	1	10	0	0	0	0	2	0	1	12	0	0	0	13	0	0	0	0	5	0	23	
2025-10-29 16:15:00	0	9	1	1	1	11	2	0	0	0	2	2	2	16	0	0	0	18	2	0	0	0	1	2	33	
2025-10-29 16:30:00	1	3	2	1	0	7	0	0	0	0	2	0	0	16	1	0	0	17	1	0	0	0	0	1	25	
2025-10-29 16:45:00	0	5	0	0	0	5	1	0	0	0	1	1	0	14	3	0	0	17	1	0	0	0	0	1	24	105
2025-10-29 17:00:00	0	6	1	0	0	7	2	0	1	0	6	3	0	6	0	0	0	6	2	0	0	0	0	2	18	100
2025-10-29 17:15:00	0	9	3	0	0	12	2	0	0	0	2	2	0	12	0	0	0	12	1	0	2	0	1	3	29	96
2025-10-29 17:30:00	0	3	0	0	0	3	1	0	0	0	1	1	0	9	0	1	0	10	0	0	0	0	0	0	14	85
2025-10-29 17:45:00	0	8	0	0	1	8	1	0	0	0	1	1	0	12	0	0	0	12	0	0	0	0	0	0	21	82
Grand Total	1	118	15	3	3	137	16	0	2	0	29	18	5	146	23	2	0	176	7	0	2	0	8	9	340	-
Approach%	0.7%	86.1%	10.9%	2.2%		-	88.9%	0%	11.1%	0%		-	2.8%	83%	13.1%	1.1%		-	77.8%	0%	22.2%	0%		-	-	-
Totals %	0.3%	34.7%	4.4%	0.9%		40.3%	4.7%	0%	0.6%	0%		5.3%	1.5%	42.9%	6.8%	0.6%		51.8%	2.1%	0%	0.6%	0%		2.6%	-	-
Heavy	0	3	0	0		-	0	0	0	0		-	0	0	0	0		-	0	0	0	0		-	-	-
Heavy %	0%	2.5%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-



Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)

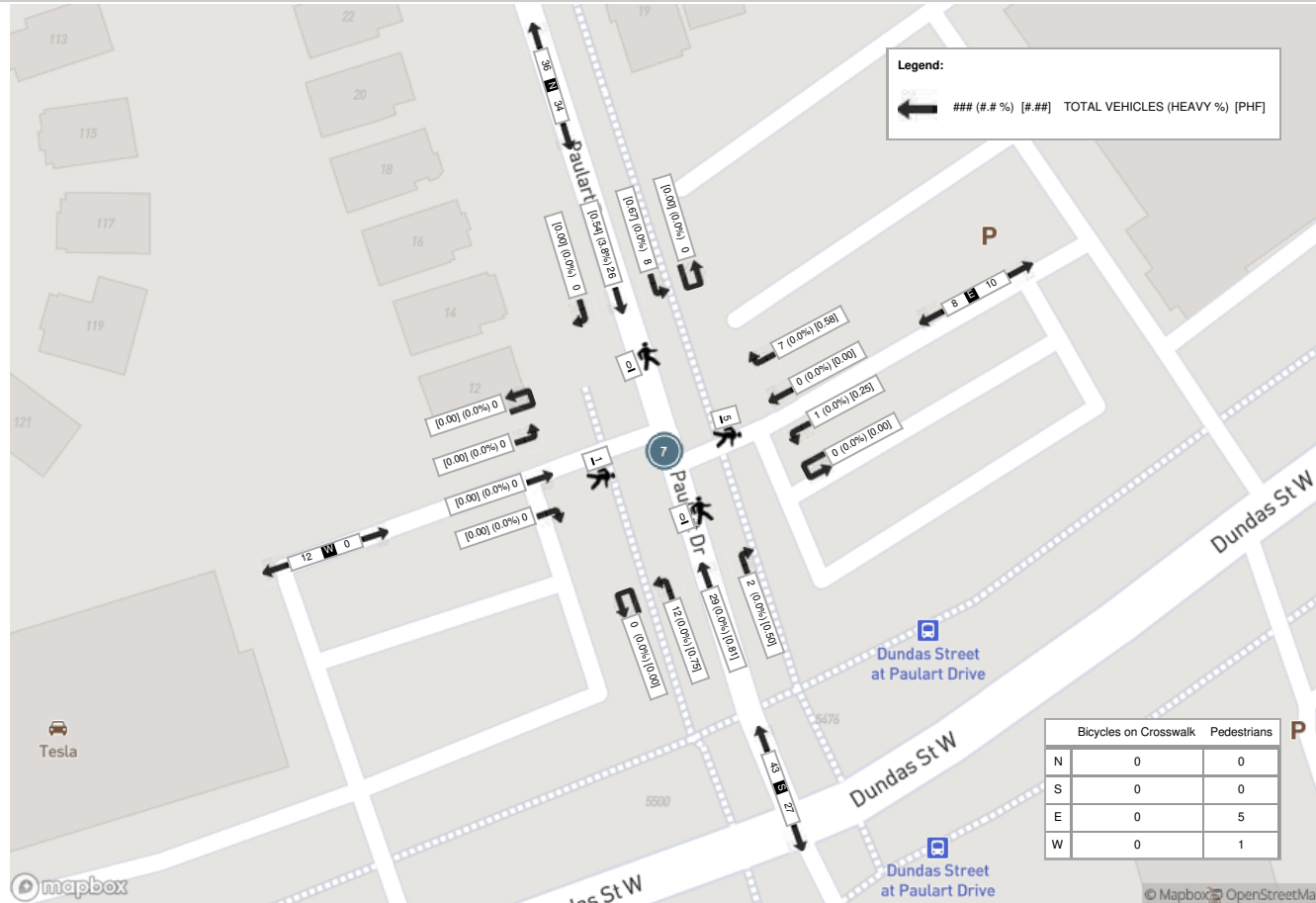
Start Time	N Approach PAULART DR						E Approach EAST ACCESS						S Approach PAULART DR						W Approach 550 DUNDAS ST W ACCESS						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 08:30:00	0	5	1	0	0	6	1	0	1	0	1	2	0	9	2	0	0	11	0	0	0	0	1	0	19
2025-10-29 08:45:00	0	12	2	0	0	14	3	0	0	0	0	3	0	9	4	0	0	13	0	0	0	0	0	0	30
2025-10-29 09:00:00	0	5	2	0	0	7	1	0	0	0	1	1	1	7	2	0	0	10	0	0	0	0	0	0	18
2025-10-29 09:15:00	0	4	3	0	0	7	2	0	0	0	3	2	1	4	4	0	0	9	0	0	0	0	0	0	18
Grand Total	0	26	8	0	0	34	7	0	1	0	5	8	2	29	12	0	0	43	0	0	0	0	1	0	85
Approach%	0%	76.5%	23.5%	0%		-	87.5%	0%	12.5%	0%		-	4.7%	67.4%	27.9%	0%		-	0%	0%	0%	0%		-	-
Totals %	0%	30.6%	9.4%	0%		40%	8.2%	0%	1.2%	0%		9.4%	2.4%	34.1%	14.1%	0%		50.6%	0%	0%	0%	0%		0%	-
PHF	0	0.54	0.67	0		0.61	0.58	0	0.25	0		0.67	0.5	0.81	0.75	0		0.83	0	0	0	0		0	0.71
Heavy	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Heavy %	0%	3.8%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.2%
Lights	0	25	8	0		33	7	0	1	0		8	2	29	12	0		43	0	0	0	0		0	84
Lights %	0%	96.2%	100%	0%		97.1%	100%	0%	100%	0%		100%	100%	100%	100%	0%		100%	0%	0%	0%	0%		0%	98.8%
Buses	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Buses %	0%	3.8%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1.2%
Pedestrians	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	1	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	83.3%	-	-	-	-	-	0%	-	-	-	-	-	16.7%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



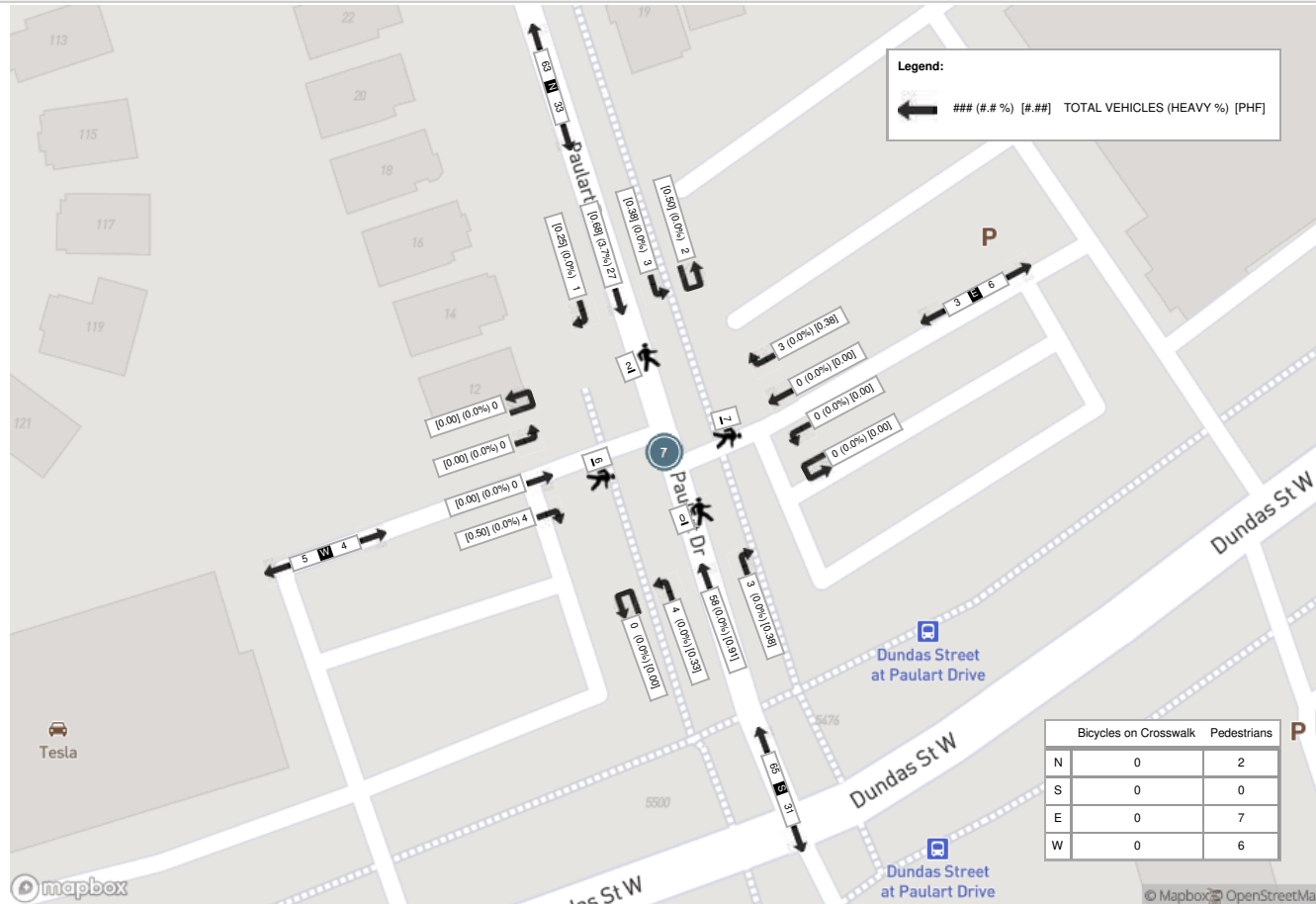
Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach PAULART DR						E Approach EAST ACCESS						S Approach PAULART DR						W Approach 550 DUNDAS ST W ACCESS						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
2025-10-29 16:00:00	0	10	0	0	1	10	0	0	0	0	2	0	1	12	0	0	0	13	0	0	0	0	5	0	23
2025-10-29 16:15:00	0	9	1	1	1	11	2	0	0	0	2	2	2	16	0	0	0	18	2	0	0	0	1	2	33
2025-10-29 16:30:00	1	3	2	1	0	7	0	0	0	0	2	0	0	16	1	0	0	17	1	0	0	0	0	1	25
2025-10-29 16:45:00	0	5	0	0	0	5	1	0	0	0	1	1	0	14	3	0	0	17	1	0	0	0	0	1	24
Grand Total	1	27	3	2	2	33	3	0	0	0	7	3	3	58	4	0	0	65	4	0	0	0	6	4	105
Approach%	3%	81.8%	9.1%	6.1%		-	100%	0%	0%	0%		-	4.6%	89.2%	6.2%	0%		-	100%	0%	0%	0%		-	-
Totals %	1%	25.7%	2.9%	1.9%		31.4%	2.9%	0%	0%	0%		2.9%	2.9%	55.2%	3.8%	0%		61.9%	3.8%	0%	0%	0%		3.8%	-
PHF	0.25	0.68	0.38	0.5		0.75	0.38	0	0	0		0.38	0.38	0.91	0.33	0		0.9	0.5	0	0	0		0.5	0.8
Heavy	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Heavy %	0%	3.7%	0%	0%		3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1%
Lights	1	26	3	2		32	3	0	0	0		3	3	58	4	0		65	4	0	0	0		4	104
Lights %	100%	96.3%	100%	100%		97%	100%	0%	0%	0%		100%	100%	100%	100%	0%		100%	100%	0%	0%	0%		100%	99%
Buses	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Buses %	0%	3.7%	0%	0%		3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	1%
Pedestrians	-	-	-	-	2	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	6	-	-
Pedestrians%	-	-	-	-	13.3%	-	-	-	-	-	46.7%	-	-	-	-	-	0%	-	-	-	-	-	40%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)





Turning Movement Count (2 . THE EAST MALL & YARN RD)

Start Time	N Approach THE EAST MALL					E Approach YARN RD					S Approach THE EAST MALL					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
2025-10-29 07:30:00	69	2	0	0	71	1	0	0	4	1	0	35	0	0	35	107	
2025-10-29 07:45:00	80	0	0	0	80	2	0	0	6	2	2	40	0	0	42	124	
2025-10-29 08:00:00	79	1	0	4	80	1	1	0	6	2	1	43	0	1	44	126	
2025-10-29 08:15:00	82	0	0	1	82	1	1	0	2	2	2	51	0	2	53	137	494
2025-10-29 08:30:00	97	2	0	1	99	1	0	0	4	1	3	50	0	0	53	153	540
2025-10-29 08:45:00	119	1	0	3	120	1	3	0	4	4	3	52	0	3	55	179	595
2025-10-29 09:00:00	119	1	0	0	120	1	0	0	3	1	1	68	0	5	69	190	659
2025-10-29 09:15:00	104	1	0	0	105	0	2	0	5	2	5	69	0	7	74	181	703
BREAK																	
2025-10-29 16:00:00	135	2	0	5	137	3	2	0	6	5	4	256	0	21	260	402	
2025-10-29 16:15:00	118	4	0	0	122	1	2	0	10	3	3	192	0	15	195	320	
2025-10-29 16:30:00	133	4	0	2	137	1	1	0	5	2	7	212	0	9	219	358	
2025-10-29 16:45:00	148	5	0	3	153	1	4	0	2	5	7	200	0	15	207	365	1445
2025-10-29 17:00:00	142	2	0	4	144	1	2	0	6	3	4	178	0	12	182	329	1372
2025-10-29 17:15:00	171	0	0	5	171	1	1	0	9	2	2	163	0	11	165	338	1390
2025-10-29 17:30:00	143	2	0	9	145	3	1	0	8	4	2	138	0	18	140	289	1321
2025-10-29 17:45:00	178	2	0	5	180	2	7	0	6	9	2	128	0	11	130	319	1275
Grand Total	1917	29	0	42	1946	21	27	0	86	48	48	1875	0	130	1923	3917	-
Approach%	98.5%	1.5%	0%		-	43.8%	56.3%	0%		-	2.5%	97.5%	0%		-	-	-
Totals %	48.9%	0.7%	0%		49.7%	0.5%	0.7%	0%		1.2%	1.2%	47.9%	0%		49.1%	-	-
Heavy	62	3	0		-	3	1	0		-	1	45	0		-	-	-
Heavy %	3.2%	10.3%	0%		-	14.3%	3.7%	0%		-	2.1%	2.4%	0%		-	-	-
Bicycles	5	0	0		-	0	0	0		-	0	3	0		-	-	-
Bicycle %	0.3%	0%	0%		-	0%	0%	0%		-	0%	0.2%	0%		-	-	-



Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)

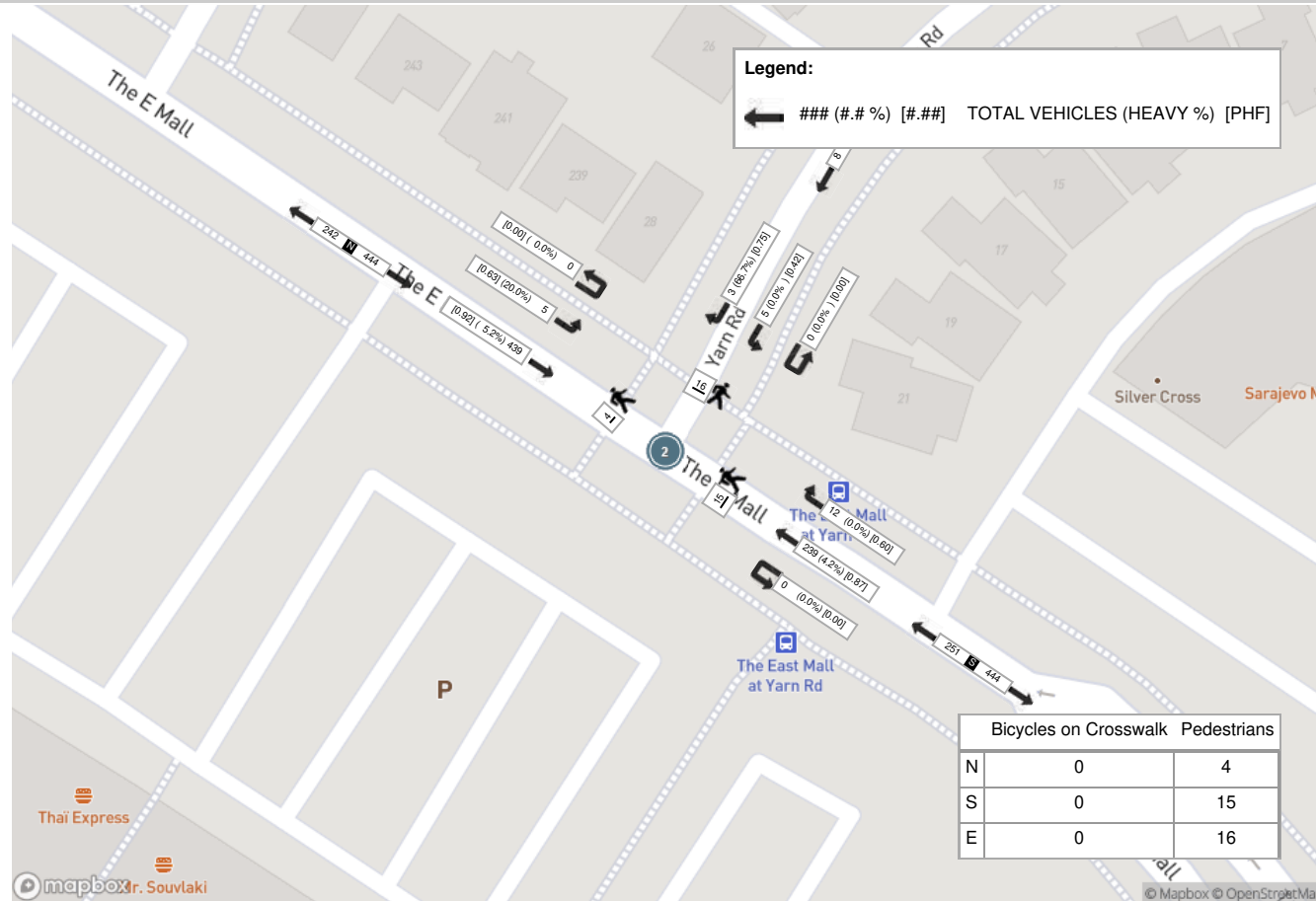
Start Time	N Approach THE EAST MALL					E Approach YARN RD					S Approach THE EAST MALL					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
2025-10-29 08:30:00	97	2	0	1	99	1	0	0	4	1	3	50	0	0	53	153
2025-10-29 08:45:00	119	1	0	3	120	1	3	0	4	4	3	52	0	3	55	179
2025-10-29 09:00:00	119	1	0	0	120	1	0	0	3	1	1	68	0	5	69	190
2025-10-29 09:15:00	104	1	0	0	105	0	2	0	5	2	5	69	0	7	74	181
Grand Total	439	5	0	4	444	3	5	0	16	8	12	239	0	15	251	703
Approach%	98.9%	1.1%	0%		-	37.5%	62.5%	0%		-	4.8%	95.2%	0%		-	-
Totals %	62.4%	0.7%	0%		63.2%	0.4%	0.7%	0%		1.1%	1.7%	34%	0%		35.7%	-
PHF	0.92	0.63	0		0.93	0.75	0.42	0		0.5	0.6	0.87	0		0.85	0.93
Heavy	23	1	0		24	2	0	0		2	0	10	0		10	36
Heavy %	5.2%	20%	0%		5.4%	66.7%	0%	0%		25%	0%	4.2%	0%		4%	5.1%
Lights	416	4	0		420	1	5	0		6	12	229	0		241	667
Lights %	94.8%	80%	0%		94.6%	33.3%	100%	0%		75%	100%	95.8%	0%		96%	94.9%
Single-Unit Trucks	12	1	0		13	1	0	0		1	0	5	0		5	19
Single-Unit Trucks %	2.7%	20%	0%		2.9%	33.3%	0%	0%		12.5%	0%	2.1%	0%		2%	2.7%
Buses	8	0	0		8	1	0	0		1	0	5	0		5	14
Buses %	1.8%	0%	0%		1.8%	33.3%	0%	0%		12.5%	0%	2.1%	0%		2%	2%
Articulated Trucks	3	0	0		3	0	0	0		0	0	0	0		0	3
Articulated Trucks %	0.7%	0%	0%		0.7%	0%	0%	0%		0%	0%	0%	0%		0%	0.4%
Pedestrians	-	-	-	4	-	-	-	-	16	-	-	-	-	15	-	-
Pedestrians%	-	-	-	11.4%	-	-	-	-	45.7%	-	-	-	-	42.9%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0		-	0	0	0		-	0	0	0		-	-
Bicycles on Road%	0%	0%	0%			0%	0%	0%			0%	0%	0%			-



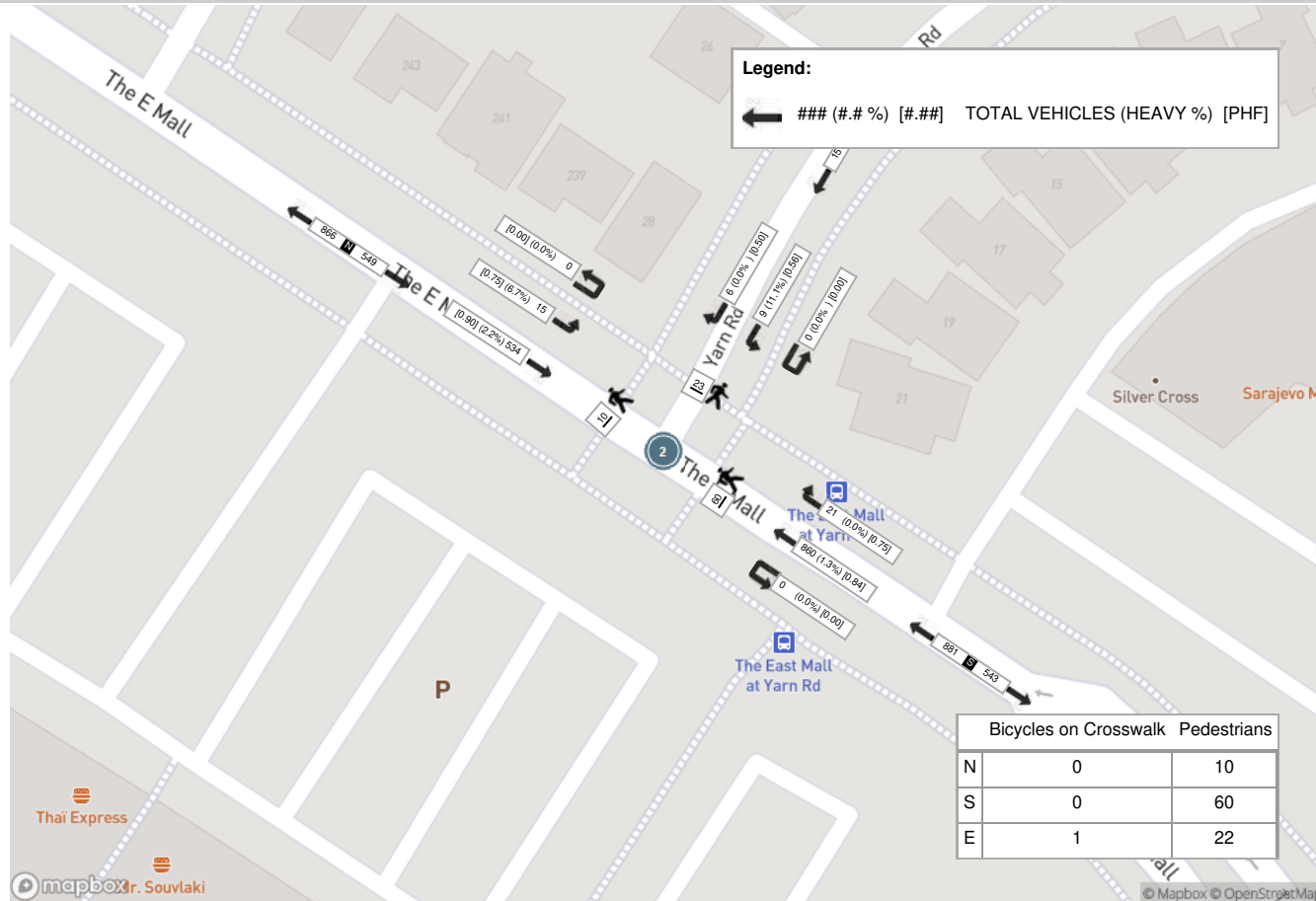
Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)

Start Time	N Approach THE EAST MALL					E Approach YARN RD					S Approach THE EAST MALL					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
2025-10-29 16:00:00	135	2	0	5	137	3	2	0	6	5	4	256	0	21	260	402
2025-10-29 16:15:00	118	4	0	0	122	1	2	0	10	3	3	192	0	15	195	320
2025-10-29 16:30:00	133	4	0	2	137	1	1	0	5	2	7	212	0	9	219	358
2025-10-29 16:45:00	148	5	0	3	153	1	4	0	2	5	7	200	0	15	207	365
Grand Total	534	15	0	10	549	6	9	0	23	15	21	860	0	60	881	1445
Approach%	97.3%	2.7%	0%		-	40%	60%	0%		-	2.4%	97.6%	0%		-	-
Totals %	37%	1%	0%		38%	0.4%	0.6%	0%		1%	1.5%	59.5%	0%		61%	-
PHF	0.9	0.75	0		0.9	0.5	0.56	0		0.75	0.75	0.84	0		0.85	0.9
Heavy	12	1	0		13	0	1	0		1	0	11	0		11	25
Heavy %	2.2%	6.7%	0%		2.4%	0%	11.1%	0%		6.7%	0%	1.3%	0%		1.2%	1.7%
Lights	522	14	0		536	6	8	0		14	21	849	0		870	1420
Lights %	97.8%	93.3%	0%		97.6%	100%	88.9%	0%		93.3%	100%	98.7%	0%		98.8%	98.3%
Single-Unit Trucks	6	0	0		6	0	0	0		0	0	4	0		4	10
Single-Unit Trucks %	1.1%	0%	0%		1.1%	0%	0%	0%		0%	0%	0.5%	0%		0.5%	0.7%
Buses	6	1	0		7	0	1	0		1	0	7	0		7	15
Buses %	1.1%	6.7%	0%		1.3%	0%	11.1%	0%		6.7%	0%	0.8%	0%		0.8%	1%
Articulated Trucks	0	0	0		0	0	0	0		0	0	0	0		0	0
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	0%
Pedestrians	-	-	-	10	-	-	-	-	22	-	-	-	-	60	-	-
Pedestrians%	-	-	-	10.8%	-	-	-	-	23.7%	-	-	-	-	64.5%	-	-
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	0%	-	-	-	-	1.1%	-	-	-	-	0%	-	-
Bicycles on Road	1	0	0		-	0	0	0		-	0	0	0		-	-
Bicycles on Road%	100%	0%	0%			0%	0%	0%			0%	0%	0%			-

