2015-2036

MMM – City Wide Integrated Public Transport Plan

Annexure J

INTEGRATED PUBLIC TRANSPORT NETWORK

MANGAUNG
AT THE HEART OF IT ALL

MMM IPTN Team
09 September 2019
Revision 6.0

Content

J PUBLIC TRANSPORT VALIDATION COUNTS I