Peak Hour: 08:30 AM - 09:30 AM Weather: Broken Clouds (5 °C)



Peak Hour: 04:00 PM - 05:00 PM Weather: Broken Clouds (11 °C)



Appendix E: Corridor Growth Calculations



Corridor Growth

Dundas & The West Mall

AM

Morning Peak Hour GROW		08:00						
Afternoon Peak Hour GRO		16:00						
Midday Peak Hour GROWT		14:00						
Entering	All Peds	Trend Point	102.62	1522.44	311.06	1671.20	#VALUE!	
BETA Version								
		Slope	-3.05	-38.17	-6.83	-25.46	9.20	
		Growth	-2.98%	-2.51%	-2.20%	-1.52%		
Weekday	Time interval	Date	r/moven	NB	WB	SB	EB	Peds
Thursday	7:45 AM	14-02-13	2013	89	1463	274	1646	156
Tuesday	8:00 AM	18-12-18	2018	112	1441	342	1593	202
Manual	Growth	Input	2024	60	1050	225	1350	
Manual	Growth	Input	2025	64	1067	212	1383	

Dundas & The West Mall

PM

Morning Peak Hour GROW		08:00						
Afternoon Peak Hour GRO		16:00						
Midday Peak Hour GROWT		14:00						
Entering	All Peds	Trend Point	304.45	1861.32	638.63	1337.61	#VALUE!	
BETA Version								
		Slope	-2.56	-49.62	-6.84	-1.37	13.60	
		Growth	-0.84%	-2.67%	-1.07%	-0.10%		
Weekday	Time interval	Date	r/moven	NB	WB	SB	EB	Peds
Thursday	4:00 PM	14-02-13	2013	297	1853	627	1283	146
Tuesday	4:45 PM	18-12-18	2018	311	1629	637	1429	214
Manual	Growth	Input	2024	230	1305	475	1290	
Manual	Growth	Input	2025	308	1269	624	1310	

Appendix F: Synchro Analysis Sheets



Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		0.99	0.85		0.81		0.98
Frt		0.994			0.989			0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1327	4560	0	1685	5610	0	1685	1386	0	1532	1807	1040
Flt Permitted	0.167			0.198			0.726			0.732		
Satd. Flow (perm)	233	4560	0	350	5610	0	1277	1386	0	952	1807	1018
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			17			27				100
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	136	1200	30	963	28	10	67	46	99		
Future Volume (vph)	136	1200	30	963	28	10	67	46	99		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	15.0	73.0	58.0	58.0	42.0	42.0	42.0	42.0	15.0	5.0	5.0
Total Split (%)	12.5%	60.8%	48.3%	48.3%	35.0%	35.0%	35.0%	35.0%	12.5%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	71.7	72.9	51.8	51.8	33.0	33.0	32.6	32.6	41.1		
Actuated g/C Ratio	0.60	0.61	0.43	0.43	0.28	0.28	0.27	0.27	0.34		
v/c Ratio	0.54	0.47	0.21	0.45	0.08	0.10	0.28	0.10	0.25		
Control Delay	22.1	16.1	44.6	35.4	33.2	16.1	37.7	33.2	5.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	22.1	16.1	44.6	35.4	33.2	16.1	37.7	33.2	5.1		
LOS	C	B	D	D	C	B	D	C	A		
Approach Delay		16.7		35.7		23.5		21.5			
Approach LOS		B		D		C		C			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 24.7

Intersection LOS: C

Intersection Capacity Utilization 94.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent




























Queues
1: Dundas Street West & The East Mall Crescent

Existing Conditions
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	143	1312	32	1092	29	38	71	48	104
v/c Ratio	0.54	0.47	0.21	0.45	0.08	0.10	0.28	0.10	0.25
Control Delay	22.1	16.1	44.6	35.4	33.2	16.1	37.7	33.2	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	16.1	44.6	35.4	33.2	16.1	37.7	33.2	5.1
Queue Length 50th (m)	18.1	73.6	6.5	71.8	5.4	2.0	13.8	8.9	0.5
Queue Length 95th (m)	30.7	87.2	18.2	87.5	13.4	10.9	27.6	18.9	9.9
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	263	2841	174	2797	353	402	263	499	417
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.46	0.18	0.39	0.08	0.09	0.27	0.10	0.25
Intersection Summary									

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Existing Conditions
Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (vph)	136	1200	47	30	963	74	28	10	26	67	46	99
Future Volume (vph)	136	1200	47	30	963	74	28	10	26	67	46	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.85		1.00	1.00	0.99
Flbp, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.81	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1326	4562		1678	5612		1670	1387		1236	1807	1025
Flt Permitted	0.17	1.00		0.20	1.00		0.73	1.00		0.73	1.00	1.00
Satd. Flow (perm)	234	4562		349	5612		1276	1387		953	1807	1025
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	1263	49	32	1014	78	29	11	27	71	48	104
RTOR Reduction (vph)	0	3	0	0	10	0	0	21	0	0	0	67
Lane Group Flow (vph)	143	1309	0	32	1082	0	29	17	0	71	48	38
Confl. Peds. (#/hr)	6		13	13		6	8		181	181		8
Heavy Vehicles (%)	27%	12%	2%	0%	14%	11%	0%	0%	4%	10%	4%	45%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	69.9	69.9		48.9	48.9		25.6	25.6		25.6	25.6	38.2
Effective Green, g (s)	70.9	70.9		49.9	49.9		26.6	26.6		26.6	26.6	40.2
Actuated g/C Ratio	0.59	0.59		0.42	0.42		0.22	0.22		0.22	0.22	0.34
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	262	2695		145	2333		282	307		211	400	343
v/s Ratio Prot	0.06	0.29			0.19			0.01			0.03	0.01
v/s Ratio Perm	0.26			0.09			0.02			0.07		0.02
v/c Ratio	0.55	0.49		0.22	0.46		0.10	0.06		0.34	0.12	0.11
Uniform Delay, d1	13.2	14.1		22.5	25.4		37.2	36.8		39.3	37.3	27.5
Progression Factor	1.00	1.00		1.34	1.27		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.3	0.6		3.4	0.6		0.2	0.1		0.9	0.1	0.1
Delay (s)	15.5	14.7		33.7	33.0		37.4	36.9		40.2	37.5	27.7
Level of Service	B	B		C	C		D	D		D	D	C
Approach Delay (s)	14.8			33.0			37.1			33.8		
Approach LOS	B			C			D			C		
Intersection Summary												
HCM 2000 Control Delay	23.9			HCM 2000 Level of Service			C					
HCM 2000 Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	120.0			Sum of lost time (s)			24.4					
Intersection Capacity Utilization	94.3%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00						0.99	
Frt					0.999						0.890	
Flt Protected	0.950			0.950							0.991	
Satd. Flow (prot)	1685	4580	0	1685	4498	0	1773	1879	0	0	1600	0
Flt Permitted	0.242			0.178							0.941	
Satd. Flow (perm)	428	4580	0	315	4498	0	1773	1879	0	0	1517	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2						42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Existing Conditions

Morning Peak Hour

	EBL	EBT	WBL	WBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Group	EBL	EBT	WBL	WBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔↔			
Traffic Volume (vph)	33	1277	2	1021	7	0			
Future Volume (vph)	33	1277	2	1021	7	0			
Turn Type	Perm	NA	Perm	NA	Perm	NA			
Protected Phases		2		6		8	3	4	7
Permitted Phases	2		6		8				
Detector Phase	2	2	6	6	8	8			
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	1.0	20.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	5.0	34.4	5.0
Total Split (s)	75.0	75.0	75.0	75.0	40.0	40.0	5.0	40.0	5.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	33.3%	33.3%	4%	33%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	2.0	3.3	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	0.0	5.1	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0		-1.0			
Total Lost Time (s)	4.6	4.6	4.6	4.6		7.4			

Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	Min	None	Min
Act Effect Green (s)	90.9	90.9	90.9	90.9		21.0			
Actuated g/C Ratio	0.76	0.76	0.76	0.76		0.18			
v/c Ratio	0.11	0.38	0.01	0.31		0.13			
Control Delay	5.2	4.2	6.5	5.4		12.2			
Queue Delay	0.0	0.0	0.0	0.0		0.0			
Total Delay	5.2	4.2	6.5	5.4		12.2			
LOS	A	A	A	A		B			
Approach Delay		4.2		5.4		12.2			
Approach LOS		A		A		B			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 4.9

Intersection LOS: A

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive

→ Ø2 (R)	75 s	5 s	40 s
← Ø6 (R)	75 s	5 s	40 s

Queues
2: Dundas Street West & Paulart Drive

Existing Conditions
Morning Peak Hour

	EBL	EBT	WBL	WBT	SBT
Lane Group	EBL	EBT	WBL	WBT	SBT
Lane Group Flow (vph)	34	1330	2	1072	38
v/c Ratio	0.11	0.38	0.01	0.31	0.13
Control Delay	5.2	4.2	6.5	5.4	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	4.2	6.5	5.4	12.2
Queue Length 50th (m)	1.6	27.7	0.2	32.4	0.0
Queue Length 95th (m)	m3.3	27.6	m0.3	38.6	9.1
Internal Link Dist (m)		35.5		188.9	47.8
Turn Bay Length (m)	30.0		45.0		
Base Capacity (vph)	323	3468	238	3406	442
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	0.11	0.38	0.01	0.31	0.09
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Existing Conditions
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	33	1277	0	2	1021	8	0	0	0	7	0	30
Future Volume (vph)	33	1277	0	2	1021	8	0	0	0	7	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6							7.4
Lane Util. Factor	1.00	0.91		1.00	0.91							1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00							0.99
Frbp, ped/bikes	1.00	1.00		1.00	1.00							1.00
Frt	1.00	1.00		1.00	1.00							0.89
Flt Protected	0.95	1.00		0.95	1.00							0.99
Satd. Flow (prot)	1679	4580		1677	4497							1597
Flt Permitted	0.24	1.00		0.18	1.00							0.94
Satd. Flow (perm)	427	4580		314	4497							1516
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	1330	0	2	1064	8	0	0	0	7	0	31
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	34
Lane Group Flow (vph)	34	1330	0	2	1071	0	0	0	0	0	4	0
Confl. Peds. (#/hr)	6		12	12		6	1		6	6		1
Heavy Vehicles (%)	0%	12%	0%	0%	14%	0%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA	custom				Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	86.5	86.5		86.5	86.5						12.0	
Effective Green, g (s)	87.5	87.5		87.5	87.5						13.0	
Actuated g/C Ratio	0.73	0.73		0.73	0.73						0.11	
Clearance Time (s)	5.6	5.6		5.6	5.6						8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0						3.0	
Lane Grp Cap (vph)	311	3339		228	3279						164	
v/s Ratio Prot		c0.29			0.24							
v/s Ratio Perm	0.08			0.01							c0.00	
v/c Ratio	0.11	0.40		0.01	0.33						0.03	
Uniform Delay, d1	4.8	6.2		4.4	5.8						47.8	
Progression Factor	0.64	0.57		0.95	0.82						1.00	
Incremental Delay, d2	0.7	0.3		0.1	0.3						0.1	
Delay (s)	3.7	3.9		4.3	5.0						47.9	
Level of Service	A	A		A	A						D	
Approach Delay (s)		3.9			5.0			0.0			47.9	
Approach LOS		A			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			5.0			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			55.0%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Existing Conditions
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.999				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4618	0	0	5666	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4618	0	0	5666	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Existing Conditions
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1289	6	0	1064	10	0	0	7	0	0	17
Future Volume (Veh/h)	0	1289	6	0	1064	10	0	0	7	0	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1329	6	0	1097	10	0	0	7	0	0	18
Pedestrians								15			176	
Lane Width (m)								3.5			3.5	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			14	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.99			0.84			0.85	0.85	0.84	0.85	0.85	0.99
vC, conflicting volume	1283			1350			1639	2630	461	1728	2628	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1246			759			1043	2214	0	1148	2212	412
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	96
cM capacity (veh/h)	472			706			131	31	907	98	31	506
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	532	532	272	313	313	313	167	7	18			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	6	0	0	0	10	7	18			
cSH	1700	1700	1700	1700	1700	1700	1700	907	506			
Volume to Capacity	0.31	0.31	0.16	0.18	0.18	0.18	0.10	0.01	0.04			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	12.4			
Lane LOS								A	B			
Approach Delay (s)	0.0			0.0				9.0	12.4			
Approach LOS								A	B			
Intersection Summary												
Average Delay				0.1								
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.910									0.974	
Flt Protected		0.984						0.988				
Satd. Flow (prot)	0	1682	0	0	1879	0	0	1856	0	0	1830	0
Flt Permitted		0.984						0.988				
Satd. Flow (perm)	0	1682	0	0	1879	0	0	1856	0	0	1830	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	2	0	5	0	0	0	2	7	0	0	19	5
Future Volume (Veh/h)	2	0	5	0	0	0	2	7	0	0	19	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	6	0	0	0	3	9	0	0	25	6
Pedestrians		8			2			1			1	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	52	53	37	52	56	12	39			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52	53	37	52	56	12	39			11		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	938	834	1033	937	831	1072	1574			1619		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	0	12	31								
Volume Left	3	0	3	0								
Volume Right	6	0	0	6								
cSH	999	1700	1574	1619								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (m)	0.2	0.0	0.0	0.0								
Control Delay (s)	8.6	0.0	1.8	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	8.6	0.0	1.8	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			16.0%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt					0.877			0.993				
Flt Protected					0.995			0.986			0.989	
Satd. Flow (prot)	0	1879	0	0	1640	0	0	1840	0	0	1803	0
Flt Permitted					0.995			0.986			0.989	
Satd. Flow (perm)	0	1879	0	0	1640	0	0	1840	0	0	1803	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Existing Conditions

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	0	1	0	7	12	29	2	8	26	0
Future Volume (Veh/h)	0	0	0	1	0	7	12	29	2	8	26	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	0	0	0	1	0	10	17	41	3	11	37	0
Pedestrians		1			5							
Lane Width (m)		3.5			3.5							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	146	143	38	140	142	48	38			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	143	38	140	142	48	38			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	99			99		
cM capacity (veh/h)	804	735	1039	816	736	1023	1584			1564		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	11	61	48								
Volume Left	0	1	17	11								
Volume Right	0	10	3	0								
cSH	1700	1000	1584	1564								
Volume to Capacity	0.00	0.01	0.01	0.01								
Queue Length 95th (m)	0.0	0.3	0.3	0.2								
Control Delay (s)	0.0	8.6	2.1	1.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.0	8.6	2.1	1.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization		14.9%		ICU Level of Service					A			
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Existing Conditions

Morning Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑		↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	4621	5720	0	1879	0
Flt Permitted						
Satd. Flow (perm)	0	4621	5720	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Existing Conditions

Morning Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↑			
Traffic Volume (veh/h)	0	1290	1069	0	0	0		
Future Volume (Veh/h)	0	1290	1069	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	0	1330	1102	0	0	0		
Pedestrians		1	1		8			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		1			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.94				0.89	0.94		
vC, conflicting volume	1110				1554	284		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	813				642	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	100		
cM capacity (veh/h)	770				362	1021		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	443	443	443	315	315	315	157	0
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.26	0.26	0.26	0.19	0.19	0.19	0.09	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A
Approach Delay (s)	0.0			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			28.3%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00		0.96	0.98		0.98	0.99	
Frt		0.967			0.991			0.906			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	4402	0	1638	4504	0	1332	1427	0	1623	1742	0
Flt Permitted	0.261			0.187			0.646			0.615		
Satd. Flow (perm)	475	4402	0	321	4504	0	871	1427	0	1029	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		103			15			69			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Existing Conditions
Morning Peak HourSynchro 11 Report
Page 17

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7				
Lane Configurations	↖	↖↖↖	↖	↖↖↖	↖	↖	↖	↖						
Traffic Volume (vph)	42	907	164	857	122	54	52	110						
Future Volume (vph)	42	907	164	857	122	54	52	110						
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA						
Protected Phases		4		8		2		6	3	7				
Permitted Phases	4		8		2		6							
Detector Phase	4	4	8	8	2	2	6	6						
Switch Phase														
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0				
Minimum Split (s)	27.6	27.6	27.6	27.6	39.4	39.4	39.4	39.4	5.0	5.0				
Total Split (s)	75.6	75.6	75.6	75.6	39.4	39.4	39.4	39.4	5.0	5.0				
Total Split (%)	63.0%	63.0%	63.0%	63.0%	32.8%	32.8%	32.8%	32.8%	4%	4%				
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.0	3.0				
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0				
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0						
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4	7.4						
Lead/Lag	Lag	Lag	Lag	Lag					Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					Yes	Yes				
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min				
Act Effect Green (s)	77.0	77.0	77.0	77.0	23.2	23.2	23.2	23.2						
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.19	0.19	0.19	0.19						
v/c Ratio	0.15	0.43	0.84	0.34	0.77	0.46	0.28	0.41						
Control Delay	6.6	6.8	56.0	10.7	73.5	26.2	42.1	41.8						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	6.6	6.8	56.0	10.7	73.5	26.2	42.1	41.8						
LOS	A	A	E	B	E	C	D	D						
Approach Delay		6.8		17.6		47.9		41.9						
Approach LOS		A		B		D		D						

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 17.4

Intersection LOS: B

Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

↖ Ø2	↖ Ø4 (R)
39.4 s	75.6 s
↖ Ø6	↖ Ø8 (R)
39.4 s	75.6 s

Existing Conditions
Morning Peak HourSynchro 11 Report
Page 18

Queues Existing Conditions
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1235	174	971	130	153	55	140
v/c Ratio	0.15	0.43	0.84	0.34	0.77	0.46	0.28	0.41
Control Delay	6.6	6.8	56.0	10.7	73.5	26.2	42.1	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.6	6.8	56.0	10.7	73.5	26.2	42.1	41.8
Queue Length 50th (m)	2.8	26.1	32.2	37.7	30.7	17.9	11.7	28.7
Queue Length 95th (m)	5.5	27.5	#87.2	51.8	50.4	35.9	22.5	44.5
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	305	2863	206	2896	232	431	274	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.43	0.84	0.34	0.56	0.35	0.20	0.30

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis Existing Conditions
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲	↰ ↱ ↲
Traffic Volume (vph)	42	907	254	164	857	55	122	54	90	52	110	22
Future Volume (vph)	42	907	254	164	857	55	122	54	90	52	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.96	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1727	4403		1633	4504		1282	1427		1590	1743	
Flt Permitted	0.26	1.00		0.19	1.00		0.65	1.00		0.61	1.00	
Satd. Flow (perm)	474	4403		322	4504		871	1427		1029	1743	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	965	270	174	912	59	130	57	96	55	117	23
RTOR Reduction (vph)	0	37	0	0	5	0	0	56	0	0	6	0
Lane Group Flow (vph)	45	1198	0	174	966	0	130	97	0	55	134	0
Confl. Peds. (#/hr)	21		13	13		21	40		22	22		40
Heavy Vehicles (%)	2%	11%	15%	9%	13%	2%	34%	9%	21%	10%	4%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	76.0	76.0		76.0	76.0		22.2	22.2		22.2	22.2	
Effective Green, g (s)	77.0	77.0		77.0	77.0		23.2	23.2		23.2	23.2	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	304	2825		206	2890		168	275		198	336	
v/s Ratio Prot		0.27			0.21			0.07			0.08	
v/s Ratio Perm	0.09			c0.54			c0.15			0.05		
v/c Ratio	0.15	0.42		0.84	0.33		0.77	0.35		0.28	0.40	
Uniform Delay, d1	8.5	10.6		16.8	9.8		45.9	41.9		41.3	42.3	
Progression Factor	0.52	0.61		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.4		32.4	0.3		19.6	0.8		0.8	0.8	
Delay (s)	5.4	6.9		49.3	10.1		65.5	42.7		42.0	43.1	
Level of Service	A	A		D	B		E	D		D	D	
Approach Delay (s)		6.9			16.1			53.2			42.8	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		17.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		80.4%			ICU Level of Service			D				
Analysis Period (min)		15										

c Critical Lane Group

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.98	1.00		0.98	0.88		0.77		0.97
Frt		0.999			0.979			0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1491	4615	0	1636	5770	0	1652	1549	0	1604	1879	1346
Flt Permitted	0.092			0.227			0.721			0.665		
Satd. Flow (perm)	144	4615	0	381	5770	0	1230	1549	0	867	1879	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			35			32				93
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	200	1100	33	1060	172	79	186	52	386		
Future Volume (vph)	200	1100	33	1060	172	79	186	52	386		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	28.0	69.0	41.0	41.0	46.0	46.0	46.0	46.0	28.0	5.0	5.0
Total Split (%)	23.3%	57.5%	34.2%	34.2%	38.3%	38.3%	38.3%	38.3%	23.3%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	62.7	63.9	39.3	39.3	35.0	35.0	35.0	35.0	53.5		
Actuated g/C Ratio	0.52	0.53	0.33	0.33	0.29	0.29	0.29	0.29	0.45		
v/c Ratio	0.79	0.48	0.28	0.69	0.51	0.31	0.79	0.10	0.64		
Control Delay	49.5	18.5	28.8	25.7	40.9	27.1	61.5	31.0	20.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	49.5	18.5	28.8	25.7	40.9	27.1	61.5	31.0	20.2		
LOS	D	B	C	C	D	C	E	C	C		
Approach Delay		23.2		25.7		34.8		33.4			
Approach LOS		C		C		C		C			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 127.4%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	213	1181	35	1315	183	145	198	55	411
v/c Ratio	0.79	0.48	0.28	0.69	0.51	0.31	0.79	0.10	0.64
Control Delay	49.5	18.5	28.8	25.7	40.9	27.1	61.5	31.0	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	18.5	28.8	25.7	40.9	27.1	61.5	31.0	20.2
Queue Length 50th (m)	35.9	63.4	4.6	48.6	38.0	21.6	45.4	10.0	51.5
Queue Length 95th (m)	#66.3	78.8	12.7	68.1	60.5	38.7	#81.8	20.0	75.4
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	306	2458	124	1915	381	502	268	582	674
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.48	0.28	0.69	0.48	0.29	0.74	0.09	0.61

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

1: Dundas Street West & The East Mall Crescent

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	200	1100	10	33	1060	176	172	79	57	186	52	386
Future Volume (vph)	200	1100	10	33	1060	176	172	79	57	186	52	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.88		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00		0.77	1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	4613		1596	5768		1621	1549		1238	1879	1317
Flt Permitted	0.09	1.00		0.23	1.00		0.72	1.00		0.66	1.00	1.00
Satd. Flow (perm)	145	4613		382	5768		1230	1549		866	1879	1317
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	213	1170	11	35	1128	187	183	84	61	198	55	411
RTOR Reduction (vph)	0	1	0	0	24	0	0	23	0	0	0	53
Lane Group Flow (vph)	213	1180	0	35	1291	0	183	122	0	198	55	358
Confl. Peds. (#/hr)	18		62	62		18	18		248	248		18
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	13%	11%	0%	3%	10%	4%	2%	0%	0%	5%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	62.9	62.9		38.3	38.3		34.0	34.0		34.0	34.0	50.2
Effective Green, g (s)	63.9	63.9		39.3	39.3		35.0	35.0		35.0	35.0	52.2
Actuated g/C Ratio	0.53	0.53		0.33	0.33		0.29	0.29		0.29	0.29	0.44
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	270	2456		125	1889		358	451		252	548	572
v/s Ratio Prot	c0.11	0.26			0.22			0.08			0.03	0.09
v/s Ratio Perm	c0.31			0.09			0.15			c0.23		0.18
v/c Ratio	0.79	0.48		0.28	0.68		0.51	0.27		0.79	0.10	0.63
Uniform Delay, d1	29.5	17.6		29.9	35.0		35.4	32.7		39.1	31.0	26.3
Progression Factor	1.00	1.00		0.68	0.68		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.1	0.7		5.3	2.0		1.2	0.3		14.8	0.1	2.1
Delay (s)	43.6	18.3		25.6	25.7		36.6	33.0		53.9	31.1	28.5
Level of Service	D	B		C	C		D	C		D	C	C
Approach Delay (s)		22.2			25.7			35.0			36.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.4
Intersection Capacity Utilization	127.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		0.99	1.00		0.99	0.99			0.99	
Frt								0.910			0.920	
Flt Protected	0.950			0.950			0.950				0.983	
Satd. Flow (prot)	1685	4663	0	1491	4706	0	842	1695	0	0	1626	0
Flt Permitted	0.182			0.165			0.800				0.900	
Satd. Flow (perm)	320	4663	0	257	4706	0	706	1695	0	0	1487	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					1			3			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔		↔↔		
Traffic Volume (vph)	56	1291	8	1212	1	2	10	2		
Future Volume (vph)	56	1291	8	1212	1	2	10	2		
Turn Type	Perm	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases		2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	79.0	79.0	79.0	79.0	36.0	36.0	36.0	36.0	5.0	5.0
Total Split (%)	65.8%	65.8%	65.8%	65.8%	30.0%	30.0%	30.0%	30.0%	4%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0		
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4		7.4		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	90.9	90.9	90.9	90.9	21.0	21.0		21.0		
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.18	0.18		0.18		
v/c Ratio	0.25	0.39	0.05	0.36	0.01	0.02		0.12		
Control Delay	6.7	4.0	5.9	4.7	41.0	31.2		24.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	6.7	4.0	5.9	4.7	41.0	31.2		24.6		
LOS	A	A	A	A	D	C		C		
Approach Delay		4.1		4.7		32.8		24.6		
Approach LOS		A		A		C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.7

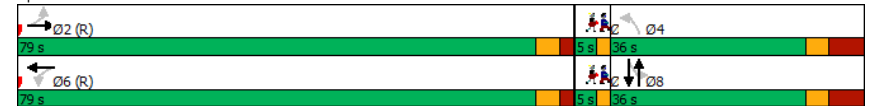
Intersection LOS: A

Intersection Capacity Utilization 72.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	60	1374	9	1293	1	5	32
v/c Ratio	0.25	0.39	0.05	0.36	0.01	0.02	0.12
Control Delay	6.7	4.0	5.9	4.7	41.0	31.2	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	4.0	5.9	4.7	41.0	31.2	24.6
Queue Length 50th (m)	3.3	30.8	0.6	37.1	0.2	0.4	2.7
Queue Length 95th (m)	m5.7	28.5	m1.2	36.1	1.9	4.2	12.0
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	242	3530	194	3563	168	406	368
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.39	0.05	0.36	0.01	0.01	0.09
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	56	1291	1	8	1212	4	1	2	3	10	2	18
Future Volume (vph)	56	1291	1	8	1212	4	1	2	3	10	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99				
Ftpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00				
Frt	1.00	1.00		1.00	1.00		1.00	0.91				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1671	4663		1481	4704		838	1695				
Flt Permitted	0.18	1.00		0.16	1.00		0.80	1.00				
Satd. Flow (perm)	320	4663		257	4704		706	1695				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	1373	1	9	1289	4	1	2	3	11	2	19
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	60	1374	0	9	1293	0	1	2	0	0	16	0
Confl. Peds. (#/hr)	22		21	21		22	4		2	2		4
Heavy Vehicles (%)	0%	10%	0%	13%	9%	0%	100%	0%	0%	10%	0%	0%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	83.1	83.1		83.1	83.1		4.0	15.4			15.4	
Effective Green, g (s)	84.1	84.1		84.1	84.1		5.0	16.4			16.4	
Actuated g/C Ratio	0.70	0.70		0.70	0.70		0.04	0.14			0.14	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	224	3267		180	3296		29	231			203	
v/s Ratio Prot		c0.29			0.27			0.00				
v/s Ratio Perm	0.19			0.04			0.00				c0.01	
v/c Ratio	0.27	0.42		0.05	0.39		0.03	0.01			0.08	
Uniform Delay, d1	6.6	7.6		5.6	7.4		55.2	44.8			45.2	
Progression Factor	0.54	0.54		0.73	0.67		1.00	1.00			1.00	
Incremental Delay, d2	2.6	0.4		0.5	0.3		0.5	0.0			0.2	
Delay (s)	6.2	4.5		4.5	5.3		55.7	44.8			45.4	
Level of Service	A	A		A	A		E	D			D	
Approach Delay (s)		4.5			5.3			46.6			45.4	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay				5.4			HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio				0.35								
Actuated Cycle Length (s)				120.0			Sum of lost time (s)			15.0		
Intersection Capacity Utilization				72.8%			ICU Level of Service			C		
Analysis Period (min)				15								
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.999				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4704	0	0	5977	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4704	0	0	5977	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1352	8	0	1296	8	0	0	15	0	0	31
Future Volume (Veh/h)	0	1352	8	0	1296	8	0	0	15	0	0	31
Sign Control	Free	Free		Free	Free		Stop	Stop		Stop	Stop	
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1438	9	0	1379	9	0	0	16	0	0	33
Pedestrians									21		245	
Lane Width (m)									3.5		3.5	
Walking Speed (m/s)									1.2		1.2	
Percent Blockage									2		20	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.95			0.84			0.87	0.87	0.84	0.87	0.87	0.95
vC, conflicting volume	1633			1468			1841	3096	505	2124	3096	594
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1388			909			944	2385	0	1268	2385	291
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	94
cM capacity (veh/h)	371			618			146	23	905	72	23	533
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	575	575	297	394	394	394	206	16	33			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	9	0	0	0	9	16	33			
cSH	1700	1700	1700	1700	1700	1700	1700	905	533			
Volume to Capacity	0.34	0.34	0.17	0.23	0.23	0.23	0.12	0.02	0.06			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.6			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	12.2			
Lane LOS								A	B			
Approach Delay (s)	0.0			0.0				9.0	12.2			
Approach LOS								A	B			
Intersection Summary												
Average Delay				0.2								
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.889										
Flt Protected		0.991										
Satd. Flow (prot)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	0	12	0	0	0	0	7	0	0	19	0
Future Volume (Veh/h)	3	0	12	0	0	0	0	7	0	0	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	0	14	0	0	0	0	8	0	0	22	0
Pedestrians		16			7			6			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	48	53	44	57	53	17	38			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48	53	44	57	53	17	38			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	930	827	1014	909	827	1060	1565			1607		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	0	8	22								
Volume Left	3	0	0	0								
Volume Right	14	0	0	0								
cSH	998	1700	1700	1607								
Volume to Capacity	0.02	0.00	0.00	0.00								
Queue Length 95th (m)	0.4	0.0	0.0	0.0								
Control Delay (s)	8.7	0.0	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	8.7	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			19.3%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics
5: Paulart Drive & East Site driveway

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.865			0.865			0.993			0.997	
Flt Protected								0.997			0.995	
Satd. Flow (prot)	0	1625	0	0	1625	0	0	1860	0	0	1801	0
Flt Permitted								0.997			0.995	
Satd. Flow (perm)	0	1625	0	0	1625	0	0	1860	0	0	1801	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
5: Paulart Drive & East Site driveway

Existing Conditions
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	4	0	0	3	4	58	3	3	27	1
Future Volume (Veh/h)	0	0	4	0	0	3	4	58	3	3	27	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	5	0	0	4	5	72	4	4	34	1
Pedestrians		6			7						2	
Lane Width (m)		3.5			3.5						3.5	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	138	142	40	138	140	83	41			83		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	138	142	40	138	140	83	41			83		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	818	741	1031	818	742	975	1574			1518		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	4	81	39								
Volume Left	0	0	5	4								
Volume Right	5	4	4	1								
cSH	1031	975	1574	1518								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.1	0.1	0.1	0.1								
Control Delay (s)	8.5	8.7	0.5	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.5	8.7	0.5	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			16.7%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑		↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.91	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt					0.876	
Flt Protected					0.996	
Satd. Flow (prot)	0	4707	5930	0	1639	0
Flt Permitted					0.996	
Satd. Flow (perm)	0	4707	5930	0	1639	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Existing Conditions

Afternoon Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↓			
Traffic Volume (veh/h)	6	1349	1244	1	2	21		
Future Volume (Veh/h)	6	1349	1244	1	2	21		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	6	1451	1338	1	2	23		
Pedestrians		1	1		24			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		2			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.91				0.90	0.91		
vC, conflicting volume	1363				1859	360		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	897				731	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				99	98		
cM capacity (veh/h)	682				316	971		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	296	580	580	382	382	382	192	25
Volume Left	6	0	0	0	0	0	0	2
Volume Right	0	0	0	0	0	0	1	23
cSH	682	1700	1700	1700	1700	1700	1700	833
Volume to Capacity	0.01	0.34	0.34	0.22	0.22	0.22	0.11	0.03
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Control Delay (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS	A							A
Approach Delay (s)	0.1			0.0				9.5
Approach LOS								A
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			40.2%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.98	0.98			0.99		0.98	0.94		0.96	0.99	
Frt		0.976			0.992			0.907			0.953	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	4568	0	1700	4697	0	1684	1561	0	1750	1771	0
Flt Permitted	0.251			0.109			0.679			0.347		
Satd. Flow (perm)	460	4568	0	195	4697	0	1180	1561	0	611	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			11			74			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Existing Conditions
Afternoon Peak HourSynchro 11 Report
Page 17

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	34	1106	150	976	246	119	50	80		
Future Volume (vph)	34	1106	150	976	246	119	50	80		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	1.0	1.0
Minimum Split (s)	27.6	27.6	5.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	51.0	51.0	16.0	67.0	48.0	48.0	48.0	48.0	5.0	5.0
Total Split (%)	42.5%	42.5%	13.3%	55.8%	40.0%	40.0%	40.0%	40.0%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.3	2.3	0.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	2.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	55.0	55.0	71.5	68.9	32.1	32.1	32.1	32.1		
Actuated g/C Ratio	0.46	0.46	0.60	0.57	0.27	0.27	0.27	0.27		
v/c Ratio	0.17	0.66	0.60	0.40	0.82	0.70	0.33	0.25		
Control Delay	11.8	14.2	24.4	15.4	61.1	37.5	38.3	27.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	11.8	14.2	24.4	15.4	61.1	37.5	38.3	27.7		
LOS	B	B	C	B	E	D	D	C		
Approach Delay		14.1		16.5		47.9		30.9		
Approach LOS		B		B		D		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 21.6

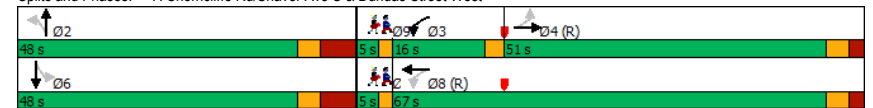
Intersection LOS: C

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions
Afternoon Peak HourSynchro 11 Report
Page 18

Queues

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	1390	158	1085	259	329	53	122
v/c Ratio	0.17	0.66	0.60	0.40	0.82	0.70	0.33	0.25
Control Delay	11.8	14.2	24.4	15.4	61.1	37.5	38.3	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	14.2	24.4	15.4	61.1	37.5	38.3	27.7
Queue Length 50th (m)	3.4	50.4	16.9	52.5	59.9	57.1	10.5	19.3
Queue Length 95th (m)	7.5	114.2	37.5	70.4	85.9	82.8	21.2	32.6
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	210	2114	292	2699	399	577	206	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.66	0.54	0.40	0.65	0.57	0.26	0.20
Intersection Summary								

HCM Signalized Intersection Capacity Analysis

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Existing Conditions

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	34	1106	215	150	976	55	246	119	194	50	80	36
Future Volume (vph)	34	1106	215	150	976	55	246	119	194	50	80	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		2.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.98	1.00		0.96	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1741	4566		1700	4697		1651	1561		1677	1772	
Flt Permitted	0.25	1.00		0.11	1.00		0.68	1.00		0.35	1.00	
Satd. Flow (perm)	460	4566		194	4697		1179	1561		613	1772	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	1164	226	158	1027	58	259	125	204	53	84	38
RTOR Reduction (vph)	0	21	0	0	5	0	0	54	0	0	15	0
Lane Group Flow (vph)	36	1369	0	158	1080	0	259	275	0	53	107	0
Confl. Peds. (#/hr)	41		67	67		41	20		71	71		20
Heavy Vehicles (%)	0%	6%	15%	5%	8%	0%	6%	1%	4%	2%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	54.0	54.0		67.9	67.9		31.1	31.1		31.1	31.1	
Effective Green, g (s)	55.0	55.0		68.9	68.9		32.1	32.1		32.1	32.1	
Actuated g/C Ratio	0.46	0.46		0.57	0.57		0.27	0.27		0.27	0.27	
Clearance Time (s)	5.6	5.6		3.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	2092		260	2696		315	417		163	474	
v/s Ratio Prot		c0.30		c0.06	0.23			0.18			0.06	
v/s Ratio Perm	0.08			0.29			c0.22			0.09		
v/c Ratio	0.17	0.65		0.61	0.40		0.82	0.66		0.33	0.22	
Uniform Delay, d1	19.1	25.1		16.3	14.1		41.3	39.1		35.3	34.3	
Progression Factor	0.42	0.48		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	1.5		4.0	0.4		15.7	3.7		1.2	0.2	
Delay (s)	9.7	13.7		20.3	14.6		57.0	42.8		36.4	34.5	
Level of Service	A	B		C	B		E	D		D	C	
Approach Delay (s)		13.6			15.3			49.1			35.1	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		21.4			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		84.5%			ICU Level of Service			E				
Analysis Period (min)		15										

c Critical Lane Group

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		0.99	0.85		0.81		0.98
Frt		0.994			0.979			0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1440	4560	0	1685	5556	0	1685	1386	0	1532	1807	1311
Flt Permitted	0.088			0.177			0.726			0.565		
Satd. Flow (perm)	133	4560	0	313	5556	0	1277	1386	0	735	1807	1283
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			35			27				87
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	225	1295	30	1213	31	10	115	46	336		
Future Volume (vph)	225	1295	30	1213	31	10	115	46	336		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	30.0	73.2	43.2	43.2	41.8	41.8	41.8	41.8	30.0	5.0	5.0
Total Split (%)	25.0%	61.0%	36.0%	36.0%	34.8%	34.8%	34.8%	34.8%	25.0%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	65.6	66.8	40.0	40.0	33.0	33.0	32.6	32.6	53.4		
Actuated g/C Ratio	0.55	0.56	0.33	0.33	0.28	0.28	0.27	0.27	0.44		
v/c Ratio	0.83	0.56	0.31	0.79	0.09	0.10	0.61	0.10	0.57		
Control Delay	54.1	18.0	29.1	26.2	33.4	16.1	52.5	33.2	17.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	54.1	18.0	29.1	26.2	33.4	16.1	52.5	33.2	17.9		
LOS	D	B	C	C	C	B	D	C	B		
Approach Delay		23.2		26.3		24.2		27.3			
Approach LOS		C		C		C		C			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 25.0

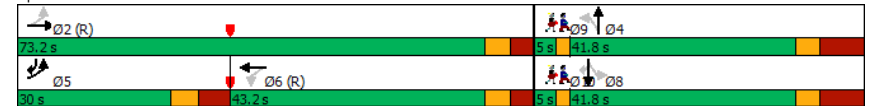
Intersection LOS: C

Intersection Capacity Utilization 95.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	237	1419	32	1484	33	38	121	48	354
v/c Ratio	0.83	0.56	0.31	0.79	0.09	0.10	0.61	0.10	0.57
Control Delay	54.1	18.0	29.1	26.2	33.4	16.1	52.5	33.2	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	18.0	29.1	26.2	33.4	16.1	52.5	33.2	17.9
Queue Length 50th (m)	42.6	78.3	3.3	99.2	6.1	2.0	26.1	8.9	39.5
Queue Length 95th (m)	#79.5	92.1	m9.1	70.8	14.8	10.9	48.8	18.9	64.5
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	319	2549	104	1875	351	400	202	496	656
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.56	0.31	0.79	0.09	0.10	0.60	0.10	0.54
Intersection Summary									
#	95th percentile volume exceeds capacity, queue may be longer.								
	Queue shown is maximum after two cycles.								
m	Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	225	1295	53	30	1213	197	31	10	26	115	46	336
Future Volume (vph)	225	1295	53	30	1213	197	31	10	26	115	46	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.85		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.83	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	0.89		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1440	4561		1679	5557		1670	1387		1272	1807	1293
Flt Permitted	0.09	1.00		0.18	1.00		0.73	1.00		0.56	1.00	1.00
Satd. Flow (perm)	133	4561		312	5557		1276	1387		756	1807	1293
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	1363	56	32	1277	207	33	11	27	121	48	354
RTOR Reduction (vph)	0	4	0	0	24	0	0	21	0	0	0	48
Lane Group Flow (vph)	237	1415	0	32	1460	0	33	17	0	121	48	306
Confl. Peds. (#/hr)	6		13	13		6	8		181	181		8
Heavy Vehicles (%)	17%	12%	2%	0%	14%	11%	0%	0%	4%	10%	4%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	63.9	63.9		37.1	37.1		25.6	25.6		33.5	33.5	51.9
Effective Green, g (s)	64.9	64.9		38.1	38.1		26.6	26.6		34.5	34.5	53.9
Actuated g/C Ratio	0.54	0.54		0.32	0.32		0.22	0.22		0.29	0.29	0.45
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	283	2466		99	1764		282	307		217	519	580
v/s Ratio Prot	c0.14	0.31			0.26			0.01			0.03	0.09
v/s Ratio Perm	c0.32			0.10			0.03			c0.16		0.15
v/c Ratio	0.84	0.57		0.32	0.83		0.12	0.06		0.56	0.09	0.53
Uniform Delay, d1	33.1	18.3		31.1	37.9		37.3	36.8		36.3	31.3	23.9
Progression Factor	1.00	1.00		0.66	0.64		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.9	1.0		7.4	4.1		0.2	0.1		3.1	0.1	0.9
Delay (s)	52.0	19.3		27.9	28.3		37.5	36.9		39.4	31.4	24.7
Level of Service	D	B		C	C		D	D		D	C	C
Approach Delay (s)		24.0			28.3			37.2			28.7	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay		26.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			24.4				
Intersection Capacity Utilization		95.6%			ICU Level of Service			F				
Analysis Period (min)		15										
c	Critical Lane Group											

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00			0.98			0.99	
Frt				0.994			0.850				0.969	
Flt Protected	0.950			0.950							0.963	
Satd. Flow (prot)	1685	4580	0	1685	4488	0	1773	1565	0	0	1736	0
Flt Permitted	0.123			0.143							0.775	
Satd. Flow (perm)	218	4580	0	253	4488	0	1773	1565	0	0	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9			80			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔↔			
Traffic Volume (vph)	33	1400	2	1446	0	99	0			
Future Volume (vph)	33	1400	2	1446	0	99	0			
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA			
Protected Phases		2		6	8		8	3	4	7
Permitted Phases	2		6			8				
Detector Phase	2	2	6	6	8	8	8			
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	20.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	5.0	34.4	5.0
Total Split (s)	75.0	75.0	75.0	75.0	40.0	40.0	40.0	5.0	40.0	5.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	33.3%	33.3%	33.3%	4%	33%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	3.3	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	0.0	5.1	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4			
Lead/Lag					Lag	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	Min	None	Min
Act Effect Green (s)	79.4	79.4	79.4	79.4	21.1	21.1	21.1			
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18	0.18	0.18			
v/c Ratio	0.24	0.48	0.01	0.53	0.01	0.48	0.48			
Control Delay	7.9	5.9	6.0	7.2	0.0	36.7	36.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	7.9	5.9	6.0	7.2	0.0	36.7	36.7			
LOS	A	A	A	A	A	D	D			
Approach Delay		5.9		7.2		36.7				
Approach LOS		A		A		D				

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 7.8

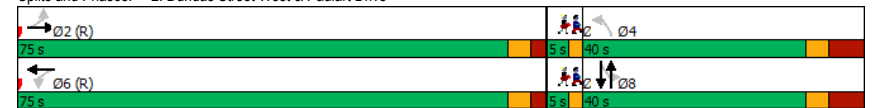
Intersection LOS: A

Intersection Capacity Utilization 56.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	34	1458	2	1569	2	134
v/c Ratio	0.24	0.48	0.01	0.53	0.01	0.48
Control Delay	7.9	5.9	6.0	7.2	0.0	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	5.9	6.0	7.2	0.0	36.7
Queue Length 50th (m)	1.7	29.8	0.1	38.3	0.0	20.4
Queue Length 95th (m)	m2.3	22.6	m0.2	39.0	0.0	41.1
Internal Link Dist (m)		35.5		188.9	41.5	47.8
Turn Bay Length (m)	30.0		45.0			
Base Capacity (vph)	144	3029	167	2971	483	407
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.48	0.01	0.53	0.00	0.33
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	33	1400	0	2	1446	60	0	0	2	99	0	30
Future Volume (vph)	33	1400	0	2	1446	60	0	0	2	99	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4				7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00				1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		0.98				1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00				0.99	
Flt	1.00	1.00		1.00	0.99		0.85				0.97	
Flt Protected	0.95	1.00		0.95	1.00		1.00				0.96	
Satd. Flow (prot)	1683	4580		1679	4488		1565				1724	
Flt Permitted	0.12	1.00		0.14	1.00		1.00				0.77	
Satd. Flow (perm)	218	4580		252	4488		1565				1387	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	1458	0	2	1506	62	0	0	2	103	0	31
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	35	0
Lane Group Flow (vph)	34	1458	0	2	1566	0	0	0	0	0	99	0
Confl. Peds. (#/hr)	6		12	12		6	1		6	6		1
Heavy Vehicles (%)	0%	12%	0%	0%	14%	0%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	78.4	78.4		78.4	78.4			20.1			20.1	
Effective Green, g (s)	79.4	79.4		79.4	79.4			21.1			21.1	
Actuated g/C Ratio	0.66	0.66		0.66	0.66			0.18			0.18	
Clearance Time (s)	5.6	5.6		5.6	5.6			8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	144	3030		166	2969			275			243	
v/s Ratio Prot		0.32			c0.35			0.00				
v/s Ratio Perm	0.16			0.01							c0.07	
v/c Ratio	0.24	0.48		0.01	0.53			0.00			0.41	
Uniform Delay, d1	8.1	10.1		6.9	10.5			40.8			43.9	
Progression Factor	0.50	0.53		0.84	0.62			1.00			1.00	
Incremental Delay, d2	3.3	0.5		0.1	0.6			0.0			1.1	
Delay (s)	7.3	5.8		5.9	7.1			40.8			45.0	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		5.8			7.1			40.8			45.0	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay		8.1			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		56.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.994				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4618	0	0	5644	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4618	0	0	5644	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1412	6	0	1437	62	0	0	7	0	0	47
Future Volume (Veh/h)	0	1412	6	0	1437	62	0	0	7	0	0	47
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1456	6	0	1481	64	0	0	7	0	0	48
Pedestrians									15			176
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									1			14
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.91			0.80			0.85	0.85	0.80	0.85	0.85	0.91
vC, conflicting volume	1721			1477			1892	3195	503	2181	3166	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1273			723			502	2039	0	843	2005	11
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	94
cM capacity (veh/h)	420			692			315	40	862	163	42	833
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	582	582	297	423	423	423	276	7	48			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	6	0	0	0	64	7	48			
cSH	1700	1700	1700	1700	1700	1700	1700	862	833			
Volume to Capacity	0.34	0.34	0.17	0.25	0.25	0.25	0.16	0.01	0.06			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	9.6			
Lane LOS								A	A			
Approach Delay (s)	0.0			0.0				9.2	9.6			
Approach LOS								A	A			
Intersection Summary												
Average Delay				0.2								
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.910									0.988	
Flt Protected		0.984						0.998				
Satd. Flow (prot)	0	1682	0	0	1879	0	0	1875	0	0	1856	0
Flt Permitted		0.984						0.998				
Satd. Flow (perm)	0	1682	0	0	1879	0	0	1875	0	0	1856	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	2	0	5	0	0	0	2	59	0	0	49	5
Future Volume (Veh/h)	2	0	5	0	0	0	2	59	0	0	49	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	6	0	0	0	3	77	0	0	64	6
Pedestrians		8			2			1			1	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	159	160	76	159	163	80	78			79		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	159	160	76	159	163	80	78			79		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	799	728	984	798	726	983	1523			1529		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	0	80	70								
Volume Left	3	0	3	0								
Volume Right	6	0	0	6								
cSH	913	1700	1523	1529								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (m)	0.2	0.0	0.0	0.0								
Control Delay (s)	9.0	0.0	0.3	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	9.0	0.0	0.3	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			16.0%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics
5: Paulart Drive & East Site driveway

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt					0.877			0.997				
Flt Protected					0.995			0.994			0.997	
Satd. Flow (prot)	0	1879	0	0	1640	0	0	1862	0	0	1806	0
Flt Permitted					0.995			0.994			0.997	
Satd. Flow (perm)	0	1879	0	0	1640	0	0	1862	0	0	1806	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
5: Paulart Drive & East Site driveway

Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	0	1	0	7	12	81	2	8	116	0
Future Volume (Veh/h)	0	0	0	1	0	7	12	81	2	8	116	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	0	0	0	1	0	10	17	114	3	11	163	0
Pedestrians		1			5							
Lane Width (m)		3.5			3.5							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	346	342	164	340	340	120	164			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	346	342	164	340	340	120	164			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	99			99		
cM capacity (veh/h)	594	569	885	604	570	933	1426			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	11	134	174								
Volume Left	0	1	17	11								
Volume Right	0	10	3	0								
cSH	1700	889	1426	1472								
Volume to Capacity	0.00	0.01	0.01	0.01								
Queue Length 95th (m)	0.0	0.3	0.3	0.2								
Control Delay (s)	0.0	9.1	1.0	0.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.0	9.1	1.0	0.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay				1.0								
Intersection Capacity Utilization			18.9%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Frt Protected						
Satd. Flow (prot)	0	4621	5720	0	1879	0
Frt Permitted						
Satd. Flow (perm)	0	4621	5720	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Background Conditions 2030

Morning Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↘			
Traffic Volume (veh/h)	0	1413	1494	0	0	0		
Future Volume (Veh/h)	0	1413	1494	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	0	1457	1540	0	0	0		
Pedestrians		1	1		8			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		1			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.85				0.89	0.85		
vC, conflicting volume	1548				2035	394		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	768				352	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	100		
cM capacity (veh/h)	723				553	922		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	486	486	486	440	440	440	220	0
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.29	0.29	0.26	0.26	0.26	0.13	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A
Approach Delay (s)	0.0			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			30.6%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99			1.00		0.96	0.98		0.98	0.99	
Frt		0.972			0.994			0.906			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	4435	0	1638	4516	0	1332	1427	0	1623	1742	0
Flt Permitted	0.166			0.106			0.646			0.615		
Satd. Flow (perm)	304	4435	0	183	4516	0	871	1427	0	1029	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			9			69			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	42	1124	164	1334	122	54	52	110		
Future Volume (vph)	42	1124	164	1334	122	54	52	110		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	6.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	56.0	56.0	19.0	75.0	40.0	40.0	40.0	40.0	5.0	5.0
Total Split (%)	46.7%	46.7%	15.8%	62.5%	33.3%	33.3%	33.3%	33.3%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	60.7	60.7	78.5	76.9	23.3	23.3	23.3	23.3		
Actuated g/C Ratio	0.51	0.51	0.65	0.64	0.19	0.19	0.19	0.19		
v/c Ratio	0.29	0.65	0.62	0.51	0.77	0.46	0.28	0.41		
Control Delay	14.3	11.3	24.5	12.9	72.8	26.0	41.9	41.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	14.3	11.3	24.5	12.9	72.8	26.0	41.9	41.6		
LOS	B	B	C	B	E	C	D	D		
Approach Delay		11.4		14.2		47.5		41.6		
Approach LOS		B		B		D		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.1

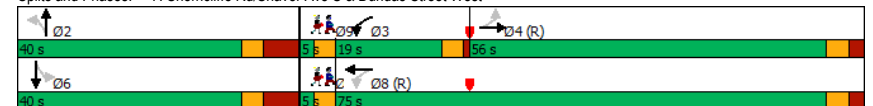
Intersection LOS: B

Intersection Capacity Utilization 84.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1466	174	1478	130	153	55	140
v/c Ratio	0.29	0.65	0.62	0.51	0.77	0.46	0.28	0.41
Control Delay	14.3	11.3	24.5	12.9	72.8	26.0	41.9	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	11.3	24.5	12.9	72.8	26.0	41.9	41.6
Queue Length 50th (m)	4.2	48.1	15.8	67.7	30.7	17.9	11.7	28.7
Queue Length 95th (m)	m9.7	98.2	41.4	90.9	50.1	35.6	22.3	44.3
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	153	2270	314	2898	236	437	279	479
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.65	0.55	0.51	0.55	0.35	0.20	0.29
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	42	1124	254	164	1334	55	122	54	90	52	110	22
Future Volume (vph)	42	1124	254	164	1334	55	122	54	90	52	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.96	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	4437		1638	4516		1282	1427		1590	1743	
Flt Permitted	0.17	1.00		0.11	1.00		0.65	1.00		0.61	1.00	
Satd. Flow (perm)	303	4437		182	4516		872	1427		1029	1743	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	1196	270	174	1419	59	130	57	96	55	117	23
RTOR Reduction (vph)	0	26	0	0	3	0	0	56	0	0	6	0
Lane Group Flow (vph)	45	1440	0	174	1475	0	130	97	0	55	134	0
Confl. Peds. (#/hr)	21		13	13		21	40		22	22		40
Heavy Vehicles (%)	2%	11%	15%	9%	13%	2%	34%	9%	21%	10%	4%	5%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	59.7	59.7		75.9	75.9		22.3	22.3		22.3	22.3	
Effective Green, g (s)	60.7	60.7		76.9	76.9		23.3	23.3		23.3	23.3	
Actuated g/C Ratio	0.51	0.51		0.64	0.64		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	153	2244		276	2894		169	277		199	338	
v/s Ratio Prot		0.32		c0.07	0.33			0.07			0.08	
v/s Ratio Perm	0.15			c0.33			c0.15			0.05		
v/c Ratio	0.29	0.64		0.63	0.51		0.77	0.35		0.28	0.40	
Uniform Delay, d1	17.2	21.7		14.5	11.5		45.8	41.8		41.2	42.2	
Progression Factor	0.43	0.44		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	1.3		4.6	0.6		18.8	0.8		0.8	0.8	
Delay (s)	11.7	10.9		19.1	12.1		64.6	42.6		41.9	43.0	
Level of Service	B	B		B	B		E	D		D	D	
Approach Delay (s)		10.9			12.9			52.7			42.7	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		16.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		84.0%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.88		0.77		0.97
Frt		0.998			0.971			0.937				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1491	4610	0	1636	5729	0	1652	1549	0	1604	1879	1346
Flt Permitted	0.095			0.183			0.721			0.665		
Satd. Flow (perm)	149	4610	0	309	5729	0	1230	1549	0	867	1879	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			49			30				92
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	324	1287	33	1184	177	79	219	52	497		
Future Volume (vph)	324	1287	33	1184	177	79	219	52	497		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	32.6	73.0	40.4	40.4	42.0	42.0	42.0	42.0	32.6	5.0	5.0
Total Split (%)	27.2%	60.8%	33.7%	33.7%	35.0%	35.0%	35.0%	35.0%	27.2%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	65.6	66.8	34.5	34.5	33.2	33.2	33.2	33.2	59.5		
Actuated g/C Ratio	0.55	0.56	0.29	0.29	0.28	0.28	0.28	0.28	0.50		
v/c Ratio	0.96	0.54	0.39	0.93	0.55	0.32	0.97	0.11	0.75		
Control Delay	72.8	17.8	37.0	38.7	44.4	29.4	96.1	33.2	24.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	72.8	17.8	37.0	38.7	44.4	29.4	96.1	33.2	24.2		
LOS	E	B	D	D	D	C	F	C	C		
Approach Delay		28.8		38.6		37.9		45.3			
Approach LOS		C		D		D		D			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 36.0

Intersection LOS: D

Intersection Capacity Utilization 127.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	345	1384	35	1557	188	145	233	55	529
v/c Ratio	0.96	0.54	0.39	0.93	0.55	0.32	0.97	0.11	0.75
Control Delay	72.8	17.8	37.0	38.7	44.4	29.4	96.1	33.2	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	17.8	37.0	38.7	44.4	29.4	96.1	33.2	24.2
Queue Length 50th (m)	71.2	75.7	5.4	88.8	39.8	22.4	57.2	10.2	72.8
Queue Length 95th (m)	#131.6	89.3	m9.1	#100.2	65.5	41.3	#110.4	21.0	114.3
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	363	2567	89	1679	340	450	239	519	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.54	0.39	0.93	0.55	0.32	0.97	0.11	0.75

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	324	1287	14	33	1184	279	177	79	57	219	52	497
Future Volume (vph)	324	1287	14	33	1184	279	177	79	57	219	52	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.88		1.00	1.00	0.98
Frbp, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00		0.77	1.00	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	4611		1606	5731		1621	1549		1238	1879	1321
Flt Permitted	0.10	1.00		0.18	1.00		0.72	1.00		0.66	1.00	1.00
Satd. Flow (perm)	150	4611		310	5731		1230	1549		866	1879	1321
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	345	1369	15	35	1260	297	188	84	61	233	55	529
RTOR Reduction (vph)	0	1	0	0	35	0	0	22	0	0	0	47
Lane Group Flow (vph)	345	1383	0	35	1522	0	188	123	0	233	55	482
Confl. Peds. (#/hr)	18		62	62		18	18		248	248		18
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	13%	11%	0%	3%	10%	4%	2%	0%	0%	5%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	65.8	65.8		33.5	33.5		32.2	32.2		32.2	32.2	56.1
Effective Green, g (s)	66.8	66.8		34.5	34.5		33.2	33.2		33.2	33.2	58.1
Actuated g/C Ratio	0.56	0.56		0.29	0.29		0.28	0.28		0.28	0.28	0.48
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	361	2566		89	1647		340	428		239	519	639
v/s Ratio Prot	c0.20	0.30			0.27			0.08			0.03	0.16
v/s Ratio Perm	c0.33			0.11			0.15			c0.27		0.21
v/c Ratio	0.96	0.54		0.39	0.92		0.55	0.29		0.97	0.11	0.75
Uniform Delay, d1	36.1	16.8		34.3	41.5		37.1	34.1		43.0	32.3	25.1
Progression Factor	1.00	1.00		0.67	0.71		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.5	0.8		11.5	9.6		1.9	0.4		50.7	0.1	5.0
Delay (s)	71.7	17.7		34.6	38.8		39.0	34.5		93.7	32.4	30.2
Level of Service	E	B		C	D		D	C		F	C	C
Approach Delay (s)		28.4			38.8			37.0			48.4	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	36.4	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)	24.4
Intersection Capacity Utilization	127.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		1.00	0.99	0.99				0.99
Frt				0.998				0.900				0.956
Flt Protected	0.950			0.950			0.950					0.969
Satd. Flow (prot)	1685	4663	0	1491	4697	0	842	1674	0	0	1627	0
Flt Permitted	0.122			0.117			0.800				0.807	
Satd. Flow (perm)	216	4663	0	183	4697	0	706	1674	0	0	1352	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)				3			4				19	
Link Speed (k/h)		50			50		50				50	
Link Distance (m)		59.5		212.9			65.5				71.8	
Travel Time (s)		4.3		15.3			4.7				5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔↔		
Traffic Volume (vph)	56	1505	8	1457	1	2	35	2		
Future Volume (vph)	56	1505	8	1457	1	2	35	2		
Turn Type	Perm	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases		2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	75.0	75.0	75.0	75.0	40.0	40.0	40.0	40.0	5.0	5.0
Total Split (%)	62.5%	62.5%	62.5%	62.5%	33.3%	33.3%	33.3%	33.3%	4%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4	7.4		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	85.7	85.7	85.7	85.7	21.0	21.0	21.0	21.0		
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.18	0.18	0.18	0.18		
v/c Ratio	0.39	0.48	0.07	0.47	0.01	0.02	0.23	0.23		
Control Delay	14.2	5.6	6.9	7.2	41.0	29.5	33.1	33.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	14.2	5.6	6.9	7.2	41.0	29.5	33.1	33.1		
LOS	B	A	A	A	D	C	C	C		
Approach Delay		6.0		7.2		31.1		33.1		
Approach LOS		A		A		C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 7.1

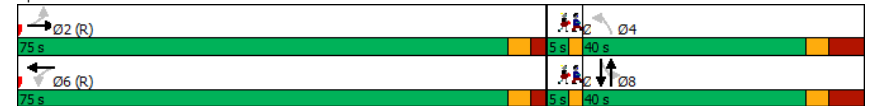
Intersection LOS: A

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	60	1602	9	1573	1	6	58
v/c Ratio	0.39	0.48	0.07	0.47	0.01	0.02	0.23
Control Delay	14.2	5.6	6.9	7.2	41.0	29.5	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	5.6	6.9	7.2	41.0	29.5	33.1
Queue Length 50th (m)	3.2	33.1	0.6	53.3	0.2	0.4	8.3
Queue Length 95th (m)	m9.1	m97.2	m1.5	41.3	1.9	4.4	21.2
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	154	3329	130	3354	191	457	381
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.48	0.07	0.47	0.01	0.01	0.15
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	56	1505	1	8	1457	22	1	2	4	35	2	18
Future Volume (vph)	56	1505	1	8	1457	22	1	2	4	35	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00				
Frt	1.00	1.00		1.00	1.00		1.00	0.90				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1677	4663		1485	4696		838	1674				
Flt Permitted	0.12	1.00		0.12	1.00		0.80	1.00				
Satd. Flow (perm)	216	4663		183	4696		706	1674				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	1601	1	9	1550	23	1	2	4	37	2	19
RTOR Reduction (vph)	0	0	0	0	1	0	0	3	0	0	16	0
Lane Group Flow (vph)	60	1602	0	9	1572	0	1	3	0	0	42	0
Confl. Peds. (#/hr)	22		21	21		22	4		2	2		4
Heavy Vehicles (%)	0%	10%	0%	13%	9%	0%	100%	0%	0%	10%	0%	0%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	78.0	78.0		78.0	78.0		4.0	21.0			21.0	
Effective Green, g (s)	79.0	79.0		79.0	79.0		5.0	22.0			22.0	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.04	0.18			0.18	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	142	3069		120	3091		29	306			248	
v/s Ratio Prot		c0.34			0.33			0.00				
v/s Ratio Perm	0.28			0.05			0.00				c0.03	
v/c Ratio	0.42	0.52		0.07	0.51		0.03	0.01			0.17	
Uniform Delay, d1	9.7	10.7		7.4	10.5		55.2	40.1			41.3	
Progression Factor	0.77	0.60		0.81	0.78		1.00	1.00			1.00	
Incremental Delay, d2	7.4	0.5		1.2	0.6		0.5	0.0			0.3	
Delay (s)	14.8	6.9		7.1	8.8		55.7	40.1			41.6	
Level of Service	B	A		A	A		E	D			D	
Approach Delay (s)		7.2			8.8			42.3			41.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay				8.6			HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio				0.43								
Actuated Cycle Length (s)				120.0			Sum of lost time (s)			15.0		
Intersection Capacity Utilization				73.8%			ICU Level of Service			D		
Analysis Period (min)				15								
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4703	0	0	5962	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4703	0	0	5962	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1566	8	0	1523	26	0	0	15	0	0	39
Future Volume (Veh/h)	0	1566	8	0	1523	26	0	0	15	0	0	39
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1666	9	0	1620	28	0	0	16	0	0	41
Pedestrians									21		245	
Lane Width (m)									3.5		3.5	
Walking Speed (m/s)									1.2		1.2	
Percent Blockage									2		20	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.89			0.81			0.87	0.87	0.81	0.87	0.87	0.89
vC, conflicting volume	1893			1696			2138	3584	581	2450	3575	664
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1383			1057			735	2399	0	1094	2388	1
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	95
cM capacity (veh/h)	350			524			208	23	873	96	23	770
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	666	666	342	463	463	463	259	16	41			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	9	0	0	0	28	16	41			
cSH	1700	1700	1700	1700	1700	1700	1700	873	770			
Volume to Capacity	0.39	0.39	0.20	0.27	0.27	0.27	0.15	0.02	0.05			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	9.9			
Lane LOS								A	A			
Approach Delay (s)	0.0			0.0				9.2	9.9			
Approach LOS								A	A			
Intersection Summary												
Average Delay				0.2								
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.889										
Flt Protected		0.991										
Satd. Flow (prot)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	0	12	0	0	0	0	25	0	0	27	0
Future Volume (Veh/h)	3	0	12	0	0	0	0	25	0	0	27	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	0	14	0	0	0	0	28	0	0	31	0
Pedestrians		16			7			6			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	77	82	53	86	82	37	47			35		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	77	82	53	86	82	37	47			35		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	891	797	1002	870	797	1033	1553			1580		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	0	28	31								
Volume Left	3	0	0	0								
Volume Right	14	0	0	0								
cSH	980	1700	1700	1580								
Volume to Capacity	0.02	0.00	0.02	0.00								
Queue Length 95th (m)	0.4	0.0	0.0	0.0								
Control Delay (s)	8.7	0.0	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	8.7	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			19.3%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.865			0.865			0.995			0.998	
Flt Protected								0.998			0.997	
Satd. Flow (prot)	0	1625	0	0	1625	0	0	1866	0	0	1803	0
Flt Permitted								0.998			0.997	
Satd. Flow (perm)	0	1625	0	0	1625	0	0	1866	0	0	1803	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	4	0	0	3	4	76	3	3	51	1
Future Volume (Veh/h)	0	0	4	0	0	3	4	76	3	3	51	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	5	0	0	4	5	95	4	4	64	1
Pedestrians		6			7						2	
Lane Width (m)		3.5			3.5						3.5	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (m)							72					
pX, platoon unblocked												
vC, conflicting volume	192	194	70	192	193	106	71			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	194	70	192	193	106	71			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	755	693	993	755	694	947	1535			1489		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	4	104	69								
Volume Left	0	0	5	4								
Volume Right	5	4	4	1								
cSH	993	947	1535	1489								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (m)	0.1	0.1	0.1	0.1								
Control Delay (s)	8.6	8.8	0.4	0.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.6	8.8	0.4	0.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			17.8%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.91	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt					0.876	
Frt Protected					0.996	
Satd. Flow (prot)	0	4707	5930	0	1639	0
Frt Permitted					0.996	
Satd. Flow (perm)	0	4707	5930	0	1639	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Background Conditions 2030

Afternoon Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	6	1563	1489	1	2	21		
Future Volume (Veh/h)	6	1563	1489	1	2	21		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	6	1681	1601	1	2	23		
Pedestrians		1	1		24			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		2			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.85				0.90	0.85		
vC, conflicting volume	1626				2199	426		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	860				570	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				99	97		
cM capacity (veh/h)	659				398	910		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	342	672	672	457	457	457	230	25
Volume Left	6	0	0	0	0	0	0	2
Volume Right	0	0	0	0	0	0	1	23
cSH	659	1700	1700	1700	1700	1700	1700	825
Volume to Capacity	0.01	0.40	0.40	0.27	0.27	0.27	0.14	0.03
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Control Delay (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS	A							A
Approach Delay (s)	0.1			0.0				9.5
Approach LOS								A
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			44.3%			ICU Level of Service		A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.99		0.98	0.94		0.96	0.99	
Frt		0.978			0.992			0.909			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	4589	0	1700	4698	0	1684	1568	0	1750	1803	0
Flt Permitted	0.276			0.092			0.672			0.252		
Satd. Flow (perm)	504	4589	0	165	4698	0	1168	1568	0	447	1803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			11			66			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	56	1158	218	896	245	143	52	99		
Future Volume (vph)	56	1158	218	896	245	143	52	99		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	5.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	52.0	52.0	19.0	71.0	44.0	44.0	44.0	44.0	5.0	5.0
Total Split (%)	43.3%	43.3%	15.8%	59.2%	36.7%	36.7%	36.7%	36.7%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	0.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	2.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	51.9	51.9	72.2	69.6	31.3	31.3	31.3	31.3		
Actuated g/C Ratio	0.43	0.43	0.60	0.58	0.26	0.26	0.26	0.26		
v/c Ratio	0.27	0.72	0.76	0.36	0.85	0.84	0.47	0.28		
Control Delay	13.6	15.7	40.9	14.2	66.0	50.6	50.0	32.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	13.6	15.7	40.9	14.2	66.0	50.6	50.0	32.2		
LOS	B	B	D	B	E	D	D	C		
Approach Delay		15.6		19.2		56.8		37.4		
Approach LOS		B		B		E		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 25.4

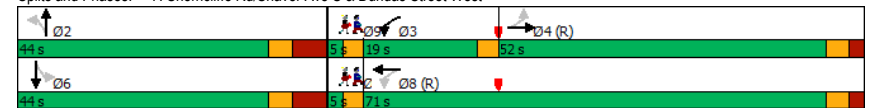
Intersection LOS: C

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	1434	229	994	258	383	55	133
v/c Ratio	0.27	0.72	0.76	0.36	0.85	0.84	0.47	0.28
Control Delay	13.6	15.7	40.9	14.2	66.0	50.6	50.0	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	15.7	40.9	14.2	66.0	50.6	50.0	32.2
Queue Length 50th (m)	5.4	118.2	34.8	48.0	59.6	74.4	11.3	23.4
Queue Length 95th (m)	6.2	29.9	#70.2	58.4	#95.4	109.4	25.1	39.0
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	219	2011	319	2730	356	524	136	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.71	0.72	0.36	0.72	0.73	0.40	0.24

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	56	1158	204	218	896	48	245	143	220	52	99	28
Future Volume (vph)	56	1158	204	218	896	48	245	143	220	52	99	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		2.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.98	1.00		0.96	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	4587		1700	4699		1651	1568		1688	1804	
Flt Permitted	0.28	1.00		0.09	1.00		0.67	1.00		0.25	1.00	
Satd. Flow (perm)	504	4587		164	4699		1168	1568		447	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	1219	215	229	943	51	258	151	232	55	104	29
RTOR Reduction (vph)	0	19	0	0	5	0	0	49	0	0	9	0
Lane Group Flow (vph)	59	1415	0	229	989	0	258	334	0	55	124	0
Confl. Peds. (#/hr)	41		67	67		41	20		71	71		20
Heavy Vehicles (%)	0%	6%	15%	5%	8%	0%	6%	1%	4%	2%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.9	50.9		68.6	68.6		30.3	30.3		30.3	30.3	
Effective Green, g (s)	51.9	51.9		69.6	69.6		31.3	31.3		31.3	31.3	
Actuated g/C Ratio	0.43	0.43		0.58	0.58		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.6	5.6		3.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	217	1983		296	2725		304	408		116	470	
v/s Ratio Prot		c0.31		c0.10	0.21			0.21			0.07	
v/s Ratio Perm	0.12			0.35			c0.22			0.12		
v/c Ratio	0.27	0.71		0.77	0.36		0.85	0.82		0.47	0.26	
Uniform Delay, d1	21.9	27.9		27.3	13.4		42.1	41.7		37.4	35.2	
Progression Factor	0.42	0.48		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	2.0		11.9	0.4		19.3	12.1		3.0	0.3	
Delay (s)	12.0	15.4		39.2	13.8		61.4	53.8		40.4	35.5	
Level of Service	B	B		D	B		E	D		D	D	
Approach Delay (s)		15.2			18.5			56.8			37.0	
Approach LOS		B			B			E			D	

Intersection Summary

HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.0	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		0.99	0.85		0.81		0.98
Frt		0.994			0.979			0.893				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1440	4560	0	1685	5556	0	1685	1386	0	1532	1807	1311
Flt Permitted	0.088			0.173			0.725			0.563		
Satd. Flow (perm)	133	4560	0	306	5556	0	1275	1386	0	732	1807	1283
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			35			27				85
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	225	1312	30	1261	31	10	118	47	336		
Future Volume (vph)	225	1312	30	1261	31	10	118	47	336		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	29.2	73.2	44.0	44.0	41.8	41.8	41.8	41.8	29.2	5.0	5.0
Total Split (%)	24.3%	61.0%	36.7%	36.7%	34.8%	34.8%	34.8%	34.8%	24.3%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	65.7	66.9	40.3	40.3	33.0	33.0	32.6	32.6	53.2		
Actuated g/C Ratio	0.55	0.56	0.34	0.34	0.28	0.28	0.27	0.27	0.44		
v/c Ratio	0.84	0.56	0.31	0.81	0.09	0.10	0.62	0.10	0.57		
Control Delay	55.2	18.1	29.3	27.6	33.5	16.1	53.7	33.2	18.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	55.2	18.1	29.3	27.6	33.5	16.1	53.7	33.2	18.3		
LOS	E	B	C	C	C	B	D	C	B		
Approach Delay		23.4		27.7		24.2		28.0			
Approach LOS		C		C		C		C			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 25.8

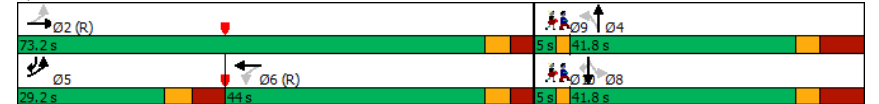
Intersection LOS: C

Intersection Capacity Utilization 95.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	237	1437	32	1538	33	38	124	49	354
v/c Ratio	0.84	0.56	0.31	0.81	0.09	0.10	0.62	0.10	0.57
Control Delay	55.2	18.1	29.3	27.6	33.5	16.1	53.7	33.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	18.1	29.3	27.6	33.5	16.1	53.7	33.2	18.3
Queue Length 50th (m)	42.5	79.8	4.1	104.3	6.1	2.0	26.9	9.1	39.7
Queue Length 95th (m)	#81.5	93.9	m7.7	74.6	14.8	10.9	#50.5	19.2	66.0
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	310	2549	102	1888	350	400	201	496	647
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.56	0.31	0.81	0.09	0.10	0.62	0.10	0.55
Intersection Summary									
#	95th percentile volume exceeds capacity, queue may be longer.								
	Queue shown is maximum after two cycles.								
m	Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	225	1312	53	30	1261	200	31	10	26	118	47	336
Future Volume (vph)	225	1312	53	30	1261	200	31	10	26	118	47	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.85		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.83	1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1440	4561		1679	5559		1671	1387		1273	1807	1293
Flt Permitted	0.09	1.00		0.17	1.00		0.73	1.00		0.56	1.00	1.00
Satd. Flow (perm)	133	4561		306	5559		1275	1387		754	1807	1293
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	1381	56	32	1327	211	33	11	27	124	49	354
RTOR Reduction (vph)	0	4	0	0	24	0	0	21	0	0	0	47
Lane Group Flow (vph)	237	1433	0	32	1514	0	33	17	0	124	49	307
Confl. Peds. (#/hr)	6		13	13		6	8		181	181		8
Heavy Vehicles (%)	17%	12%	2%	0%	14%	11%	0%	0%	4%	10%	4%	15%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	63.9	63.9		37.3	37.3		25.6	25.6		33.6	33.6	51.8
Effective Green, g (s)	64.9	64.9		38.3	38.3		26.6	26.6		34.6	34.6	53.8
Actuated g/C Ratio	0.54	0.54		0.32	0.32		0.22	0.22		0.29	0.29	0.45
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	281	2466		97	1774		282	307		217	521	579
v/s Ratio Prot	c0.13	0.31			0.27			0.01			0.03	0.08
v/s Ratio Perm	c0.32			0.10			0.03			c0.16		0.15
v/c Ratio	0.84	0.58		0.33	0.85		0.12	0.06		0.57	0.09	0.53
Uniform Delay, d1	33.4	18.4		31.1	38.2		37.3	36.8		36.4	31.2	24.0
Progression Factor	1.00	1.00		0.66	0.66		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.0	1.0		7.9	4.9		0.2	0.1		3.6	0.1	0.9
Delay (s)	53.4	19.5		28.4	30.1		37.5	36.9		40.0	31.3	24.9
Level of Service	D	B		C	C		D	D		D	C	C
Approach Delay (s)		24.3			30.1			37.2			29.0	
Approach LOS		C			C			D			C	
Intersection Summary												
HCM 2000 Control Delay		27.5			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			24.4				
Intersection Capacity Utilization		95.9%			ICU Level of Service			F				
Analysis Period (min)		15										
c	Critical Lane Group											

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			1.00	1.00			0.98			0.99	
Frt					0.994			0.850			0.973	
Flt Protected	0.950			0.950							0.962	
Satd. Flow (prot)	1685	4580	0	1685	4489	0	1773	1565	0	0	1743	0
Flt Permitted	0.122			0.142							0.768	
Satd. Flow (perm)	216	4580	0	251	4489	0	1773	1565	0	0	1383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			87			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	Ø3	Ø4	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔		↔↔			
Traffic Volume (vph)	52	1400	2	1446	0	117	0			
Future Volume (vph)	52	1400	2	1446	0	117	0			
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA			
Protected Phases		2		6	8		8	3	4	7
Permitted Phases	2		6			8				
Detector Phase	2	2	6	6	8	8	8			
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	20.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	5.0	34.4	5.0
Total Split (s)	80.4	80.4	80.4	80.4	34.6	34.6	34.6	5.0	34.6	5.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	28.8%	28.8%	28.8%	4%	29%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	3.3	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	0.0	5.1	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4			
Lead/Lag					Lag	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	Min	None	Min
Act Effect Green (s)	78.9	78.9	78.9	78.9	21.6	21.6	21.6			
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18	0.18	0.18			
v/c Ratio	0.38	0.48	0.01	0.53	0.01	0.54	0.54			
Control Delay	12.1	5.6	5.0	6.3	0.0	39.8	39.8			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay	12.1	5.6	5.0	6.3	0.0	39.8	39.8			
LOS	B	A	A	A	A	D	D			
Approach Delay		5.8		6.3		39.8				
Approach LOS		A		A		D				

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 7.7

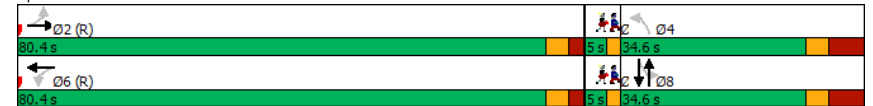
Intersection LOS: A

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive









Queues

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Morning Peak Hour

						
Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	54	1458	2	1574	2	153
v/c Ratio	0.38	0.48	0.01	0.53	0.01	0.54
Control Delay	12.1	5.6	5.0	6.3	0.0	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	5.6	5.0	6.3	0.0	39.8
Queue Length 50th (m)	3.0	30.1	0.1	35.2	0.0	25.2
Queue Length 95th (m)	m2.7	16.4	m0.1	23.4	0.0	46.8
Internal Link Dist (m)		35.5		188.9	41.5	47.8
Turn Bay Length (m)	30.0		45.0			
Base Capacity (vph)	142	3013	165	2956	422	345
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.48	0.01	0.53	0.00	0.44

Intersection Summary





















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

HCM Signalized Intersection Capacity Analysis

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	1400	0	2	1446	65	0	0	2	117	0	30
Future Volume (vph)	52	1400	0	2	1446	65	0	0	2	117	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6			7.4				7.4
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.98				1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00				0.99
Frt	1.00	1.00		1.00	0.99			0.85				0.97
Flt Protected	0.95	1.00		0.95	1.00			1.00				0.96
Satd. Flow (prot)	1683	4580		1679	4487			1565				1731
Flt Permitted	0.12	1.00		0.14	1.00			1.00				0.77
Satd. Flow (perm)	216	4580		251	4487			1565				1383
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	54	1458	0	2	1506	68	0	0	2	122	0	31
RTOR Reduction (vph)	0	0	0	0	4	0	0	2	0	0	34	0
Lane Group Flow (vph)	54	1458	0	2	1570	0	0	0	0	0	119	0
Confl. Peds. (#/hr)	6		12	12		6	1		6	6		1
Heavy Vehicles (%)	0%	12%	0%	0%	14%	0%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.9	77.9		77.9	77.9			20.6			20.6	
Effective Green, g (s)	78.9	78.9		78.9	78.9			21.6			21.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66			0.18			0.18	
Clearance Time (s)	5.6	5.6		5.6	5.6			8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	142	3011		165	2950			281			248	
v/s Ratio Prot		0.32			c0.35			0.00				
v/s Ratio Perm	0.25			0.01							c0.09	
v/c Ratio	0.38	0.48		0.01	0.53			0.00			0.48	
Uniform Delay, d1	9.4	10.3		7.1	10.8			40.4			44.1	
Progression Factor	0.48	0.49		0.61	0.52			1.00			1.00	
Incremental Delay, d2	6.4	0.5		0.1	0.6			0.0			1.5	
Delay (s)	11.0	5.5		4.4	6.3			40.4			45.6	
Level of Service	B	A		A	A			D			D	
Approach Delay (s)		5.7			6.3			40.4			45.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay		7.9			HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)					15.0		
Intersection Capacity Utilization		70.8%			ICU Level of Service					C		
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

3: Dundas Street West & Bellingham Rd

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.994				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4618	0	0	5644	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4618	0	0	5644	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

3: Dundas Street West & Bellingham Rd

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1431	6	0	1437	62	0	0	7	0	0	98
Future Volume (Veh/h)	0	1431	6	0	1437	62	0	0	7	0	0	98
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1475	6	0	1481	64	0	0	7	0	0	101
Pedestrians									15			176
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									1			14
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.90			0.80			0.84	0.84	0.80	0.84	0.84	0.90
vC, conflicting volume	1721			1496			1964	3214	510	2188	3185	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1265			728			557	2037	0	822	2003	1
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	88
cM capacity (veh/h)	422			685			268	40	858	169	42	844
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	590	590	301	423	423	423	276	7	101			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	6	0	0	0	64	7	101			
cSH	1700	1700	1700	1700	1700	1700	1700	858	844			
Volume to Capacity	0.35	0.35	0.18	0.25	0.25	0.25	0.16	0.01	0.12			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.2			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	9.8			
Lane LOS								A	A			
Approach Delay (s)	0.0			0.0				9.2	9.8			
Approach LOS								A	A			
Intersection Summary												
Average Delay				0.3								
Intersection Capacity Utilization				Err%			ICU Level of Service		H			
Analysis Period (min)				15								

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.910			0.972						0.989	
Flt Protected		0.984			0.962			0.998			0.999	
Satd. Flow (prot)	0	1682	0	0	1757	0	0	1875	0	0	1856	0
Flt Permitted		0.984			0.962			0.998			0.999	
Satd. Flow (perm)	0	1682	0	0	1757	0	0	1875	0	0	1856	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	2	0	5	51	0	13	2	59	0	1	49	5
Future Volume (Veh/h)	2	0	5	51	0	13	2	59	0	1	49	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	6	66	0	17	3	77	0	1	64	6
Pedestrians		8			2			1			1	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	178	162	76	161	165	80	78			79		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178	162	76	161	165	80	78			79		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	92	100	98	100			100		
cM capacity (veh/h)	763	726	984	795	723	983	1523			1529		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	83	80	71								
Volume Left	3	66	3	1								
Volume Right	6	17	0	6								
cSH	897	828	1523	1529								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.2	2.7	0.0	0.0								
Control Delay (s)	9.1	9.8	0.3	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.1	9.8	0.3	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			21.2%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.913			0.877			0.998			0.995	
Flt Protected		0.982			0.995			0.985			0.997	
Satd. Flow (prot)	0	1685	0	0	1640	0	0	1847	0	0	1799	0
Flt Permitted		0.982			0.995			0.985			0.997	
Satd. Flow (perm)	0	1685	0	0	1640	0	0	1847	0	0	1799	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	10	0	18	1	0	7	37	81	2	8	116	5
Future Volume (Veh/h)	10	0	18	1	0	7	37	81	2	8	116	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	14	0	25	1	0	10	52	114	3	11	163	7
Pedestrians		1			5							
Lane Width (m)		3.5			3.5							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	419	416	168	438	418	120	171			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	419	416	168	438	418	120	171			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	97	100	100	99	96			99		
cM capacity (veh/h)	522	505	881	496	504	933	1417			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	11	169	181								
Volume Left	14	1	52	11								
Volume Right	25	10	3	7								
cSH	706	863	1417	1472								
Volume to Capacity	0.06	0.01	0.04	0.01								
Queue Length 95th (m)	1.4	0.3	0.9	0.2								
Control Delay (s)	10.4	9.2	2.6	0.5								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.4	9.2	2.6	0.5								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			28.2%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Frt Protected						
Satd. Flow (prot)	0	4621	5720	0	1879	0
Frt Permitted						
Satd. Flow (perm)	0	4621	5720	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Total Conditions 2030

Morning Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	0	1432	1494	0	0	0		
Future Volume (Veh/h)	0	1432	1494	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	0	1476	1540	0	0	0		
Pedestrians		1	1		8			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		1			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.85				0.89	0.85		
vC, conflicting volume	1548				2041	394		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	753				323	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	100		
cM capacity (veh/h)	730				574	919		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	492	492	492	440	440	440	220	0
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.29	0.29	0.26	0.26	0.26	0.13	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A
Approach Delay (s)	0.0			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay	0.0							
Intersection Capacity Utilization	31.0%			ICU Level of Service			A	
Analysis Period (min)	15							

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99			1.00		0.96	0.98		0.98	0.99	
Frt		0.973			0.994			0.906			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	4440	0	1638	4516	0	1332	1427	0	1623	1742	0
Flt Permitted	0.156			0.114			0.646			0.615		
Satd. Flow (perm)	285	4440	0	197	4516	0	871	1427	0	1029	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			9			69			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	42	1139	164	1337	124	54	52	110		
Future Volume (vph)	42	1139	164	1337	124	54	52	110		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	1.0
Minimum Split (s)	27.6	27.6	9.5	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	55.6	55.6	20.0	75.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (%)	46.3%	46.3%	16.7%	63.0%	32.8%	32.8%	32.8%	32.8%	4%	4%
Yellow Time (s)	3.3	3.3	3.5	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.5	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	None
Act Effect Green (s)	66.8	66.8	85.8	76.9	23.3	23.3	23.3	23.3		
Actuated g/C Ratio	0.56	0.56	0.72	0.64	0.19	0.19	0.19	0.19		
v/c Ratio	0.28	0.60	0.56	0.51	0.78	0.46	0.28	0.41		
Control Delay	13.5	9.6	17.4	12.9	74.1	26.1	41.9	41.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	13.5	9.6	17.4	12.9	74.1	26.1	41.9	41.6		
LOS	B	A	B	B	E	C	D	D		
Approach Delay		9.7		13.4		48.3		41.7		
Approach LOS		A		B		D		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 16.1

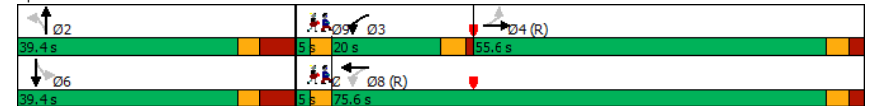
Intersection LOS: B

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1484	174	1481	132	153	55	140
v/c Ratio	0.28	0.60	0.56	0.51	0.78	0.46	0.28	0.41
Control Delay	13.5	9.6	17.4	12.9	74.1	26.1	41.9	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	9.6	17.4	12.9	74.1	26.1	41.9	41.6
Queue Length 50th (m)	1.9	38.9	12.5	68.4	31.1	17.9	11.6	28.6
Queue Length 95th (m)	m9.8	31.4	35.8	90.1	51.1	35.9	22.5	44.5
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	158	2493	348	2895	232	431	274	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.60	0.50	0.51	0.57	0.35	0.20	0.30
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	42	1139	256	164	1337	55	124	54	90	52	110	22
Future Volume (vph)	42	1139	256	164	1337	55	124	54	90	52	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.5	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.96	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	4438		1637	4516		1282	1427		1590	1743	
Flt Permitted	0.16	1.00		0.11	1.00		0.65	1.00		0.61	1.00	
Satd. Flow (perm)	285	4438		196	4516		872	1427		1029	1743	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	1212	272	174	1422	59	132	57	96	55	117	23
RTOR Reduction (vph)	0	23	0	0	3	0	0	56	0	0	6	0
Lane Group Flow (vph)	45	1461	0	174	1478	0	132	97	0	55	134	0
Confl. Peds. (#/hr)	21		13	13		21	40		22	22		40
Heavy Vehicles (%)	2%	11%	15%	9%	13%	2%	34%	9%	21%	10%	4%	5%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	65.8	65.8		83.7	75.9		22.3	22.3		22.3	22.3	
Effective Green, g (s)	66.8	66.8		84.7	76.9		23.3	23.3		23.3	23.3	
Actuated g/C Ratio	0.56	0.56		0.71	0.64		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.6	5.6		4.5	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	158	2470		311	2894		169	277		199	338	
v/s Ratio Prot		c0.33		c0.07	0.33			0.07			0.08	
v/s Ratio Perm	0.16			0.33			c0.15			0.05		
v/c Ratio	0.28	0.59		0.56	0.51		0.78	0.35		0.28	0.40	
Uniform Delay, d1	14.0	17.6		11.0	11.5		45.9	41.8		41.2	42.2	
Progression Factor	0.46	0.45		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	0.9		2.2	0.6		20.5	0.8		0.8	0.8	
Delay (s)	10.4	8.9		13.2	12.2		66.4	42.6		41.9	43.0	
Level of Service	B	A		B	B		E	D		D	D	
Approach Delay (s)		8.9			12.3			53.6			42.7	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		15.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.65										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.5				
Intersection Capacity Utilization		84.5%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.88		0.77		0.97
Frt		0.998			0.971			0.938				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1491	4610	0	1636	5729	0	1652	1554	0	1604	1879	1346
Flt Permitted	0.097			0.173			0.720			0.663		
Satd. Flow (perm)	152	4610	0	293	5729	0	1228	1554	0	865	1879	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			49			30				93
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR	Ø9	Ø10
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	324	1339	33	1190	177	81	224	53	497		
Future Volume (vph)	324	1339	33	1190	177	81	224	53	497		
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	pm+ov		
Protected Phases	5	2		6		4		8	5	9	10
Permitted Phases	2		6		4		8		8		
Detector Phase	5	2	6	6	4	4	8	8	5		
Switch Phase											
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	30.0	30.0	6.0	1.0	1.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	41.8	41.8	14.4	5.0	5.0
Total Split (s)	32.4	72.2	39.8	39.8	42.8	42.8	42.8	42.8	32.4	5.0	5.0
Total Split (%)	27.0%	60.2%	33.2%	33.2%	35.7%	35.7%	35.7%	35.7%	27.0%	4%	4%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.4	3.4	3.9	2.0	2.0
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	6.4	6.4	4.5	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	8.8	8.8	7.4		
Lead/Lag	Lead		Lag	Lag					Lead		
Lead-Lag Optimize?	Yes		Yes	Yes					Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	None	Min	Min
Act Effect Green (s)	64.8	66.0	33.8	33.8	34.0	34.0	34.0	34.0	60.2		
Actuated g/C Ratio	0.54	0.55	0.28	0.28	0.28	0.28	0.28	0.28	0.50		
v/c Ratio	0.96	0.57	0.43	0.95	0.54	0.32	0.97	0.11	0.75		
Control Delay	73.3	18.7	40.7	40.3	43.3	29.0	94.2	32.6	23.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	73.3	18.7	40.7	40.3	43.3	29.0	94.2	32.6	23.4		
LOS	E	B	D	D	D	C	F	C	C		
Approach Delay		29.3		40.3		37.0		44.5			
Approach LOS		C		D		D		D			

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 36.5

Intersection LOS: D

Intersection Capacity Utilization 128.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	345	1439	35	1565	188	147	238	56	529
v/c Ratio	0.96	0.57	0.43	0.95	0.54	0.32	0.97	0.11	0.75
Control Delay	73.3	18.7	40.7	40.3	43.3	29.0	94.2	32.6	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	18.7	40.7	40.3	43.3	29.0	94.2	32.6	23.4
Queue Length 50th (m)	71.3	81.6	4.0	78.4	39.5	22.5	58.4	10.3	71.7
Queue Length 95th (m)	#132.1	95.8	m8.8	#127.7	64.9	41.3	#111.6	21.0	112.7
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	361	2536	82	1647	347	461	245	532	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.57	0.43	0.95	0.54	0.32	0.97	0.11	0.75

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	324	1339	14	33	1190	281	177	81	57	224	53	497
Future Volume (vph)	324	1339	14	33	1190	281	177	81	57	224	53	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		8.8	8.8	7.4
Lane Util. Factor	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.88		1.00	1.00	0.98
Frbp, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00		0.77	1.00	1.00
Frt	1.00	1.00		1.00	0.97		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1491	4612		1608	5731		1621	1553		1239	1879	1321
Flt Permitted	0.10	1.00		0.17	1.00		0.72	1.00		0.66	1.00	1.00
Satd. Flow (perm)	152	4612		293	5731		1229	1553		866	1879	1321
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	345	1424	15	35	1266	299	188	86	61	238	56	529
RTOR Reduction (vph)	0	1	0	0	35	0	0	22	0	0	0	47
Lane Group Flow (vph)	345	1438	0	35	1530	0	188	126	0	238	56	482
Confl. Peds. (#/hr)	18		62	62		18	18		248	248		18
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	13%	11%	0%	3%	10%	4%	2%	0%	0%	5%	0%	12%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2			6			4			8	5
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	65.0	65.0		32.8	32.8		33.0	33.0		33.0	33.0	56.8
Effective Green, g (s)	66.0	66.0		33.8	33.8		34.0	34.0		34.0	34.0	58.8
Actuated g/C Ratio	0.55	0.55		0.28	0.28		0.28	0.28		0.28	0.28	0.49
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		9.8	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	360	2536		82	1614		348	440		245	532	647
v/s Ratio Prot	c0.20	0.31			0.27			0.08			0.03	0.15
v/s Ratio Perm	c0.33			0.12			0.15			c0.27		0.21
v/c Ratio	0.96	0.57		0.43	0.95		0.54	0.29		0.97	0.11	0.74
Uniform Delay, d1	36.2	17.7		35.2	42.2		36.4	33.5		42.5	31.8	24.6
Progression Factor	1.00	1.00		0.71	0.68		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	36.1	0.9		13.5	11.7		1.7	0.4		49.2	0.1	4.6
Delay (s)	72.3	18.6		38.3	40.2		38.1	33.9		91.8	31.9	29.2
Level of Service	E	B		D	D		D	C		F	C	C
Approach Delay (s)		29.0			40.2			36.2			47.5	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	36.8	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)	24.4
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99		1.00	0.99	0.99			0.99	
Frt				0.996				0.900			0.961	
Flt Protected	0.950			0.950			0.950				0.967	
Satd. Flow (prot)	1685	4663	0	1491	4687	0	842	1674	0	0	1627	0
Flt Permitted	0.094			0.141			0.800				0.794	
Satd. Flow (perm)	167	4663	0	220	4687	0	706	1674	0	0	1333	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					4			4			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔↔		
Traffic Volume (vph)	116	1503	8	1457	1	2	41	2		
Future Volume (vph)	116	1503	8	1457	1	2	41	2		
Turn Type	pm+pt	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases	5	2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	5	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	9.5	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	20.0	80.0	60.0	60.0	35.0	35.0	35.0	35.0	5.0	5.0
Total Split (%)	16.7%	66.7%	50.0%	50.0%	29.2%	29.2%	29.2%	29.2%	4%	4%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	3.0	4.6	4.6	4.6	7.4	7.4	7.4	7.4		
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	87.0	85.4	72.1	72.1	21.0	21.0	21.0	21.0		
Actuated g/C Ratio	0.72	0.71	0.60	0.60	0.18	0.18		0.18		
v/c Ratio	0.49	0.48	0.07	0.56	0.01	0.02		0.26		
Control Delay	27.8	4.1	12.5	13.6	41.0	29.5		36.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	27.8	4.1	12.5	13.6	41.0	29.5		36.4		
LOS	C	A	B	B	D	C		D		
Approach Delay		5.8		13.6		31.1		36.4		
Approach LOS		A		B		C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 10.1

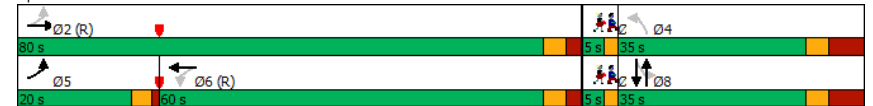
Intersection LOS: B

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	123	1600	9	1591	1	6	65
v/c Ratio	0.49	0.48	0.07	0.56	0.01	0.02	0.26
Control Delay	27.8	4.1	12.5	13.6	41.0	29.5	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	4.1	12.5	13.6	41.0	29.5	36.4
Queue Length 50th (m)	9.0	30.1	0.8	63.1	0.2	0.4	10.5
Queue Length 95th (m)	m22.5	m28.8	m2.2	131.6	1.9	4.4	24.4
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	335	3317	132	2816	162	388	318
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.48	0.07	0.56	0.01	0.02	0.20
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	116	1503	1	8	1457	39	1	2	4	41	2	18
Future Volume (vph)	116	1503	1	8	1457	39	1	2	4	41	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	3.0	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99				
Frbp, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00				
Frt	1.00	1.00		1.00	1.00		1.00	0.90				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1685	4663		1482	4688		838	1674				
Flt Permitted	0.09	1.00		0.14	1.00		0.80	1.00				
Satd. Flow (perm)	167	4663		220	4688		706	1674				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	1599	1	9	1550	41	1	2	4	44	2	19
RTOR Reduction (vph)	0	0	0	0	2	0	0	3	0	0	13	0
Lane Group Flow (vph)	123	1600	0	9	1589	0	1	3	0	0	52	0
Confl. Peds. (#/hr)	22		21	21		22	4		2	2		4
Heavy Vehicles (%)	0%	10%	0%	13%	9%	0%	100%	0%	0%	10%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases	5	2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	77.6	77.6		64.3	64.3		4.0	21.1			21.1	
Effective Green, g (s)	78.6	78.6		65.3	65.3		5.0	22.1			22.1	
Actuated g/C Ratio	0.65	0.65		0.54	0.54		0.04	0.18			0.18	
Clearance Time (s)	4.0	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	239	3054		119	2551		29	308			245	
v/s Ratio Prot	0.04	c0.34			c0.34			0.00				
v/s Ratio Perm	0.29			0.04			0.00				c0.04	
v/c Ratio	0.51	0.52		0.08	0.62		0.03	0.01			0.21	
Uniform Delay, d1	12.5	10.9		13.0	18.9		55.2	40.0			41.6	
Progression Factor	2.56	0.41		0.79	0.77		1.00	1.00			1.00	
Incremental Delay, d2	1.5	0.5		1.2	1.1		0.5	0.0			0.4	
Delay (s)	33.4	5.0		11.4	15.5		55.7	40.0			42.0	
Level of Service	C	A		B	B		E	D			D	
Approach Delay (s)		7.0			15.5			42.2			42.0	
Approach LOS		A			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		11.8								B		
HCM 2000 Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		76.9%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4703	0	0	5962	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4703	0	0	5962	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1624	8	0	1502	26	0	0	15	0	0	68
Future Volume (Veh/h)	0	1624	8	0	1502	26	0	0	15	0	0	68
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1728	9	0	1598	28	0	0	16	0	0	72
Pedestrians									21			245
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									2			20
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.83			0.80			0.88	0.88	0.80	0.88	0.88	0.83
vC, conflicting volume	1871			1758			2225	3624	602	2449	3615	658
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1029			1073			350	1931	0	603	1920	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	90
cM capacity (veh/h)	447			508			380	46	858	223	46	720
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	691	691	355	457	457	457	256	16	72			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	9	0	0	0	28	16	72			
cSH	1700	1700	1700	1700	1700	1700	1700	858	720			
Volume to Capacity	0.41	0.41	0.21	0.27	0.27	0.27	0.15	0.02	0.10			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.7			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	10.6			
Lane LOS								A	B			
Approach Delay (s)	0.0			0.0				9.3	10.6			
Approach LOS								A	B			
Intersection Summary												
Average Delay				0.3								
Intersection Capacity Utilization				Err%			ICU Level of Service		H			
Analysis Period (min)				15								

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt	0.889				0.974							
Flt Protected	0.991				0.961						0.996	
Satd. Flow (prot)	0	1655	0	0	1759	0	0	1648	0	0	1790	0
Flt Permitted	0.991				0.961						0.996	
Satd. Flow (perm)	0	1655	0	0	1759	0	0	1648	0	0	1790	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	0	12	29	0	7	0	25	0	3	27	0
Future Volume (Veh/h)	3	0	12	29	0	7	0	25	0	3	27	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	0	14	33	0	8	0	28	0	3	31	0
Pedestrians	16			7			6			2		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			0			0		
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	91	88	53	92	88	37	47			35		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	91	88	53	92	88	37	47			35		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	96	100	99	100			100		
cM capacity (veh/h)	865	789	1002	861	789	1033	1553			1580		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	41	28	34								
Volume Left	3	33	0	3								
Volume Right	14	8	0	0								
cSH	975	890	1700	1580								
Volume to Capacity	0.02	0.05	0.02	0.00								
Queue Length 95th (m)	0.4	1.2	0.0	0.0								
Control Delay (s)	8.8	9.2	0.0	0.7								
Lane LOS	A	A		A								
Approach Delay (s)	8.8	9.2	0.0	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			21.3%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt	0.908				0.865			0.997			0.977	
Flt Protected	0.984							0.975			0.998	
Satd. Flow (prot)	0	1679	0	0	1625	0	0	1826	0	0	1777	0
Flt Permitted	0.984							0.975			0.998	
Satd. Flow (perm)	0	1679	0	0	1625	0	0	1826	0	0	1777	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	5	0	10	0	0	3	81	76	3	3	51	11
Future Volume (Veh/h)	5	0	10	0	0	3	81	76	3	3	51	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	0	12	0	0	4	101	95	4	4	64	14
Pedestrians	6			7							2	
Lane Width (m)	3.5			3.5							3.5	
Walking Speed (m/s)	1.2			1.2							1.2	
Percent Blockage	0			1							0	
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)							72					
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	390	393	77	397	398	106	84			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	369	372	77	376	377	80	84			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	93			100		
cM capacity (veh/h)	539	507	985	530	504	961	1518			1494		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	18	4	200	82								
Volume Left	6	0	101	4								
Volume Right	12	4	4	14								
cSH	772	961	1518	1494								
Volume to Capacity	0.02	0.00	0.07	0.00								
Queue Length 95th (m)	0.6	0.1	1.7	0.1								
Control Delay (s)	9.8	8.8	4.1	0.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.8	8.8	4.1	0.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			27.5%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑		↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.91	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	4707	5930	0	1879	0
Flt Permitted						
Satd. Flow (perm)	0	4707	5930	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Total Conditions 2030

Afternoon Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	6	1621	1489	0	0	0		
Future Volume (Veh/h)	6	1621	1489	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	6	1743	1601	0	0	0		
Pedestrians		1	1		24			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		2			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.79				0.89	0.79		
vC, conflicting volume	1625				2219	425		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	464				115	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				100	100		
cM capacity (veh/h)	859				754	845		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	355	697	697	457	457	457	229	0
Volume Left	6	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	859	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.41	0.41	0.27	0.27	0.27	0.13	0.03
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							A
Approach Delay (s)	0.0			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			38.8%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.99		0.98	0.94		0.96	0.99	
Frt		0.977			0.992			0.909			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	4584	0	1700	4698	0	1684	1568	0	1750	1803	0
Flt Permitted	0.272			0.088			0.672			0.250		
Satd. Flow (perm)	497	4584	0	157	4698	0	1168	1568	0	444	1803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			11			66			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2030

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	56	1161	218	909	249	143	52	99		
Future Volume (vph)	56	1161	218	909	249	143	52	99		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	9.5	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	52.0	52.0	20.0	72.0	43.0	43.0	43.0	43.0	5.0	5.0
Total Split (%)	43.3%	43.3%	16.7%	60.0%	35.8%	35.8%	35.8%	35.8%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	51.2	51.2	71.3	69.7	31.2	31.2	31.2	31.2		
Actuated g/C Ratio	0.43	0.43	0.59	0.58	0.26	0.26	0.26	0.26		
v/c Ratio	0.28	0.73	0.78	0.37	0.86	0.84	0.48	0.28		
Control Delay	14.7	17.3	44.3	14.1	68.2	50.9	50.8	32.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	14.7	17.3	44.3	14.1	68.2	50.9	50.8	32.4		
LOS	B	B	D	B	E	D	D	C		
Approach Delay		17.2		19.7		57.9		37.8		
Approach LOS		B		B		E		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.5

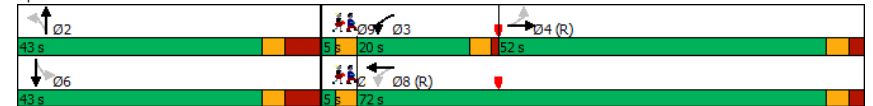
Intersection LOS: C

Intersection Capacity Utilization 89.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	1438	229	1008	262	383	55	133
v/c Ratio	0.28	0.73	0.78	0.37	0.86	0.84	0.48	0.28
Control Delay	14.7	17.3	44.3	14.1	68.2	50.9	50.8	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	17.3	44.3	14.1	68.2	50.9	50.8	32.4
Queue Length 50th (m)	5.2	118.7	36.6	49.2	60.4	73.9	11.2	23.2
Queue Length 95th (m)	12.7	126.3	#72.1	58.0	#99.9	110.9	25.5	39.5
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	213	1984	311	2743	346	511	131	543
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.72	0.74	0.37	0.76	0.75	0.42	0.24

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Total Conditions 2030
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	56	1161	205	218	909	48	249	143	220	52	99	28
Future Volume (vph)	56	1161	205	218	909	48	249	143	220	52	99	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.98	1.00		0.96	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4587		1700	4700		1651	1568		1688	1804	
Flt Permitted	0.27	1.00		0.09	1.00		0.67	1.00		0.25	1.00	
Satd. Flow (perm)	497	4587		157	4700		1168	1568		445	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	1222	216	229	957	51	262	151	232	55	104	29
RTOR Reduction (vph)	0	19	0	0	5	0	0	49	0	0	9	0
Lane Group Flow (vph)	59	1419	0	229	1003	0	262	334	0	55	124	0
Confl. Peds. (#/hr)	41		67	67		41	20		71	71		20
Heavy Vehicles (%)	0%	6%	15%	5%	8%	0%	6%	1%	4%	2%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.3	50.3		68.8	68.8		30.2	30.2		30.2	30.2	
Effective Green, g (s)	51.3	51.3		69.8	69.8		31.2	31.2		31.2	31.2	
Actuated g/C Ratio	0.43	0.43		0.58	0.58		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	1960		290	2733		303	407		115	469	
v/s Ratio Prot		0.31		c0.10	0.21			0.21			0.07	
v/s Ratio Perm	0.12			c0.36			c0.22			0.12		
v/c Ratio	0.28	0.72		0.79	0.37		0.86	0.82		0.48	0.26	
Uniform Delay, d1	22.3	28.5		28.6	13.4		42.4	41.8		37.5	35.3	
Progression Factor	0.45	0.52		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	2.1		13.3	0.4		21.7	12.5		3.1	0.3	
Delay (s)	13.0	17.0		41.9	13.7		64.1	54.3		40.6	35.6	
Level of Service	B	B		D	B		E	D		D	D	
Approach Delay (s)		16.8			19.0			58.3			37.1	
Approach LOS		B			B			E			D	

Intersection Summary

HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.97	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.93		0.84		0.98
Frt		0.983			0.975			0.947				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2867	4524	0	1685	5535	0	1685	1624	0	1532	1807	1383
Flt Permitted	0.950			0.143			0.698			0.622		
Satd. Flow (perm)	2863	4524	0	253	5535	0	1228	1624	0	838	1807	1354
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			44			23				38
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	280	1365	65	1243	81	75	140	86	611
Future Volume (vph)	280	1365	65	1243	81	75	140	86	611
Turn Type	Prot	NA	Perm	NA	Perm	NA	pm+pt	NA	pm+ov
Protected Phases	5	2		6		4	3	8	5
Permitted Phases			6		4		8		8
Detector Phase	5	2	6	6	4	4	3	8	5
Switch Phase									
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	5.0	30.0	6.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	9.0	41.8	14.4
Total Split (s)	27.0	69.2	42.2	42.2	41.8	41.8	9.0	50.8	27.0
Total Split (%)	22.5%	57.7%	35.2%	35.2%	34.8%	34.8%	7.5%	42.3%	22.5%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.0	3.4	3.9
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	1.0	6.4	4.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	3.0	8.8	7.4
Lead/Lag	Lead		Lag	Lag					Lead
Lead-Lag Optimize?	Yes		Yes	Yes					Yes
Recall Mode	None	C-Min	C-Min	C-Min	None	None	Min	None	None
Act Effect Green (s)	17.9	62.8	37.5	37.5	33.0	33.0	48.0	42.2	61.5
Actuated g/C Ratio	0.15	0.52	0.31	0.31	0.28	0.28	0.40	0.35	0.51
v/c Ratio	0.69	0.68	0.87	0.89	0.25	0.26	0.40	0.14	0.90
Control Delay	57.1	22.6	97.2	34.5	36.4	29.2	28.1	27.5	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	22.6	97.2	34.5	36.4	29.2	28.1	27.5	37.1
LOS	E	C	F	C	D	C	C	C	D
Approach Delay		27.9		37.1		32.2		34.6	
Approach LOS		C		D		C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.6

Intersection LOS: C

Intersection Capacity Utilization 109.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	295	1619	68	1573	85	122	147	91	643
v/c Ratio	0.69	0.68	0.87	0.89	0.25	0.26	0.40	0.14	0.90
Control Delay	57.1	22.6	97.2	34.5	36.4	29.2	28.1	27.5	37.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	22.6	97.2	34.5	36.4	29.2	28.1	27.5	37.1
Queue Length 50th (m)	35.6	102.7	14.8	107.9	16.5	19.0	23.9	15.4	109.2
Queue Length 95th (m)	51.0	120.3	m#41.9	#109.6	31.0	36.0	39.9	27.9	#197.0
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	468	2388	78	1758	337	463	371	635	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.68	0.87	0.89	0.25	0.26	0.40	0.14	0.87

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	280	1365	173	65	1243	252	81	75	41	140	86	611
Future Volume (vph)	280	1365	173	65	1243	252	81	75	41	140	86	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		3.0	8.8	7.4
Lane Util. Factor	0.97	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.93		1.00	1.00	0.99
Frbp, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.90	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2867	4525		1680	5533		1671	1624		1380	1807	1363
Flt Permitted	0.95	1.00		0.14	1.00		0.70	1.00		0.62	1.00	1.00
Satd. Flow (perm)	2867	4525		253	5533		1228	1624		904	1807	1363
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	1437	182	68	1308	265	85	79	43	147	91	643
RTOR Reduction (vph)	0	13	0	0	30	0	0	17	0	0	0	19
Lane Group Flow (vph)	295	1606	0	68	1543	0	85	105	0	147	91	624
Confl. Peds. (#/hr)	6		13	13		6	8		181	181		8
Heavy Vehicles (%)	14%	12%	2%	0%	14%	11%	0%	0%	4%	10%	4%	9%
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			4		3	8	5
Permitted Phases				6			4			8		8
Actuated Green, G (s)	16.9	61.8		36.5	36.5		32.0	32.0		41.2	41.2	58.1
Effective Green, g (s)	17.9	62.8		37.5	37.5		33.0	33.0		42.2	42.2	60.1
Actuated g/C Ratio	0.15	0.52		0.31	0.31		0.28	0.28		0.35	0.35	0.50
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		4.0	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	427	2368		79	1729		337	446		342	635	682
v/s Ratio Prot	0.10	0.35			c0.28			0.06		0.02	0.05	c0.14
v/s Ratio Perm				0.27			0.07			0.13		0.32
v/c Ratio	0.69	0.68		0.86	0.89		0.25	0.24		0.43	0.14	0.92
Uniform Delay, d1	48.4	21.1		38.8	39.3		33.9	33.7		29.2	26.6	27.6
Progression Factor	1.00	1.00		0.71	0.71		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.8	1.6		61.1	6.5		0.4	0.3		0.9	0.1	16.9
Delay (s)	53.2	22.7		88.8	34.5		34.3	34.0		30.1	26.7	44.5
Level of Service	D	C		F	C		C	C		C	C	D
Approach Delay (s)		27.4			36.8			34.1			40.2	
Approach LOS		C			D			C			D	

Intersection Summary

HCM 2000 Control Delay	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	109.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.98			0.99	
Frt		0.998			0.994			0.850			0.969	
Flt Protected	0.950			0.950			0.950				0.963	
Satd. Flow (prot)	1685	4574	0	1685	4487	0	1685	1565	0	0	1736	0
Flt Permitted	0.103			0.124			0.671				0.775	
Satd. Flow (perm)	182	4574	0	219	4487	0	1189	1565	0	0	1388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			9			81			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	33	1455	42	1541	25	0	99	0		
Future Volume (vph)	33	1455	42	1541	25	0	99	0		
Turn Type	Perm	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases		2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	80.4	80.4	80.4	80.4	34.6	34.6	34.6	34.6	5.0	5.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	28.8%	28.8%	28.8%	28.8%	4%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4	7.4		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	79.4	79.4	79.4	79.4	21.1	21.1	21.1	21.1		
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18	0.18	0.18	0.18		
v/c Ratio	0.28	0.51	0.30	0.56	0.12	0.01	0.48	0.48		
Control Delay	9.2	5.8	10.0	6.5	43.4	0.0	36.7	36.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	9.2	5.8	10.0	6.5	43.4	0.0	36.7	36.7		
LOS	A	A	A	A	D	A	D	D		
Approach Delay		5.9		6.6		40.3		36.7		
Approach LOS		A		A		D		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 7.7

Intersection LOS: A

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive

→ Ø2 (R)	5 s	34.6 s
← Ø6 (R)	5 s	34.6 s

Queues
2: Dundas Street West & Paulart Drive

Future Background Conditions 2035
Morning Peak Hour

	↖	→	↗	←	↖	↑	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	34	1537	44	1668	26	2	134
v/c Ratio	0.28	0.51	0.30	0.56	0.12	0.01	0.48
Control Delay	9.2	5.8	10.0	6.5	43.4	0.0	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	5.8	10.0	6.5	43.4	0.0	36.7
Queue Length 50th (m)	1.9	31.6	2.7	38.4	5.5	0.0	20.4
Queue Length 95th (m)	m2.0	22.5	m3.6	30.4	14.1	0.0	41.1
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	120	3026	145	2971	269	417	347
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.51	0.30	0.56	0.10	0.00	0.39
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Background Conditions 2035
Morning Peak Hour

	↖	→	↗	←	↖	↑	↗	↓	↖			
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘			↖ ↗ ↘	
Traffic Volume (vph)	33	1455	20	42	1541	60	25	0	2	99	0	30
Future Volume (vph)	33	1455	20	42	1541	60	25	0	2	99	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4			7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			0.99	
Frt	1.00	1.00		1.00	0.99		1.00	0.85			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	
Satd. Flow (prot)	1683	4574		1680	4489		1683	1565			1724	
Flt Permitted	0.10	1.00		0.12	1.00		0.67	1.00			0.77	
Satd. Flow (perm)	183	4574		220	4489		1189	1565			1387	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	1516	21	44	1605	62	26	0	2	103	0	31
RTOR Reduction (vph)	0	1	0	0	3	0	0	2	0	0	33	0
Lane Group Flow (vph)	34	1536	0	44	1665	0	26	0	0	0	101	0
Confl. Peds. (#/hr)	6		12	12		6	1		6	6		1
Heavy Vehicles (%)	0%	12%	0%	0%	14%	0%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	75.0	75.0		75.0	75.0		12.1	23.5			23.5	
Effective Green, g (s)	76.0	76.0		76.0	76.0		13.1	24.5			24.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.11	0.20			0.20	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	115	2896		139	2843		129	319			283	
v/s Ratio Prot		0.34			c0.37			0.00				
v/s Ratio Perm	0.19			0.20			0.02				c0.07	
v/c Ratio	0.30	0.53		0.32	0.59		0.20	0.00			0.36	
Uniform Delay, d1	9.9	12.1		10.1	12.8		48.7	38.0			41.0	
Progression Factor	0.45	0.51		0.54	0.53		1.00	1.00			1.00	
Incremental Delay, d2	5.1	0.5		5.0	0.7		0.8	0.0			0.8	
Delay (s)	9.5	6.8		10.4	7.6		49.5	38.0			41.7	
Level of Service	A	A		B	A		D	D			D	
Approach Delay (s)		6.8			7.6			48.6			41.7	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.9			HCM 2000 Level of Service			A			
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			62.5%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.994				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4618	0	0	5643	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4618	0	0	5643	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1487	6	0	1557	62	0	0	7	0	0	47
Future Volume (Veh/h)	0	1487	6	0	1557	62	0	0	7	0	0	47
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1533	6	0	1605	64	0	0	7	0	0	48
Pedestrians									15			176
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									1			14
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.87			0.75			0.81	0.81	0.75	0.81	0.81	0.87
vC, conflicting volume	1845			1554			2000	3396	529	2331	3367	609
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1218			560			95	1812	0	502	1776	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	94
cM capacity (veh/h)	423			744			585	54	806	276	56	813
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	613	613	313	459	459	459	293	7	48			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	6	0	0	0	64	7	48			
cSH	1700	1700	1700	1700	1700	1700	1700	806	813			
Volume to Capacity	0.36	0.36	0.18	0.27	0.27	0.27	0.17	0.01	0.06			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	9.7			
Lane LOS								A	A			
Approach Delay (s)	0.0			0.0				9.5	9.7			
Approach LOS								A	A			
Intersection Summary												
Average Delay				0.2								
Intersection Capacity Utilization				Err%			ICU Level of Service		H			
Analysis Period (min)				15								

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.910									0.988	
Flt Protected		0.984						0.998				
Satd. Flow (prot)	0	1682	0	0	1879	0	0	1875	0	0	1856	0
Flt Permitted		0.984						0.998				
Satd. Flow (perm)	0	1682	0	0	1879	0	0	1875	0	0	1856	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	2	0	5	0	0	0	2	59	0	0	49	5
Future Volume (Veh/h)	2	0	5	0	0	0	2	59	0	0	49	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	6	0	0	0	3	77	0	0	64	6
Pedestrians		8			2			1			1	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	159	160	76	159	163	80	78			79		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	159	160	76	159	163	80	78			79		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	799	728	984	798	726	983	1523			1529		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	0	80	70								
Volume Left	3	0	3	0								
Volume Right	6	0	0	6								
cSH	913	1700	1523	1529								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (m)	0.2	0.0	0.0	0.0								
Control Delay (s)	9.0	0.0	0.3	0.0								
Lane LOS	A	A	A									
Approach Delay (s)	9.0	0.0	0.3	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			16.0%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics
5: Paulart Drive & East Site driveway

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt					0.877			0.997				
Flt Protected					0.995			0.994			0.997	
Satd. Flow (prot)	0	1879	0	0	1640	0	0	1862	0	0	1806	0
Flt Permitted					0.995			0.994			0.997	
Satd. Flow (perm)	0	1879	0	0	1640	0	0	1862	0	0	1806	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
5: Paulart Drive & East Site driveway

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	0	1	0	7	12	81	2	8	116	0
Future Volume (Veh/h)	0	0	0	1	0	7	12	81	2	8	116	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	0	0	0	1	0	10	17	114	3	11	163	0
Pedestrians		1			5							
Lane Width (m)		3.5			3.5							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	346	342	164	340	340	120	164			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	346	342	164	340	340	120	164			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	99			99		
cM capacity (veh/h)	594	569	885	604	570	933	1426			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	11	134	174								
Volume Left	0	1	17	11								
Volume Right	0	10	3	0								
cSH	1700	889	1426	1472								
Volume to Capacity	0.00	0.01	0.01	0.01								
Queue Length 95th (m)	0.0	0.3	0.3	0.2								
Control Delay (s)	0.0	9.1	1.0	0.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.0	9.1	1.0	0.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay				1.0								
Intersection Capacity Utilization			18.9%				ICU Level of Service			A		
Analysis Period (min)				15								

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Background Conditions 2035

Morning Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	4621	5720	0	1879	0
Flt Permitted						
Satd. Flow (perm)	0	4621	5720	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Background Conditions 2035

Morning Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	0	1488	1614	0	0	0		
Future Volume (Veh/h)	0	1488	1614	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	0	1534	1664	0	0	0		
Pedestrians		1	1		8			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		1			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.82				0.87	0.82		
vC, conflicting volume	1672				2184	425		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	692				70	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	100		
cM capacity (veh/h)	739				802	883		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	511	511	511	475	475	475	238	0
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.30	0.28	0.28	0.28	0.14	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A
Approach Delay (s)	0.0			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			32.1%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖		↖	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99			1.00		0.96	0.98		0.98	0.99	
Frt		0.973			0.995			0.906			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	4442	0	1638	4520	0	1332	1427	0	1623	1742	0
Flt Permitted	0.141			0.094			0.647			0.616		
Satd. Flow (perm)	258	4442	0	162	4520	0	873	1427	0	1031	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			7			73			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9				
Lane Configurations	↖	↖↖↖	↖	↖↖↖	↖	↖	↖	↖						
Traffic Volume (vph)	42	1179	164	1469	122	54	52	110						
Future Volume (vph)	42	1179	164	1469	122	54	52	110						
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA						
Protected Phases		4	3	8		2		6	7	9				
Permitted Phases	4		8		2		6							
Detector Phase	4	4	3	8	2	2	6	6						
Switch Phase														
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0				
Minimum Split (s)	27.6	27.6	6.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0				
Total Split (s)	51.0	51.0	20.0	71.0	44.0	44.0	44.0	44.0	5.0	5.0				
Total Split (%)	42.5%	42.5%	16.7%	59.2%	36.7%	36.7%	36.7%	36.7%	4%	4%				
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0				
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0				
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0						
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4						
Lead/Lag			Lag	Lag					Lead	Lead				
Lead-Lag Optimize?			Yes	Yes					Yes	Yes				
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min				
Act Effect Green (s)	59.7	59.7	77.7	76.1	23.6	23.6	23.6	23.6						
Actuated g/C Ratio	0.50	0.50	0.65	0.63	0.20	0.20	0.20	0.20						
v/c Ratio	0.35	0.68	0.65	0.57	0.76	0.45	0.27	0.40						
Control Delay	18.8	12.5	28.9	14.5	70.5	24.6	41.2	41.0						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	18.8	12.5	28.9	14.5	70.5	24.6	41.2	41.0						
LOS	B	B	C	B	E	C	D	D						
Approach Delay		12.7		15.9		45.7		41.1						
Approach LOS		B		B		D		D						

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 18.0

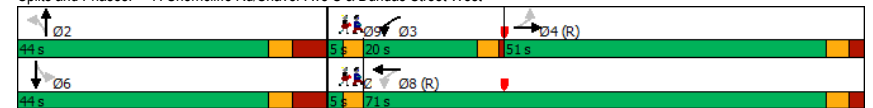
Intersection LOS: B

Intersection Capacity Utilization 85.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1524	174	1622	130	153	55	140
v/c Ratio	0.35	0.68	0.65	0.57	0.76	0.45	0.27	0.40
Control Delay	18.8	12.5	28.9	14.5	70.5	24.6	41.2	41.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	12.5	28.9	14.5	70.5	24.6	41.2	41.0
Queue Length 50th (m)	4.1	49.1	17.7	78.3	30.7	17.0	11.7	28.7
Queue Length 95th (m)	m10.7	84.2	46.0	114.1	49.2	34.0	21.9	43.5
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	128	2234	313	2867	266	485	314	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.68	0.56	0.57	0.49	0.32	0.18	0.26
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	42	1179	254	164	1469	55	122	54	90	52	110	22
Future Volume (vph)	42	1179	254	164	1469	55	122	54	90	52	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.96	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1740	4444		1638	4518		1282	1427		1590	1743	
Flt Permitted	0.14	1.00		0.09	1.00		0.65	1.00		0.62	1.00	
Satd. Flow (perm)	258	4444		162	4518		873	1427		1032	1743	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	1254	270	174	1563	59	130	57	96	55	117	23
RTOR Reduction (vph)	0	23	0	0	3	0	0	59	0	0	6	0
Lane Group Flow (vph)	45	1501	0	174	1619	0	130	94	0	55	134	0
Confl. Peds. (#/hr)	21		13	13		21	40		22	22		40
Heavy Vehicles (%)	2%	11%	15%	9%	13%	2%	34%	9%	21%	10%	4%	5%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	58.8	58.8		75.1	75.1		22.6	22.6		22.6	22.6	
Effective Green, g (s)	59.8	59.8		76.1	76.1		23.6	23.6		23.6	23.6	
Actuated g/C Ratio	0.50	0.50		0.63	0.63		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	128	2214		266	2865		171	280		202	342	
v/s Ratio Prot		0.34		c0.07	0.36			0.07			0.08	
v/s Ratio Perm	0.17			c0.34			c0.15			0.05		
v/c Ratio	0.35	0.68		0.65	0.57		0.76	0.34		0.27	0.39	
Uniform Delay, d1	18.3	22.8		18.1	12.5		45.5	41.5		40.9	41.9	
Progression Factor	0.46	0.44		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	1.5		5.7	0.8		17.9	0.7		0.7	0.7	
Delay (s)	15.0	11.5		23.8	13.3		63.4	42.2		41.6	42.7	
Level of Service	B	B		C	B		E	D		D	D	
Approach Delay (s)		11.6			14.3			51.9			42.4	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		17.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		85.1%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.97	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.98	0.99		0.98	0.91		0.83		0.97
Frt		0.991			0.963			0.954				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3054	4567	0	1636	5689	0	1652	1635	0	1604	1879	1396
Flt Permitted	0.950			0.172			0.709			0.455		
Satd. Flow (perm)	3043	4567	0	291	5689	0	1210	1635	0	639	1879	1351
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			71			18				38
Link Speed (k/h)		50			50			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		15.6			3.6			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	419	1327	63	1204	257	174	259	72	622
Future Volume (vph)	419	1327	63	1204	257	174	259	72	622
Turn Type	Prot	NA	Perm	NA	Perm	NA	pm+pt	NA	pm+ov
Protected Phases	5	2		6		4	3	8	5
Permitted Phases			6		4		8		8
Detector Phase	5	2	6	6	4	4	3	8	5
Switch Phase									
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	5.0	30.0	6.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	9.0	41.8	14.4
Total Split (s)	26.0	69.2	43.2	43.2	41.8	41.8	9.0	50.8	26.0
Total Split (%)	21.7%	57.7%	36.0%	36.0%	34.8%	34.8%	7.5%	42.3%	21.7%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.0	3.4	3.9
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	1.0	6.4	4.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	3.0	8.8	7.4
Lead/Lag	Lead		Lag	Lag					Lead
Lead-Lag Optimize?	Yes		Yes	Yes					Yes
Recall Mode	None	C-Min	C-Min	C-Min	None	None	Min	None	None
Act Effect Green (s)	18.6	63.0	37.0	37.0	33.0	33.0	47.8	42.0	62.0
Actuated g/C Ratio	0.16	0.52	0.31	0.31	0.28	0.28	0.40	0.35	0.52
v/c Ratio	0.90	0.60	0.72	0.91	0.79	0.56	0.87	0.11	0.88
Control Delay	73.6	20.9	67.4	36.3	58.6	39.9	59.4	27.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.6	20.9	67.4	36.3	58.6	39.9	59.4	27.0	34.8
LOS	E	C	E	D	E	D	E	C	C
Approach Delay		33.0		37.5		49.3		40.9	
Approach LOS		C		D		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 37.7

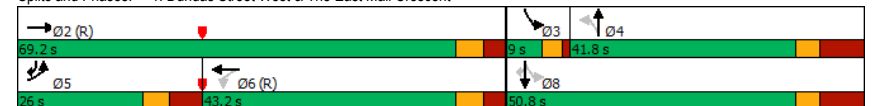
Intersection LOS: D

Intersection Capacity Utilization 130.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	428	1445	64	1631	262	257	264	73	635
v/c Ratio	0.90	0.60	0.72	0.91	0.79	0.56	0.87	0.11	0.88
Control Delay	73.6	20.9	67.4	36.3	58.6	39.9	59.4	27.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.6	20.9	67.4	36.3	58.6	39.9	59.4	27.0	34.8
Queue Length 50th (m)	54.3	86.8	10.3	94.9	60.2	50.8	46.5	12.2	107.7
Queue Length 95th (m)	#84.1	102.1	#38.7	84.1	#103.5	79.0	#91.6	23.3	#151.6
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	473	2403	89	1803	332	462	303	658	723
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.60	0.72	0.90	0.79	0.56	0.87	0.11	0.88

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	↔	↔	↔	↔	↔↔↔	↔↔↔	↔
Traffic Volume (vph)	419	1327	89	63	1204	394	257	174	77	259	72	622
Future Volume (vph)	419	1327	89	63	1204	394	257	174	77	259	72	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		3.0	8.8	7.4
Lane Util. Factor	0.97	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Flt Protected	1.00	0.99		1.00	0.99		1.00	0.91		1.00	1.00	0.98
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3054	4565		1608	5689		1621	1635		1489	1879	1364
Satd. Flow (perm)	3054	4565		291	5689		1211	1635		714	1879	1364
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	428	1354	91	64	1229	402	262	178	79	264	73	635
RTOR Reduction (vph)	0	6	0	0	49	0	0	13	0	0	0	19
Lane Group Flow (vph)	428	1439	0	64	1582	0	262	244	0	264	73	616
Confl. Peds. (#/hr)	18		62	62		18	18		248	248		18
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	7%	11%	0%	3%	10%	4%	2%	0%	0%	5%	0%	8%
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			4		3	8	5
Permitted Phases				6			4			8		8
Actuated Green, G (s)	17.6	62.0		36.0	36.0		32.0	32.0		41.0	41.0	58.6
Effective Green, g (s)	18.6	63.0		37.0	37.0		33.0	33.0		42.0	42.0	60.6
Actuated g/C Ratio	0.16	0.52		0.31	0.31		0.28	0.28		0.35	0.35	0.51
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		4.0	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	473	2396		89	1754		333	449		288	657	688
v/s Ratio Prot	c0.14	0.32			c0.28			0.15		0.05	0.04	c0.14
v/s Ratio Perm				0.22			0.22			c0.27		0.31
v/c Ratio	0.90	0.60		0.72	0.90		0.79	0.54		0.92	0.11	0.90
Uniform Delay, d1	49.8	19.8		36.9	39.8		40.2	37.1		38.1	26.4	26.8
Progression Factor	1.00	1.00		0.73	0.75		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	20.5	1.1		36.2	7.3		11.6	1.3		31.8	0.1	14.2
Delay (s)	70.4	20.9		63.0	37.1		51.8	38.4		70.0	26.5	41.0
Level of Service	E	C		E	D		D	D		E	C	D
Approach Delay (s)		32.2			38.1			45.2			47.8	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	130.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		0.99	0.99			0.99	
Frt		0.999			0.998			0.900			0.956	
Flt Protected	0.950			0.950			0.950				0.969	
Satd. Flow (prot)	1685	4659	0	1491	4697	0	842	1674	0	0	1627	0
Flt Permitted	0.106			0.105			0.719				0.803	
Satd. Flow (perm)	187	4659	0	164	4697	0	634	1674	0	0	1346	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		2			3			4			19	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	56	1591	38	1577	31	2	35	2		
Future Volume (vph)	56	1591	38	1577	31	2	35	2		
Turn Type	Perm	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases		2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	2	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	80.4	80.4	80.4	80.4	34.6	34.6	34.6	34.6	5.0	5.0
Total Split (%)	67.0%	67.0%	67.0%	67.0%	28.8%	28.8%	28.8%	28.8%	4%	4%
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4	7.4		
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	85.7	85.7	85.7	85.7	21.0	21.0	21.0	21.0		
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.18	0.18	0.18	0.18		
v/c Ratio	0.45	0.51	0.34	0.51	0.30	0.02	0.23	0.23		
Control Delay	18.0	5.8	17.1	7.9	51.5	29.5	33.1	33.1		
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0		
Total Delay	18.0	5.8	17.1	7.9	51.5	29.5	33.1	33.1		
LOS	B	A	B	A	D	C	C	C		
Approach Delay		6.2		8.1		48.1		33.1		
Approach LOS		A		A		D		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 8.0

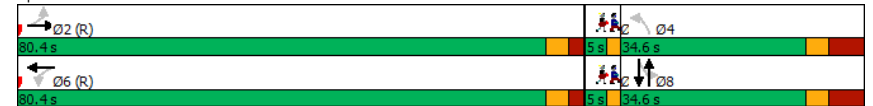
Intersection LOS: A

Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	60	1710	40	1701	33	6	58
v/c Ratio	0.45	0.51	0.34	0.51	0.30	0.02	0.23
Control Delay	18.0	5.8	17.1	7.9	51.5	29.5	33.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	18.0	5.8	17.1	7.9	51.5	29.5	33.1
Queue Length 50th (m)	3.9	42.7	3.5	62.6	7.2	0.4	8.3
Queue Length 95th (m)	m7.7	76.6	m14.9	109.3	18.1	4.4	21.2
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	133	3327	117	3354	143	382	319
Starvation Cap Reductn	0	0	0	301	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.51	0.34	0.56	0.23	0.02	0.18
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	56	1591	16	38	1577	22	31	2	4	35	2	18
Future Volume (vph)	56	1591	16	38	1577	22	31	2	4	35	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00				
Frt	1.00	1.00		1.00	1.00		1.00	0.90				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1678	4657		1486	4697		838	1674				
Flt Permitted	0.11	1.00		0.11	1.00		0.72	1.00				
Satd. Flow (perm)	188	4657		164	4697		634	1674				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	1693	17	40	1678	23	33	2	4	37	2	19
RTOR Reduction (vph)	0	1	0	0	1	0	0	3	0	0	16	0
Lane Group Flow (vph)	60	1709	0	40	1700	0	33	3	0	0	42	0
Confl. Peds. (#/hr)	22		21	21		22	4		2	2		4
Heavy Vehicles (%)	0%	10%	0%	13%	9%	0%	100%	0%	0%	10%	0%	0%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	81.3	81.3		81.3	81.3		12.0	17.7			17.7	
Effective Green, g (s)	82.3	82.3		82.3	82.3		13.0	18.7			18.7	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.11	0.16			0.16	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	128	3193		112	3221		68	260			209	
v/s Ratio Prot		c0.37			0.36			0.00				
v/s Ratio Perm	0.32			0.24			c0.05				c0.03	
v/c Ratio	0.47	0.54		0.36	0.53		0.49	0.01			0.20	
Uniform Delay, d1	8.7	9.4		7.8	9.3		50.4	42.8			44.1	
Progression Factor	0.76	0.59		0.89	0.81		1.00	1.00			1.00	
Incremental Delay, d2	9.6	0.5		8.4	0.6		5.4	0.0			0.5	
Delay (s)	16.2	6.0		15.4	8.2		55.7	42.8			44.6	
Level of Service	B	A		B	A		E	D			D	
Approach Delay (s)		6.4			8.3			53.7			44.6	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay				8.5			HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio				0.49								
Actuated Cycle Length (s)				120.0			Sum of lost time (s)			15.0		
Intersection Capacity Utilization				73.8%			ICU Level of Service			D		
Analysis Period (min)				15								
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.998				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4703	0	0	5968	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4703	0	0	5968	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1667	8	0	1673	26	0	0	15	0	0	39
Future Volume (Veh/h)	0	1667	8	0	1673	26	0	0	15	0	0	39
Sign Control	Free	Free		Free	Free		Stop	Stop		Stop	Stop	
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1773	9	0	1780	28	0	0	16	0	0	41
Pedestrians									21		245	
Lane Width (m)									3.5		3.5	
Walking Speed (m/s)									1.2		1.2	
Percent Blockage									2		20	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.88			0.79			0.85	0.85	0.79	0.85	0.85	0.88
vC, conflicting volume	2053			1803			2284	3852	616	2646	3842	704
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1527			1075			735	2586	0	1162	2575	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	95
cM capacity (veh/h)	306			499			203	17	844	84	17	765
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	709	709	364	509	509	509	282	16	41			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	9	0	0	0	28	16	41			
cSH	1700	1700	1700	1700	1700	1700	1700	844	765			
Volume to Capacity	0.42	0.42	0.21	0.30	0.30	0.30	0.17	0.02	0.05			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.4			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	10.0			
Lane LOS								A	A			
Approach Delay (s)	0.0			0.0				9.3	10.0			
Approach LOS								A	A			
Intersection Summary												
Average Delay				0.2								
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.889										
Flt Protected		0.991										
Satd. Flow (prot)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1655	0	0	1879	0	0	1648	0	0	1789	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	0	12	0	0	0	0	25	0	0	27	0
Future Volume (Veh/h)	3	0	12	0	0	0	0	25	0	0	27	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	0	14	0	0	0	0	28	0	0	31	0
Pedestrians		16			7			6			2	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	77	82	53	86	82	37	47			35		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	77	82	53	86	82	37	47			35		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	891	797	1002	870	797	1033	1553			1580		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	0	28	31								
Volume Left	3	0	0	0								
Volume Right	14	0	0	0								
cSH	980	1700	1700	1580								
Volume to Capacity	0.02	0.00	0.02	0.00								
Queue Length 95th (m)	0.4	0.0	0.0	0.0								
Control Delay (s)	8.7	0.0	0.0	0.0								
Lane LOS	A	A										
Approach Delay (s)	8.7	0.0	0.0	0.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			19.3%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics
5: Paulart Drive & East Site driveway

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.865			0.865			0.995			0.998	
Flt Protected								0.998			0.997	
Satd. Flow (prot)	0	1625	0	0	1625	0	0	1866	0	0	1803	0
Flt Permitted								0.998			0.997	
Satd. Flow (perm)	0	1625	0	0	1625	0	0	1866	0	0	1803	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
5: Paulart Drive & East Site driveway

Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	0	0	4	0	0	3	4	76	3	3	51	1
Future Volume (Veh/h)	0	0	4	0	0	3	4	76	3	3	51	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	5	0	0	4	5	95	4	4	64	1
Pedestrians		6			7						2	
Lane Width (m)		3.5			3.5						3.5	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked												
vC, conflicting volume	192	194	70	192	193	106	71			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	194	70	192	193	106	71			106		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	755	693	993	755	694	947	1535			1489		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	4	104	69								
Volume Left	0	0	5	4								
Volume Right	5	4	4	1								
cSH	993	947	1535	1489								
Volume to Capacity	0.01	0.00	0.00	0.00								
Queue Length 95th (m)	0.1	0.1	0.1	0.1								
Control Delay (s)	8.6	8.8	0.4	0.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.6	8.8	0.4	0.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			17.8%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑		↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.91	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt					0.876	
Flt Protected					0.996	
Satd. Flow (prot)	0	4707	5930	0	1639	0
Flt Permitted					0.996	
Satd. Flow (perm)	0	4707	5930	0	1639	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Background Conditions 2035

Afternoon Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	6	1664	1639	1	2	21		
Future Volume (Veh/h)	6	1664	1639	1	2	21		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	6	1789	1762	1	2	23		
Pedestrians		1	1		24			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		2			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.84				0.88	0.84		
vC, conflicting volume	1787				2396	466		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1011				648	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				99	97		
cM capacity (veh/h)	574				348	903		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	364	716	716	503	503	503	253	25
Volume Left	6	0	0	0	0	0	0	2
Volume Right	0	0	0	0	0	0	1	23
cSH	574	1700	1700	1700	1700	1700	1700	800
Volume to Capacity	0.01	0.42	0.42	0.30	0.30	0.30	0.15	0.03
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS	A							A
Approach Delay (s)	0.1			0.0				9.6
Approach LOS								A
Intersection Summary								
Average Delay			0.1					
Intersection Capacity Utilization			46.2%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.99		0.98	0.94		0.96	0.99	
Frt		0.978			0.992			0.909			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	4589	0	1700	4698	0	1684	1568	0	1750	1803	0
Flt Permitted	0.276			0.087			0.672			0.252		
Satd. Flow (perm)	504	4589	0	156	4698	0	1168	1568	0	447	1803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			11			66			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Background Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔		
Traffic Volume (vph)	56	1158	218	896	245	143	52	99		
Future Volume (vph)	56	1158	218	896	245	143	52	99		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	6.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	51.0	51.0	20.0	71.0	44.0	44.0	44.0	44.0	5.0	5.0
Total Split (%)	42.5%	42.5%	16.7%	59.2%	36.7%	36.7%	36.7%	36.7%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	50.9	50.9	71.2	69.6	31.3	31.3	31.3	31.3		
Actuated g/C Ratio	0.42	0.42	0.59	0.58	0.26	0.26	0.26	0.26		
v/c Ratio	0.28	0.73	0.78	0.36	0.85	0.84	0.47	0.28		
Control Delay	16.2	16.6	43.9	14.2	66.0	50.6	50.0	32.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	16.2	16.6	43.9	14.2	66.0	50.6	50.0	32.2		
LOS	B	B	D	B	E	D	D	C		
Approach Delay		16.6		19.8		56.8		37.4		
Approach LOS		B		B		E		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 26.1

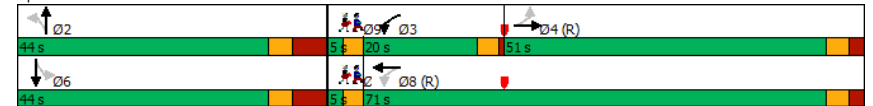
Intersection LOS: C

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	1434	229	994	258	383	55	133
v/c Ratio	0.28	0.73	0.78	0.36	0.85	0.84	0.47	0.28
Control Delay	16.2	16.6	43.9	14.2	66.0	50.6	50.0	32.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	16.6	43.9	14.2	66.0	50.6	50.0	32.2
Queue Length 50th (m)	6.0	69.4	36.4	48.0	59.6	74.4	11.3	23.4
Queue Length 95th (m)	m8.7	43.4	#73.0	58.4	#95.4	109.4	25.1	39.0
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	214	1974	314	2730	356	524	136	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.73	0.73	0.36	0.72	0.73	0.40	0.24
Intersection Summary								
# 95th percentile volume exceeds capacity, queue may be longer.								
Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West
Future Background Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	56	1158	204	218	896	48	245	143	220	52	99	28
Future Volume (vph)	56	1158	204	218	896	48	245	143	220	52	99	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.98	1.00		0.96	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1735	4587		1700	4699		1651	1568		1688	1804	
Flt Permitted	0.28	1.00		0.09	1.00		0.67	1.00		0.25	1.00	
Satd. Flow (perm)	504	4587		156	4699		1168	1568		447	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	1219	215	229	943	51	258	151	232	55	104	29
RTOR Reduction (vph)	0	20	0	0	5	0	0	49	0	0	9	0
Lane Group Flow (vph)	59	1414	0	229	989	0	258	334	0	55	124	0
Confl. Peds. (#/hr)	41		67	67		41	20		71	71		20
Heavy Vehicles (%)	0%	6%	15%	5%	8%	0%	6%	1%	4%	2%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.9	49.9		68.6	68.6		30.3	30.3		30.3	30.3	
Effective Green, g (s)	50.9	50.9		69.6	69.6		31.3	31.3		31.3	31.3	
Actuated g/C Ratio	0.42	0.42		0.58	0.58		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	1945		292	2725		304	408		116	470	
v/s Ratio Prot		0.31		c0.10	0.21			0.21			0.07	
v/s Ratio Perm	0.12			c0.35			c0.22			0.12		
v/c Ratio	0.28	0.73		0.78	0.36		0.85	0.82		0.47	0.26	
Uniform Delay, d1	22.5	28.8		28.7	13.4		42.1	41.7		37.4	35.2	
Progression Factor	0.51	0.49		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	2.1		12.9	0.4		19.3	12.1		3.0	0.3	
Delay (s)	14.2	16.3		41.6	13.8		61.4	53.8		40.4	35.5	
Level of Service	B	B		D	B		E	D		D	D	
Approach Delay (s)		16.2			19.0			56.8			37.0	
Approach LOS		B			B			E			D	
Intersection Summary												
HCM 2000 Control Delay		25.6										
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		120.0								18.0		
Intersection Capacity Utilization		89.1%								E		
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.97	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		0.99	0.93		0.84		0.98
Frt		0.983			0.975			0.947				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2867	4524	0	1685	5535	0	1685	1624	0	1532	1807	1383
Flt Permitted	0.950			0.140			0.697			0.622		
Satd. Flow (perm)	2863	4524	0	248	5535	0	1226	1624	0	838	1807	1354
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			43			23				38
Link Speed (k/h)		60			60			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		13.0			3.0			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	280	1382	65	1291	81	75	143	87	611
Future Volume (vph)	280	1382	65	1291	81	75	143	87	611
Turn Type	Prot	NA	Perm	NA	Perm	NA	pm+pt	NA	pm+ov
Protected Phases	5	2		6		4	3	8	5
Permitted Phases			6		4		8		8
Detector Phase	5	2	6	6	4	4	3	8	5
Switch Phase									
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	5.0	30.0	6.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	9.0	41.8	14.4
Total Split (s)	26.6	69.2	42.6	42.6	41.8	41.8	9.0	50.8	26.6
Total Split (%)	22.2%	57.7%	35.5%	35.5%	34.8%	34.8%	7.5%	42.3%	22.2%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.0	3.4	3.9
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	1.0	6.4	4.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	3.0	8.8	7.4
Lead/Lag	Lead		Lag	Lag				Lead	
Lead-Lag Optimize?	Yes		Yes	Yes				Yes	
Recall Mode	None	C-Min	C-Min	C-Min	None	None	Min	None	None
Act Effect Green (s)	17.7	63.0	37.9	37.9	33.0	33.0	47.8	42.0	61.1
Actuated g/C Ratio	0.15	0.52	0.32	0.32	0.28	0.28	0.40	0.35	0.51
v/c Ratio	0.70	0.69	0.87	0.92	0.25	0.26	0.41	0.15	0.90
Control Delay	57.8	22.6	100.7	37.4	36.4	29.2	28.5	27.6	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	22.6	100.7	37.4	36.4	29.2	28.5	27.6	38.1
LOS	E	C	F	D	D	C	C	C	D
Approach Delay		28.0		39.9		32.2		35.3	
Approach LOS		C		D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.8

Intersection LOS: C

Intersection Capacity Utilization 109.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	295	1637	68	1627	85	122	151	92	643
v/c Ratio	0.70	0.69	0.87	0.92	0.25	0.26	0.41	0.15	0.90
Control Delay	57.8	22.6	100.7	37.4	36.4	29.2	28.5	27.6	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	22.6	100.7	37.4	36.4	29.2	28.5	27.6	38.1
Queue Length 50th (m)	35.7	104.4	15.0	114.1	16.5	19.0	24.7	15.5	109.6
Queue Length 95th (m)	51.1	122.3	m#42.5	#133.1	31.0	36.0	41.0	28.1	#153.0
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	458	2387	78	1776	337	463	368	632	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.69	0.87	0.92	0.25	0.26	0.41	0.15	0.88

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔↔↔	↔	↔	↔	↔	↔↔↔	↔↔↔	↔
Traffic Volume (vph)	280	1382	173	65	1291	255	81	75	41	143	87	611
Future Volume (vph)	280	1382	173	65	1291	255	81	75	41	143	87	611
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		3.0	8.8	7.4
Lane Util. Factor	0.97	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.93		1.00	1.00	0.99
Fipb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.90	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	2867	4526		1680	5536		1671	1624		1380	1807	1363
Flt Permitted	0.95	1.00		0.14	1.00		0.70	1.00		0.62	1.00	1.00
Satd. Flow (perm)	2867	4526		248	5536		1227	1624		904	1807	1363
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	295	1455	182	68	1359	268	85	79	43	151	92	643
RTOR Reduction (vph)	0	13	0	0	29	0	0	17	0	0	0	19
Lane Group Flow (vph)	295	1624	0	68	1598	0	85	105	0	151	92	624
Confl. Peds. (#/hr)	6		13	13		6	8		181	181		8
Heavy Vehicles (%)	14%	12%	2%	0%	14%	11%	0%	0%	4%	10%	4%	9%
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			4		3	8	5
Permitted Phases				6			4			8		8
Actuated Green, G (s)	16.7	62.0		36.9	36.9		32.0	32.0		41.0	41.0	57.7
Effective Green, g (s)	17.7	63.0		37.9	37.9		33.0	33.0		42.0	42.0	59.7
Actuated g/C Ratio	0.15	0.52		0.32	0.32		0.28	0.28		0.35	0.35	0.50
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		4.0	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	422	2376		78	1748		337	446		340	632	678
v/s Ratio Prot	0.10	0.36			c0.29			0.06		0.02	0.05	c0.14
v/s Ratio Perm				0.27			0.07			0.13		0.32
v/c Ratio	0.70	0.68		0.87	0.91		0.25	0.24		0.44	0.15	0.92
Uniform Delay, d1	48.6	21.1		38.8	39.5		33.9	33.7		29.6	26.7	27.9
Progression Factor	1.00	1.00		0.76	0.74		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	1.6		64.3	7.9		0.4	0.3		0.9	0.1	17.8
Delay (s)	53.6	22.7		93.7	37.2		34.3	34.0		30.5	26.8	45.8
Level of Service	D	C		F	D		C	C		C	C	D
Approach Delay (s)		27.5			39.5			34.1			41.2	
Approach LOS		C			D			C			D	

Intersection Summary

HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	25.4
Intersection Capacity Utilization	109.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘		↖ ↗ ↘	↖ ↗ ↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.98			0.99	
Frt		0.998			0.994			0.850			0.973	
Flt Protected	0.950			0.950			0.950				0.962	
Satd. Flow (prot)	1685	4574	0	1685	4488	0	1685	1565	0	0	1743	0
Flt Permitted	0.103			0.124			0.660				0.768	
Satd. Flow (perm)	182	4574	0	219	4488	0	1169	1565	0	0	1383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			10			81			42	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Morning Peak Hour

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7				
Lane Configurations	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘						
Traffic Volume (vph)	52	1455	42	1541	25	0	117	0						
Future Volume (vph)	52	1455	42	1541	25	0	117	0						
Turn Type	Perm	NA	Perm	NA	custom	NA	Perm	NA						
Protected Phases		2		6		8		8	3	7				
Permitted Phases	2		6		4		8							
Detector Phase	2	2	6	6	4	8	8	8						
Switch Phase														
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0				
Minimum Split (s)	27.6	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0				
Total Split (s)	80.4	80.4	80.4	80.4	34.6	34.6	34.6	34.6	5.0	5.0				
Total Split (%)	67.0%	67.0%	67.0%	67.0%	28.8%	28.8%	28.8%	28.8%	4%	4%				
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0				
All-Red Time (s)	2.3	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0				
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0						
Total Lost Time (s)	4.6	4.6	4.6	4.6	7.4	7.4	7.4	7.4						
Lead/Lag					Lag	Lag	Lag	Lag	Lead	Lead				
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	C-Min	C-Min	C-Min	C-Min	None	None	None	None	Min	Min				
Act Effect Green (s)	79.4	79.4	79.4	79.4	21.6	21.6	21.6	21.6						
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18	0.18	0.18	0.18						
v/c Ratio	0.45	0.51	0.30	0.56	0.12	0.01	0.54	0.54						
Control Delay	17.8	6.2	9.4	6.3	42.6	0.0	39.8	39.8						
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Total Delay	17.8	6.2	9.4	6.3	42.6	0.0	39.8	39.8						
LOS	B	A	A	A	D	A	D	D						
Approach Delay		6.6		6.4		39.6		39.8						
Approach LOS		A		A		D		D						

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 8.2

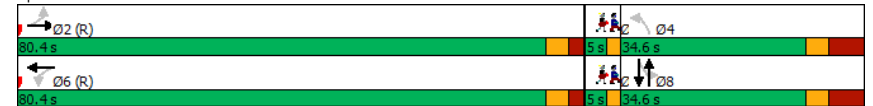
Intersection LOS: A

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive



Queues
2: Dundas Street West & Paulart Drive

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	54	1537	44	1673	26	2	153
v/c Ratio	0.45	0.51	0.30	0.56	0.12	0.01	0.54
Control Delay	17.8	6.2	9.4	6.3	42.6	0.0	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	6.2	9.4	6.3	42.6	0.0	39.8
Queue Length 50th (m)	3.0	32.0	2.7	39.5	5.5	0.0	25.2
Queue Length 95th (m)	m17.3	35.7	m1.2	9.6	13.8	0.0	46.8
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	120	3029	145	2974	264	417	345
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.51	0.30	0.56	0.10	0.00	0.44
Intersection Summary							
m Volume for 95th percentile queue is metered by upstream signal.							

HCM Signalized Intersection Capacity Analysis
2: Dundas Street West & Paulart Drive

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔			↔	↔
Traffic Volume (vph)	52	1455	20	42	1541	65	25	0	2	117	0	30
Future Volume (vph)	52	1455	20	42	1541	65	25	0	2	117	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	4.6	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98				
Frbp, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00				
Frt	1.00	1.00		1.00	0.99		1.00	0.85				
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1683	4574		1680	4488		1683	1565				
Flt Permitted	0.10	1.00		0.12	1.00		0.66	1.00				
Satd. Flow (perm)	182	4574		220	4488		1169	1565				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	54	1516	21	44	1605	68	26	0	2	122	0	31
RTOR Reduction (vph)	0	1	0	0	4	0	0	2	0	0	33	0
Lane Group Flow (vph)	54	1536	0	44	1669	0	26	0	0	0	120	0
Confl. Peds. (#/hr)	6		12	12		6	1		6	6		1
Heavy Vehicles (%)	0%	12%	0%	0%	14%	0%	0%	0%	0%	0%	0%	3%
Turn Type	Perm	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases		2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	75.0	75.0		75.0	75.0		12.6	24.0			24.0	
Effective Green, g (s)	76.0	76.0		76.0	76.0		13.6	25.0			25.0	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.11	0.21			0.21	
Clearance Time (s)	5.6	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	115	2896		139	2842		132	326			288	
v/s Ratio Prot		0.34			c0.37			0.00				
v/s Ratio Perm	0.30			0.20			0.02				c0.09	
v/c Ratio	0.47	0.53		0.32	0.59		0.20	0.00			0.42	
Uniform Delay, d1	11.5	12.1		10.1	12.8		48.2	37.6			41.2	
Progression Factor	0.68	0.55		0.48	0.52		1.00	1.00			1.00	
Incremental Delay, d2	10.3	0.5		4.9	0.8		0.7	0.0			1.0	
Delay (s)	18.1	7.2		9.8	7.4		49.0	37.6			42.1	
Level of Service	B	A		A	A		D	D			D	
Approach Delay (s)		7.6			7.5			48.2			42.1	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			9.4							A		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			70.8%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes and Geometrics
3: Dundas Street West & Bellingham Rd

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.994				0.865		0.865	
Flt Protected												
Satd. Flow (prot)	0	4618	0	0	5643	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4618	0	0	5643	0	0	0	1625	1842	0	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		49.9			136.3			41.0			43.2	
Travel Time (s)		3.6			9.8			3.0			3.1	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis
3: Dundas Street West & Bellingham Rd

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑		↑↑↑	↑↑↑				↑	↑		
Traffic Volume (veh/h)	0	1506	6	0	1557	62	0	0	7	0	0	98
Future Volume (Veh/h)	0	1506	6	0	1557	62	0	0	7	0	0	98
Sign Control	Free	Free		Free	Free			Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1553	6	0	1605	64	0	0	7	0	0	101
Pedestrians									15			176
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									1			14
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)		50			196							
pX, platoon unblocked	0.87			0.74			0.81	0.81	0.74	0.81	0.81	0.87
vC, conflicting volume	1845			1574			2073	3416	536	2338	3387	609
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1220			567			168	1827	0	495	1792	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	100	100	88
cM capacity (veh/h)	423			736			482	52	802	278	55	813
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	621	621	317	459	459	459	293	7	101			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	6	0	0	0	64	7	101			
cSH	1700	1700	1700	1700	1700	1700	1700	802	813			
Volume to Capacity	0.37	0.37	0.19	0.27	0.27	0.27	0.17	0.01	0.12			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	10.1			
Lane LOS								A	B			
Approach Delay (s)	0.0			0.0				9.5	10.1			
Approach LOS								A	B			
Intersection Summary												
Average Delay				0.3								
Intersection Capacity Utilization				Err%			ICU Level of Service		H			
Analysis Period (min)				15								

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.910			0.972						0.989	
Flt Protected		0.984			0.962			0.998			0.999	
Satd. Flow (prot)	0	1682	0	0	1757	0	0	1875	0	0	1856	0
Flt Permitted		0.984			0.962			0.998			0.999	
Satd. Flow (perm)	0	1682	0	0	1757	0	0	1875	0	0	1856	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	2	0	5	51	0	13	2	59	0	1	49	5
Future Volume (Veh/h)	2	0	5	51	0	13	2	59	0	1	49	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	3	0	6	66	0	17	3	77	0	1	64	6
Pedestrians		8			2			1			1	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		1			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	178	162	76	161	165	80	78			79		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178	162	76	161	165	80	78			79		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	92	100	98	100			100		
cM capacity (veh/h)	763	726	984	795	723	983	1523			1529		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	83	80	71								
Volume Left	3	66	3	1								
Volume Right	6	17	0	6								
cSH	897	828	1523	1529								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.2	2.7	0.0	0.0								
Control Delay (s)	9.1	9.8	0.3	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.1	9.8	0.3	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			21.2%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.913			0.877			0.998			0.995	
Flt Protected		0.982			0.995			0.985			0.997	
Satd. Flow (prot)	0	1685	0	0	1640	0	0	1847	0	0	1799	0
Flt Permitted		0.982			0.995			0.985			0.997	
Satd. Flow (perm)	0	1685	0	0	1640	0	0	1847	0	0	1799	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	10	0	18	1	0	7	37	81	2	8	116	5
Future Volume (Veh/h)	10	0	18	1	0	7	37	81	2	8	116	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	14	0	25	1	0	10	52	114	3	11	163	7
Pedestrians		1			5							
Lane Width (m)		3.5			3.5							
Walking Speed (m/s)		1.2			1.2							
Percent Blockage		0			0							
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)							72					
pX, platoon unblocked												
vC, conflicting volume	419	416	168	438	418	120	171			122		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	419	416	168	438	418	120	171			122		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	97	100	100	99	96			99		
cM capacity (veh/h)	522	505	881	496	504	933	1417			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	39	11	169	181								
Volume Left	14	1	52	11								
Volume Right	25	10	3	7								
cSH	706	863	1417	1472								
Volume to Capacity	0.06	0.01	0.04	0.01								
Queue Length 95th (m)	1.4	0.3	0.9	0.2								
Control Delay (s)	10.4	9.2	2.6	0.5								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.4	9.2	2.6	0.5								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			28.2%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	1.00	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	4621	5720	0	1879	0
Flt Permitted						
Satd. Flow (perm)	0	4621	5720	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary







Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Total Conditions 2035

Morning Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑		↑			
Traffic Volume (veh/h)	0	1507	1614	0	0	0		
Future Volume (Veh/h)	0	1507	1614	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97		
Hourly flow rate (vph)	0	1554	1664	0	0	0		
Pedestrians		1	1		8			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		1			
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (m)	186		59					
pX, platoon unblocked	0.81				0.86	0.81		
vC, conflicting volume	1672				2191	425		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	689				54	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	100				100	100		
cM capacity (veh/h)	740				817	883		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	518	518	518	475	475	475	238	0
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.30	0.30	0.28	0.28	0.28	0.14	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS								A
Approach Delay (s)	0.0				0.0			
Approach LOS								A
Intersection Summary								
Average Delay				0.0				
Intersection Capacity Utilization				32.5%		ICU Level of Service		A
Analysis Period (min)				15				

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99			1.00		0.96	0.98		0.98	0.99	
Frt		0.974			0.995			0.906			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	4447	0	1638	4520	0	1332	1427	0	1623	1742	0
Flt Permitted	0.140			0.090			0.648			0.618		
Satd. Flow (perm)	256	4447	0	155	4520	0	874	1427	0	1034	1742	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			7			73			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035

Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	42	1194	164	1472	124	54	52	110		
Future Volume (vph)	42	1194	164	1472	124	54	52	110		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	6.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	51.0	51.0	20.0	71.0	44.0	44.0	44.0	44.0	5.0	5.0
Total Split (%)	42.5%	42.5%	16.7%	59.2%	36.7%	36.7%	36.7%	36.7%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	59.6	59.6	77.5	75.9	23.9	23.9	23.9	23.9		
Actuated g/C Ratio	0.50	0.50	0.65	0.63	0.20	0.20	0.20	0.20		
v/c Ratio	0.35	0.69	0.66	0.57	0.76	0.45	0.27	0.40		
Control Delay	19.7	13.1	30.6	14.6	70.4	24.4	40.9	40.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	19.7	13.1	30.6	14.6	70.4	24.4	40.9	40.7		
LOS	B	B	C	B	E	C	D	D		
Approach Delay		13.3		16.2		45.7		40.8		
Approach LOS		B		B		D		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 18.4

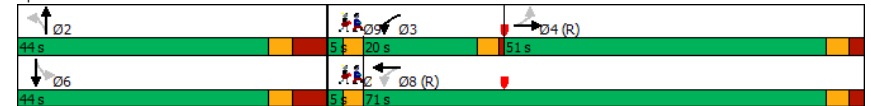
Intersection LOS: B

Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	45	1542	174	1625	132	153	55	140
v/c Ratio	0.35	0.69	0.66	0.57	0.76	0.45	0.27	0.40
Control Delay	19.7	13.1	30.6	14.6	70.4	24.4	40.9	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	13.1	30.6	14.6	70.4	24.4	40.9	40.7
Queue Length 50th (m)	4.1	50.7	19.0	79.1	31.1	17.0	11.6	28.6
Queue Length 95th (m)	m7.6	51.3	46.9	114.2	49.6	33.9	21.8	43.3
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	127	2230	310	2859	266	485	315	536
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.69	0.56	0.57	0.50	0.32	0.17	0.26
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035
Morning Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	42	1194	256	164	1472	55	124	54	90	52	110	22
Future Volume (vph)	42	1194	256	164	1472	55	124	54	90	52	110	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.96	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.91		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1740	4444		1638	4518		1282	1427		1590	1743	
Flt Permitted	0.14	1.00		0.09	1.00		0.65	1.00		0.62	1.00	
Satd. Flow (perm)	256	4444		156	4518		874	1427		1034	1743	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	1270	272	174	1566	59	132	57	96	55	117	23
RTOR Reduction (vph)	0	23	0	0	3	0	0	58	0	0	6	0
Lane Group Flow (vph)	45	1519	0	174	1622	0	132	95	0	55	134	0
Confl. Peds. (#/hr)	21		13	13		21	40		22	22		40
Heavy Vehicles (%)	2%	11%	15%	9%	13%	2%	34%	9%	21%	10%	4%	5%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	58.5	58.5		74.8	74.8		22.9	22.9		22.9	22.9	
Effective Green, g (s)	59.5	59.5		75.8	75.8		23.9	23.9		23.9	23.9	
Actuated g/C Ratio	0.50	0.50		0.63	0.63		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	126	2203		262	2853		174	284		205	347	
v/s Ratio Prot		0.34		c0.07	0.36			0.07			0.08	
v/s Ratio Perm	0.18			c0.35			c0.15			0.05		
v/c Ratio	0.36	0.69		0.66	0.57		0.76	0.33		0.27	0.38	
Uniform Delay, d1	18.5	23.2		19.6	12.7		45.3	41.2		40.7	41.7	
Progression Factor	0.48	0.45		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	1.6		6.2	0.8		17.1	0.7		0.7	0.7	
Delay (s)	15.8	12.1		25.8	13.5		62.5	41.9		41.4	42.4	
Level of Service	B	B		C	B		E	D		D	D	
Approach Delay (s)		12.2			14.7			51.4			42.1	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		17.8								B		
HCM 2000 Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		85.5%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Lanes and Geometrics

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔	↔↔↔	↔	↔	↔	↔	↔	↔	↔
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	125.0		0.0	70.0		95.0	0.0		0.0	0.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.97	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		0.99		0.99	0.98	0.91		0.84		0.97
Frt		0.991			0.963			0.954				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3054	4567	0	1636	5688	0	1652	1636	0	1604	1879	1396
Flt Permitted	0.950			0.152			0.706			0.435		
Satd. Flow (perm)	3044	4567	0	258	5688	0	1205	1636	0	614	1879	1350
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			70			18				38
Link Speed (k/h)		60			60			50				50
Link Distance (m)		216.5			49.9			82.6				131.4
Travel Time (s)		13.0			3.0			5.9				9.5

Intersection Summary

Area Type: Other

Timings

1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	419	1379	63	1210	257	176	265	73	622
Future Volume (vph)	419	1379	63	1210	257	176	265	73	622
Turn Type	Prot	NA	Perm	NA	Perm	NA	pm+pt	NA	pm+ov
Protected Phases	5	2		6		4	3	8	5
Permitted Phases			6		4		8		8
Detector Phase	5	2	6	6	4	4	3	8	5
Switch Phase									
Minimum Initial (s)	6.0	30.0	30.0	30.0	32.0	32.0	5.0	32.0	6.0
Minimum Split (s)	14.4	37.2	37.2	37.2	41.8	41.8	9.0	41.8	14.4
Total Split (s)	26.1	69.0	42.9	42.9	41.8	41.8	10.0	51.8	26.1
Total Split (%)	21.6%	57.1%	35.5%	35.5%	34.6%	34.6%	8.3%	42.9%	21.6%
Yellow Time (s)	3.9	3.9	3.9	3.9	3.4	3.4	3.0	3.4	3.9
All-Red Time (s)	4.5	3.3	3.3	3.3	6.4	6.4	1.0	6.4	4.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.4	6.2	6.2	6.2	8.8	8.8	3.0	8.8	7.4
Lead/Lag	Lead		Lag	Lag				Lead	
Lead-Lag Optimize?	Yes		Yes	Yes				Yes	
Recall Mode	None	C-Min	C-Min	C-Min	None	None	Min	None	None
Act Effect Green (s)	18.7	62.8	36.7	36.7	33.0	33.0	48.8	43.0	63.1
Actuated g/C Ratio	0.15	0.52	0.30	0.30	0.27	0.27	0.40	0.36	0.52
v/c Ratio	0.94	0.66	0.86	0.96	0.83	0.58	0.92	0.12	0.91
Control Delay	80.6	22.6	111.3	53.9	63.3	41.3	67.6	26.8	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.6	22.6	111.3	53.9	63.3	41.3	67.6	26.8	38.3
LOS	F	C	F	D	E	D	E	C	D
Approach Delay		35.5		56.0		52.4		45.5	
Approach LOS		D		E		D		D	

Intersection Summary

Cycle Length: 120.8

Actuated Cycle Length: 120.8

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 45.9

Intersection LOS: D

Intersection Capacity Utilization 132.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Dundas Street West & The East Mall Crescent



Queues
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	446	1562	67	1708	273	269	282	78	662
v/c Ratio	0.94	0.66	0.86	0.96	0.83	0.58	0.92	0.12	0.91
Control Delay	80.6	22.6	111.3	53.9	63.3	41.3	67.6	26.8	38.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.6	22.6	111.3	53.9	63.3	41.3	67.6	26.8	38.3
Queue Length 50th (m)	57.5	99.7	15.7	117.7	64.2	54.3	50.2	13.0	116.0
Queue Length 95th (m)	#89.8	116.4	#45.6	#144.7	#111.4	83.6	#103.1	24.3	#165.6
Internal Link Dist (m)		192.5		25.9		58.6		107.4	
Turn Bay Length (m)	125.0		70.0						
Base Capacity (vph)	472	2379	78	1776	329	460	305	668	730
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.66	0.86	0.96	0.83	0.58	0.92	0.12	0.91

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
1: Dundas Street West & The East Mall Crescent

Future Total Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔↔		↔	↔↔↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	419	1379	89	63	1210	396	257	176	77	265	73	622
Future Volume (vph)	419	1379	89	63	1210	396	257	176	77	265	73	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.0	3.0	3.5	3.5	3.0	3.5	3.0
Total Lost time (s)	7.4	6.2		6.2	6.2		8.8	8.8		3.0	8.8	7.4
Lane Util. Factor	0.97	0.91		1.00	0.86		1.00	1.00		1.00	1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.91		1.00	1.00	0.98
Frbp, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.93	1.00	1.00
Frt	1.00	0.99		1.00	0.96		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3054	4567		1612	5689		1621	1636		1498	1879	1364
Flt Permitted	0.95	1.00		0.15	1.00		0.71	1.00		0.43	1.00	1.00
Satd. Flow (perm)	3054	4567		258	5689		1205	1636		686	1879	1364
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	446	1467	95	67	1287	421	273	187	82	282	78	662
RTOR Reduction (vph)	0	6	0	0	49	0	0	13	0	0	0	19
Lane Group Flow (vph)	446	1556	0	67	1659	0	273	256	0	282	78	643
Confl. Peds. (#/hr)	18		62	62		18	18		248	248		18
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	7%	11%	0%	3%	10%	4%	2%	0%	0%	5%	0%	8%
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			4		3	8	5
Permitted Phases				6			4			8		8
Actuated Green, G (s)	17.7	61.8		35.7	35.7		32.0	32.0		42.0	42.0	59.7
Effective Green, g (s)	18.7	62.8		36.7	36.7		33.0	33.0		43.0	43.0	61.7
Actuated g/C Ratio	0.15	0.52		0.30	0.30		0.27	0.27		0.36	0.36	0.51
Clearance Time (s)	8.4	7.2		7.2	7.2		9.8	9.8		4.0	9.8	8.4
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	472	2374		78	1728		329	446		291	668	696
v/s Ratio Prot	c0.15	0.34			c0.29			0.16		c0.06	0.04	0.14
v/s Ratio Perm				0.26			0.23			c0.29		0.33
v/c Ratio	0.94	0.66		0.86	0.96		0.83	0.57		0.97	0.12	0.92
Uniform Delay, d1	50.5	21.1		39.6	41.3		41.3	37.8		38.7	26.1	27.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	27.8	1.4		67.9	14.1		15.8	1.8		43.8	0.1	18.0
Delay (s)	78.4	22.6		107.5	55.4		57.0	39.6		82.5	26.2	45.4
Level of Service	E	C		F	E		E	D		F	C	D
Approach Delay (s)		35.0			57.4			48.4			54.2	
Approach LOS		C			E			D			D	

Intersection Summary

HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.8	Sum of lost time (s)	25.4
Intersection Capacity Utilization	132.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lanes and Geometrics

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	30.0		0.0	45.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99	1.00		0.99	0.99			0.99	
Frt		0.999			0.996			0.900			0.961	
Flt Protected	0.950			0.950			0.950				0.967	
Satd. Flow (prot)	1685	4659	0	1491	4687	0	842	1674	0	0	1627	0
Flt Permitted	0.082			0.126			0.715				0.794	
Satd. Flow (perm)	145	4659	0	197	4687	0	631	1674	0	0	1333	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		2			4			4			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		59.5			212.9			65.5			71.8	
Travel Time (s)		4.3			15.3			4.7			5.2	

Intersection Summary

Area Type: Other

Timings

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø3	Ø7
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔↔		
Traffic Volume (vph)	116	1589	38	1577	31	2	41	2		
Future Volume (vph)	116	1589	38	1577	31	2	41	2		
Turn Type	pm+pt	NA	Perm	NA	custom	NA	Perm	NA		
Protected Phases	5	2		6		8		8	3	7
Permitted Phases	2		6		4		8			
Detector Phase	5	2	6	6	4	8	8	8		
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	1.0	1.0
Minimum Split (s)	9.5	27.6	27.6	27.6	34.4	34.4	34.4	34.4	5.0	5.0
Total Split (s)	19.1	80.4	61.3	61.3	34.6	34.6	34.6	34.6	5.0	5.0
Total Split (%)	15.9%	67.0%	51.1%	51.1%	28.8%	28.8%	28.8%	28.8%	4%	4%
Yellow Time (s)	3.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.0	2.0
All-Red Time (s)	1.0	2.3	2.3	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	3.0	4.6	4.6	4.6	7.4	7.4	7.4	7.4		
Lead/Lag	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	87.3	85.7	72.2	72.2	21.0	21.0	21.0	21.0		
Actuated g/C Ratio	0.73	0.71	0.60	0.60	0.18	0.18		0.18		
v/c Ratio	0.51	0.51	0.34	0.61	0.30	0.02		0.26		
Control Delay	18.5	9.6	22.7	15.1	51.5	29.5		36.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		
Total Delay	18.5	9.6	22.7	15.1	51.5	29.5		36.4		
LOS	B	A	C	B	D	C		D		
Approach Delay		10.2		15.3		48.1		36.4		
Approach LOS		B		B		D		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 13.5

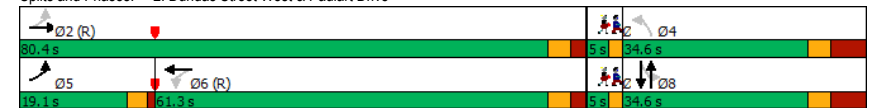
Intersection LOS: B

Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Dundas Street West & Paulart Drive










Queues

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Afternoon Peak Hour

							
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	123	1707	40	1719	33	6	65
v/c Ratio	0.51	0.51	0.34	0.61	0.30	0.02	0.26
Control Delay	18.5	9.6	22.7	15.1	51.5	29.5	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	9.6	22.7	15.1	51.5	29.5	36.4
Queue Length 50th (m)	9.7	75.6	4.1	65.8	7.2	0.4	10.5
Queue Length 95th (m)	25.1	81.3	17.0	142.4	18.1	4.4	24.4
Internal Link Dist (m)		35.5		188.9		41.5	47.8
Turn Bay Length (m)	30.0		45.0				
Base Capacity (vph)	311	3327	118	2820	143	382	314
Starvation Cap Reductn	0	0	0	86	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.51	0.34	0.63	0.23	0.02	0.21

Intersection Summary

























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

HCM Signalized Intersection Capacity Analysis

2: Dundas Street West & Paulart Drive

Future Total Conditions 2035

Afternoon Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1589	16	38	1577	39	31	2	4	41	2	18
Future Volume (vph)	116	1589	16	38	1577	39	31	2	4	41	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.0	3.5	3.5	3.0	3.5	3.5	3.0	3.5	3.0	3.5	3.5	3.5
Total Lost time (s)	3.0	4.6		4.6	4.6		7.4	7.4				
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00				
Flt Protected	1.00	1.00		1.00	1.00		1.00	0.99				
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00				
Satd. Flow (prot)	1685	4657		1483	4689		838	1674				
Satd. Flow (perm)	145	4657		197	4689		630	1674				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	1690	17	40	1678	41	33	2	4	44	2	19
RTOR Reduction (vph)	0	1	0	0	2	0	0	3	0	0	14	0
Lane Group Flow (vph)	123	1706	0	40	1717	0	33	3	0	0	51	0
Confl. Peds. (#/hr)	22		21	21		22	4		2	2		4
Heavy Vehicles (%)	0%	10%	0%	13%	9%	0%	100%	0%	0%	10%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		custom	NA		Perm	NA	
Protected Phases	5	2			6			8			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	81.3	81.3		67.8	67.8		12.0	17.7			17.7	
Effective Green, g (s)	82.3	82.3		68.8	68.8		13.0	18.7			18.7	
Actuated g/C Ratio	0.69	0.69		0.57	0.57		0.11	0.16			0.16	
Clearance Time (s)	4.0	5.6		5.6	5.6		8.4	8.4			8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	234	3193		112	2688		68	260			207	
v/s Ratio Prot	0.05	c0.37			c0.37			0.00				
v/s Ratio Perm	0.31			0.20			c0.05				c0.04	
v/c Ratio	0.53	0.53		0.36	0.64		0.49	0.01			0.25	
Uniform Delay, d1	12.5	9.3		13.7	17.2		50.4	42.8			44.5	
Progression Factor	1.00	1.00		0.81	0.82		1.00	1.00			1.00	
Incremental Delay, d2	2.1	0.6		8.4	1.1		5.4	0.0			0.6	
Delay (s)	14.6	10.0		19.5	15.2		55.7	42.8			45.1	
Level of Service	B	A		B	B		E	D			D	
Approach Delay (s)		10.3			15.3			53.7			45.1	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM 2000 Control Delay		13.8			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		78.9%			ICU Level of Service			D				
Analysis Period (min)		15										
Critical Lane Group												

Lanes and Geometrics

3: Dundas Street West & Bellingham Rd

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Length (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
Storage Lanes	0	0	0	0	0	0	0	0	1	1	0	0
Taper Length (m)	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Lane Util. Factor	1.00	0.91	0.91	1.00	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.999	0.999	0.999	0.998	0.998	0.998	0.998	0.998	0.865	0.865	0.865	0.865
Flt Protected												
Satd. Flow (prot)	0	4703	0	0	5968	0	0	0	1625	1842	0	0
Flt Permitted												
Satd. Flow (perm)	0	4703	0	0	5968	0	0	0	1625	1842	0	0
Link Speed (k/h)	50	50	50	50	50	50	50	50	50	50	50	50
Link Distance (m)	49.9	49.9	49.9	136.3	136.3	136.3	41.0	41.0	41.0	41.0	43.2	43.2
Travel Time (s)	3.6	3.6	3.6	9.8	9.8	9.8	3.0	3.0	3.0	3.0	3.1	3.1

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

3: Dundas Street West & Bellingham Rd

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (veh/h)	0	1725	8	0	1652	26	0	0	15	0	0	68
Future Volume (Veh/h)	0	1725	8	0	1652	26	0	0	15	0	0	68
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
Grade	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	1835	9	0	1757	28	0	0	16	0	0	72
Pedestrians									21			245
Lane Width (m)									3.5			3.5
Walking Speed (m/s)									1.2			1.2
Percent Blockage									2			20
Right turn flare (veh)												
Median type	None	None	None	None	None	None	None	None	None	None	None	None
Median storage (veh)												
Upstream signal (m)	50	50	50	196	196	196	196	196	196	196	196	196
pX, platoon unblocked	0.82	0.82	0.82	0.76	0.76	0.76	0.85	0.85	0.76	0.85	0.85	0.82
vC, conflicting volume	2030	2030	2030	1865	1865	1865	2372	3890	637	2644	3881	698
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1139	1139	1139	1020	1020	1020	211	2001	0	532	1990	0
tC, single (s)	4.1	4.1	4.1	4.1	4.1	4.1	7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2	2.2	2.2	2.2	2.2	2.2	3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100	100	100	100	100	100	100	100	98	100	100	90
cM capacity (veh/h)	399	399	399	503	503	503	456	40	812	240	40	708
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	734	734	376	502	502	502	279	16	72			
Volume Left	0	0	0	0	0	0	0	0	0			
Volume Right	0	0	9	0	0	0	28	16	72			
cSH	1700	1700	1700	1700	1700	1700	1700	812	708			
Volume to Capacity	0.43	0.43	0.22	0.30	0.30	0.30	0.16	0.02	0.10			
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.7			
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	10.7			
Lane LOS								A	B			
Approach Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.5	10.7				
Approach LOS							A	B				
Intersection Summary												
Average Delay				0.2	0.2	0.2						
Intersection Capacity Utilization				Err%	Err%	Err%	ICU Level of Service		H			
Analysis Period (min)				15	15	15						

Lanes and Geometrics

4: Bellingham Rd & West Site driveway

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt	0.889			0.974								
Flt Protected	0.991			0.961						0.996		
Satd. Flow (prot)	0	1655	0	0	1759	0	0	1648	0	0	1790	0
Flt Permitted	0.991			0.961						0.996		
Satd. Flow (perm)	0	1655	0	0	1759	0	0	1648	0	0	1790	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		33.4			51.3			43.2			193.7	
Travel Time (s)		2.4			3.7			3.1			13.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

4: Bellingham Rd & West Site driveway

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	3	0	12	29	0	7	0	25	0	3	27	0
Future Volume (Veh/h)	3	0	12	29	0	7	0	25	0	3	27	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	0	14	33	0	8	0	28	0	3	31	0
Pedestrians	16			7			6			2		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	1			1			0			0		
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	91	88	53	92	88	37	47			35		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	91	88	53	92	88	37	47			35		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	96	100	99	100			100		
cM capacity (veh/h)	865	789	1002	861	789	1033	1553			1580		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	41	28	34								
Volume Left	3	33	0	3								
Volume Right	14	8	0	0								
cSH	975	890	1700	1580								
Volume to Capacity	0.02	0.05	0.02	0.00								
Queue Length 95th (m)	0.4	1.2	0.0	0.0								
Control Delay (s)	8.8	9.2	0.0	0.7								
Lane LOS	A	A		A								
Approach Delay (s)	8.8	9.2	0.0	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			21.3%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

5: Paulart Drive & East Site driveway

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
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
Ped Bike Factor												
Frt		0.908			0.865			0.997			0.977	
Flt Protected		0.984						0.975			0.998	
Satd. Flow (prot)	0	1679	0	0	1625	0	0	1826	0	0	1777	0
Flt Permitted		0.984						0.975			0.998	
Satd. Flow (perm)	0	1679	0	0	1625	0	0	1826	0	0	1777	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		45.6			35.4			71.8			246.3	
Travel Time (s)		3.3			2.5			5.2			17.7	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

5: Paulart Drive & East Site driveway

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↑			↑	
Traffic Volume (veh/h)	5	0	10	0	0	3	81	76	3	3	51	11
Future Volume (Veh/h)	5	0	10	0	0	3	81	76	3	3	51	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	0	12	0	0	4	101	95	4	4	64	14
Pedestrians		6			7						2	
Lane Width (m)		3.5			3.5						3.5	
Walking Speed (m/s)		1.2			1.2						1.2	
Percent Blockage		0			1						0	
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (m)								72				
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	390	393	77	397	398	106	84			106		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	376	77	380	381	84	84			84		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	93			100		
cM capacity (veh/h)	538	507	985	529	503	958	1518			1493		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	18	4	200	82								
Volume Left	6	0	101	4								
Volume Right	12	4	4	14								
cSH	771	958	1518	1493								
Volume to Capacity	0.02	0.00	0.07	0.00								
Queue Length 95th (m)	0.6	0.1	1.7	0.1								
Control Delay (s)	9.8	8.8	4.1	0.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.8	8.8	4.1	0.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			27.5%				ICU Level of Service			A		
Analysis Period (min)			15									

Lanes and Geometrics

6: Dundas Street West & South Site Driveway

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑		↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%	0%		0%	
Storage Length (m)	0.0			0.0	0.0	0.0
Storage Lanes	0			0	1	0
Taper Length (m)	7.5				7.5	
Lane Util. Factor	0.91	0.91	0.86	0.86	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	0	4707	5930	0	1879	0
Flt Permitted						
Satd. Flow (perm)	0	4707	5930	0	1879	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		136.3	59.5		54.6	
Travel Time (s)		9.8	4.3		3.9	

Intersection Summary

Area Type: Other

HCM Unsignalized Intersection Capacity Analysis

6: Dundas Street West & South Site Driveway

Future Total Conditions 2035

Afternoon Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑↑↑	↑↑↑↓		↑↓			
Traffic Volume (veh/h)	6	1722	1639	0	0	0		
Future Volume (Veh/h)	6	1722	1639	0	0	0		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93		
Hourly flow rate (vph)	6	1852	1762	0	0	0		
Pedestrians		1	1		24			
Lane Width (m)		3.5	3.5		3.5			
Walking Speed (m/s)		1.2	1.2		1.2			
Percent Blockage		0	0		2			
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)		186	59					
pX, platoon unblocked	0.78				0.88	0.78		
vC, conflicting volume	1786				2416	466		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	577				52	0		
tC, single (s)	4.1				6.8	6.9		
tC, 2 stage (s)								
tF (s)	2.2				3.5	3.3		
p0 queue free %	99				100	100		
cM capacity (veh/h)	767				820	830		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	376	741	741	503	503	503	252	0
Volume Left	6	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0	0
cSH	767	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.44	0.44	0.30	0.30	0.30	0.15	0.03
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							A
Approach Delay (s)	0.1			0.0				0.0
Approach LOS								A
Intersection Summary								
Average Delay			0.0					
Intersection Capacity Utilization			40.7%		ICU Level of Service			A
Analysis Period (min)			15					

Lanes and Geometrics

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔↔		↔	↔↔↔		↔	↔		↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Grade (%)		0%			0%			0%			0%	
Storage Length (m)	40.0		0.0	40.0		0.0	0.0		0.0	65.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.97	0.98			0.99		0.98	0.94		0.96	0.99	
Frt		0.977			0.992			0.909			0.967	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1785	4584	0	1700	4698	0	1684	1568	0	1750	1803	0
Flt Permitted	0.272			0.086			0.672			0.254		
Satd. Flow (perm)	497	4584	0	154	4698	0	1168	1568	0	451	1803	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			11			66			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		212.9			165.8			172.4			111.5	
Travel Time (s)		15.3			11.9			12.4			8.0	

Intersection Summary

Area Type: Other

Timings

7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035

Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	Ø7	Ø9
Lane Configurations	↔	↔↔↔	↔	↔↔↔	↔	↔	↔	↔		
Traffic Volume (vph)	56	1161	218	909	249	143	52	99		
Future Volume (vph)	56	1161	218	909	249	143	52	99		
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA		
Protected Phases		4	3	8		2		6	7	9
Permitted Phases	4		8		2		6			
Detector Phase	4	4	3	8	2	2	6	6		
Switch Phase										
Minimum Initial (s)	5.0	5.0	2.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0
Minimum Split (s)	27.6	27.6	6.0	27.6	39.4	39.4	39.4	39.4	5.0	5.0
Total Split (s)	51.0	51.0	20.0	71.0	44.0	44.0	44.0	44.0	5.0	5.0
Total Split (%)	42.5%	42.5%	16.7%	59.2%	36.7%	36.7%	36.7%	36.7%	4%	4%
Yellow Time (s)	3.3	3.3	3.0	3.3	3.3	3.3	3.3	3.3	3.0	3.0
All-Red Time (s)	2.3	2.3	1.0	2.3	5.1	5.1	5.1	5.1	0.0	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		
Total Lost Time (s)	4.6	4.6	3.0	4.6	7.4	7.4	7.4	7.4		
Lead/Lag			Lag	Lag					Lead	Lead
Lead-Lag Optimize?			Yes	Yes					Yes	Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None	None	None	Min	Min
Act Effect Green (s)	50.9	50.9	71.0	69.4	31.5	31.5	31.5	31.5		
Actuated g/C Ratio	0.42	0.42	0.59	0.58	0.26	0.26	0.26	0.26		
v/c Ratio	0.28	0.73	0.79	0.37	0.85	0.83	0.47	0.28		
Control Delay	19.7	23.1	45.6	14.4	66.6	49.8	49.2	32.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	19.7	23.1	45.6	14.4	66.6	49.8	49.2	32.0		
LOS	B	C	D	B	E	D	D	C		
Approach Delay		23.0		20.1		56.6		37.1		
Approach LOS		C		C		E		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.8

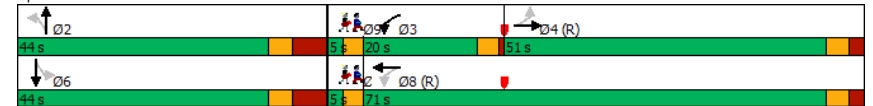
Intersection LOS: C

Intersection Capacity Utilization 89.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Shorncliffe Rd/Shaver Ave S & Dundas Street West



Queues
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

Future Total Conditions 2035
Afternoon Peak Hour

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	1438	229	1008	262	383	55	133
v/c Ratio	0.28	0.73	0.79	0.37	0.85	0.83	0.47	0.28
Control Delay	19.7	23.1	45.6	14.4	66.6	49.8	49.2	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	23.1	45.6	14.4	66.6	49.8	49.2	32.0
Queue Length 50th (m)	9.6	113.6	37.1	49.5	60.5	73.9	11.2	23.2
Queue Length 95th (m)	19.8	133.2	#73.5	59.4	#97.4	109.4	25.1	39.0
Internal Link Dist (m)		188.9		141.8		148.4		87.5
Turn Bay Length (m)	40.0		40.0			65.0		
Base Capacity (vph)	211	1967	310	2723	356	524	137	558
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.73	0.74	0.37	0.74	0.73	0.40	0.24

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
7: Shorncliffe Rd/Shaver Ave S & Dundas Street West

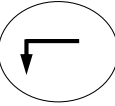

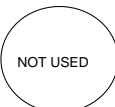

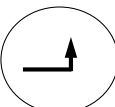
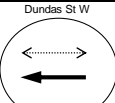
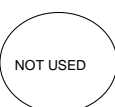
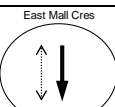
Future Total Conditions 2035
Afternoon Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	56	1161	205	218	909	48	249	143	220	52	99	28
Future Volume (vph)	56	1161	205	218	909	48	249	143	220	52	99	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		3.0	4.6		7.4	7.4		7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.97	1.00		1.00	1.00		0.98	1.00		0.96	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	4587		1700	4700		1651	1568		1688	1804	
Flt Permitted	0.27	1.00		0.09	1.00		0.67	1.00		0.25	1.00	
Satd. Flow (perm)	497	4587		155	4700		1168	1568		452	1804	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	1222	216	229	957	51	262	151	232	55	104	29
RTOR Reduction (vph)	0	20	0	0	5	0	0	49	0	0	9	0
Lane Group Flow (vph)	59	1418	0	229	1003	0	262	334	0	55	124	0
Confl. Peds. (#/hr)	41		67	67		41	20		71	71		20
Heavy Vehicles (%)	0%	6%	15%	5%	8%	0%	6%	1%	4%	2%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.9	49.9		68.4	68.4		30.5	30.5		30.5	30.5	
Effective Green, g (s)	50.9	50.9		69.4	69.4		31.5	31.5		31.5	31.5	
Actuated g/C Ratio	0.42	0.42		0.58	0.58		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.6	5.6		4.0	5.6		8.4	8.4		8.4	8.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	210	1945		289	2718		306	411		118	473	
v/s Ratio Prot		0.31		c0.10	0.21			0.21			0.07	
v/s Ratio Perm	0.12			c0.36			c0.22			0.12		
v/c Ratio	0.28	0.73		0.79	0.37		0.86	0.81		0.47	0.26	
Uniform Delay, d1	22.6	28.8		29.1	13.6		42.1	41.5		37.2	35.0	
Progression Factor	0.63	0.71		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	2.1		13.8	0.4		20.3	11.7		2.9	0.3	
Delay (s)	17.2	22.7		42.9	14.0		62.4	53.2		40.1	35.3	
Level of Service	B	C		D	B		E	D		D	D	
Approach Delay (s)		22.5			19.3			56.9			36.7	
Approach LOS		C			B			E			D	
Intersection Summary												
HCM 2000 Control Delay		28.3								C		
HCM 2000 Volume to Capacity ratio		0.80										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		89.4%			ICU Level of Service			E				
Analysis Period (min)		15										

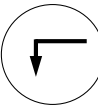
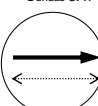
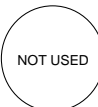
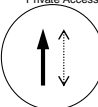
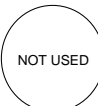
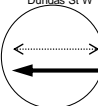

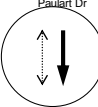
c Critical Lane Group

Appendix G: Signal Timing Plans



LOCATION: Dundas St W & East Mall Cres / Private Access		ATO (DISTRICT) / WARD: Area 2 (Etobicoke York) / Ward 3					N ↑	
MODE/COMMENT: SA1 with 2-Wire Polara APS & LPI		COMPUTER SYSTEM: TransSuite						
TCS: 915		CONTROLLER/CABINET TYPE: Econolite Cobalt / TS2 T1						
PREPARED BY/DATE: Arcadis (Jonathan Sukhu) / November 19, 2024		CONFLICT FLASH: Red & Red						
CHECKED BY/DATE: Arcadis (Alaleh Adib) / November 20, 2024		DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)						
City Staff: Ranajamil Iftikhar		CHANNEL/DROP: 5034/10						
IMPLEMENTATION DATE: December 12, 2024		CONTROLLER FIRMWARE: 32.63.10						
NEMA Phase		OFF	AM	PM	NGHT	WKND	Phase Mode (Fixed/Demanded/Callable)	Remarks
		All Other Times	06:30-10:00 M-F	15:00-19:00 M-F	22:00-06:30 Daily	9:00-19:00 Sat & Sun		
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	System Plan	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5		
1 	WLK FDW MIN MAX1 AMB ALR SPLIT	 3.4 4.4 14	 14 14	 14	 	 14	Callable/extendable by 9.0 m long setback loop detector located 12.5 m from the stop bar (third vehicle detection)	Pedestrian Minimums: EWWK = 7 seconds, EWFD = 23 seconds NSWK = 7 seconds, NSFD = 30 seconds Left-turn passage time = 2 seconds
								APS on during full walk of EWWK & NSWK when activated by pushbutton and no left-turn arrows are displayed
								Extended push activation = 3 seconds
2 Dundas St W 	WLK FDW MIN MAX1 AMB ALR SPLIT	 3.9 3.3 47	 59 59	 50 50	 41 41	 50 50	Fixed	Leading Pedestrian Interval - NSWK comes up 5 seconds before vehicle green
								The following grades were used to calculate the AMB intervals: East Leg (WB) = -0.6% West Leg (EB) = -0.8% North Leg (SB) = -1.1% South Leg (NB) = +0.1%
3 	WLK FDW MIN MAX1 AMB ALR SPLIT	 	 	 	 	 		
4 Private Access 	WLK DLY WLK FDW MIN MAX1 AMB ALR SPLIT	 3.4 6.4 49	 47	 56	 47 47	 56 56	Fixed Split shown includes 5 seconds of NS LPI	
5 	WLK FDW MIN MAX1 AMB ALR SPLIT	 7 3.9 4.5 16	 17 17	 16 16	 	 15	Callable/extendable by 9.0 m long setback loop detector located 12.5 m from the stop bar (third vehicle detection)	
6 Dundas St W 	WLK FDW MIN MAX1 AMB ALR SPLIT	 3.7 3.9 3.3 45	 56 56	 48 48	 41 41	 49 49	Fixed	
7 	WLK FDW MIN MAX1 AMB ALR SPLIT	 	 	 	 	 		
8 East Mall Cres 	WLK DLY WLK FDW MIN MAX1 AMB ALR SPLIT	 3.4 6.4 49	 47	 56	 47 47	 56 56	Fixed Split shown includes 5 seconds of NS LPI	
	CL OF	110 21	120 66	120 106	88 54	120 18		

NOTES:

LOCATION: Dundas St W & Paulart Dr / Private Access		ATO (DISTRICT) / WARD: Area 2 (Etobicoke York) / Ward 3					<div>N</div> <div>↑</div>	
MODE/COMMENT: SA2 with PR & LPI		COMPUTER SYSTEM: TransSuite						
TCS: 511		CONTROLLER/CABINET TYPE: Peek ATC-1000 / TS2T1						
PREPARED BY/DATE: Arcadis (Jonathan Sukhu) / November 19, 2024		CONFLICT FLASH: Red & Red						
CHECKED BY/DATE: Arcadis (Alaleh Adib) / November 20, 2024		DESIGN WALK SPEED: 1.0 m/s (FDW based on full crossing at 1.2 m/s)						
City Staff: Ranajamil Ifthikhar		CHANNEL/DROP: 5022/1						
IMPLEMENTATION DATE: December 12, 2024		CONTROLLER FIRMWARE: 3.018.1.2976						
NEMA Phase		OFF	AM	PM	NGHT	WKND	Phase Mode	Remarks
		All Other Times	06:30-10:00 M-F	15:00-19:00 M-F	22:00-06:30 Daily	9:00-19:00 Sat & Sun	(Fixed/Demanded/Callable)	
	Local Plan	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5		
	Split Table	Split 1	Split 2	Split 3	Split 4	Split 5		
1 <div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div>6</div> <div>6</div> <div>3.4</div> <div>4.4</div> <div>0</div>	<div></div> <div>0</div> <div></div> <div></div> <div>0</div>	<div></div> <div>0</div> <div></div> <div></div> <div>0</div>	<div></div> <div>0</div> <div></div> <div></div> <div>0</div>	<div></div> <div>0</div> <div></div> <div></div> <div>0</div>	Callable/extendable by 9.0 m long setback loop detector located 12.5 m from the stop bar (third vehicle detection - for future use)	<div>Pedestrian Minimums:</div> <div>EWVK = 7 seconds, EWFD = 16 seconds</div> <div>NSWK = 12 seconds, NSFD = 24 seconds</div> <div>Left-turn passage time = 2 seconds</div> <div>NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is 7 seconds. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum. If a pedestrian call is received, the pedestrian minimums will be served. The NSWK & NSFD are only displayed on the pedestrian signal heads if a pedestrian call is received. Extension time is based on vehicle demand. Unused extension time is given to the EWG.</div>
2 <div><div>Dundas St W</div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div>7</div> <div>16</div> <div>23</div> <div>59</div> <div>3.3</div> <div>2.3</div> <div>65</div>	<div></div> <div>75</div> <div></div> <div></div> <div></div> <div>75</div> <div>75</div>	<div></div> <div>75</div> <div></div> <div></div> <div></div> <div>43</div> <div>75</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	Fixed	
3 <div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div>Side street passage time = 3 seconds</div> <div>The following grades were used to calculate the AMB intervals:</div> <div>East Leg (WB) = -0.4%</div> <div>West Leg (EB) = -0.1%</div> <div>North Leg (SB) = -1.3%</div> <div>South Leg (NB) = +3.1%</div>
4 <div><div>Private Access</div></div>	WLK DLY WLK FDW MIN MAX1 AMB ALR SPLIT	<div>5</div> <div>12</div> <div>24</div> <div>7</div> <div>31</div> <div>3.0</div> <div>5.2</div> <div>45</div>	<div></div> <div>45</div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div>45</div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	Callable by 9.0 m long loop detector located at the stop bar (stop bar detection) and/or pushbutton. Extendable by stop bar detection. Split shown includes 5 seconds of NS LPI	<div>Leading Pedestrian Interval - NSWK comes up 5 seconds before vehicle green</div>
5 <div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	
6 <div><div>Dundas St W</div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div>7</div> <div>16</div> <div>23</div> <div>59</div> <div>3.3</div> <div>2.3</div> <div>65</div>	<div></div> <div>75</div> <div></div> <div></div> <div></div> <div></div> <div>75</div>	<div></div> <div>75</div> <div></div> <div></div> <div></div> <div></div> <div>43</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>75</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	Fixed	
7 <div></div>	WLK FDW MIN MAX1 AMB ALR SPLIT	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	
8 <div><div>Paulart Dr</div></div>	WLK DLY WLK FDW MIN MAX1 AMB ALR SPLIT	<div>5</div> <div>12</div> <div>24</div> <div>7</div> <div>31</div> <div>3.0</div> <div>5.2</div> <div>45</div>	<div></div> <div>45</div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div>45</div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div>45</div>	Callable by 9.0 m long loop detector located at the stop bar (stop bar detection) and/or pushbutton. Extendable by stop bar detection. Split shown includes 5 seconds of NS LPI	
	CL OF	<div>110</div> <div>5</div>	<div>120</div> <div>2</div>	<div>120</div> <div>100</div>	<div>88</div> <div>27</div>	<div>120</div> <div>118</div>		

NOTES: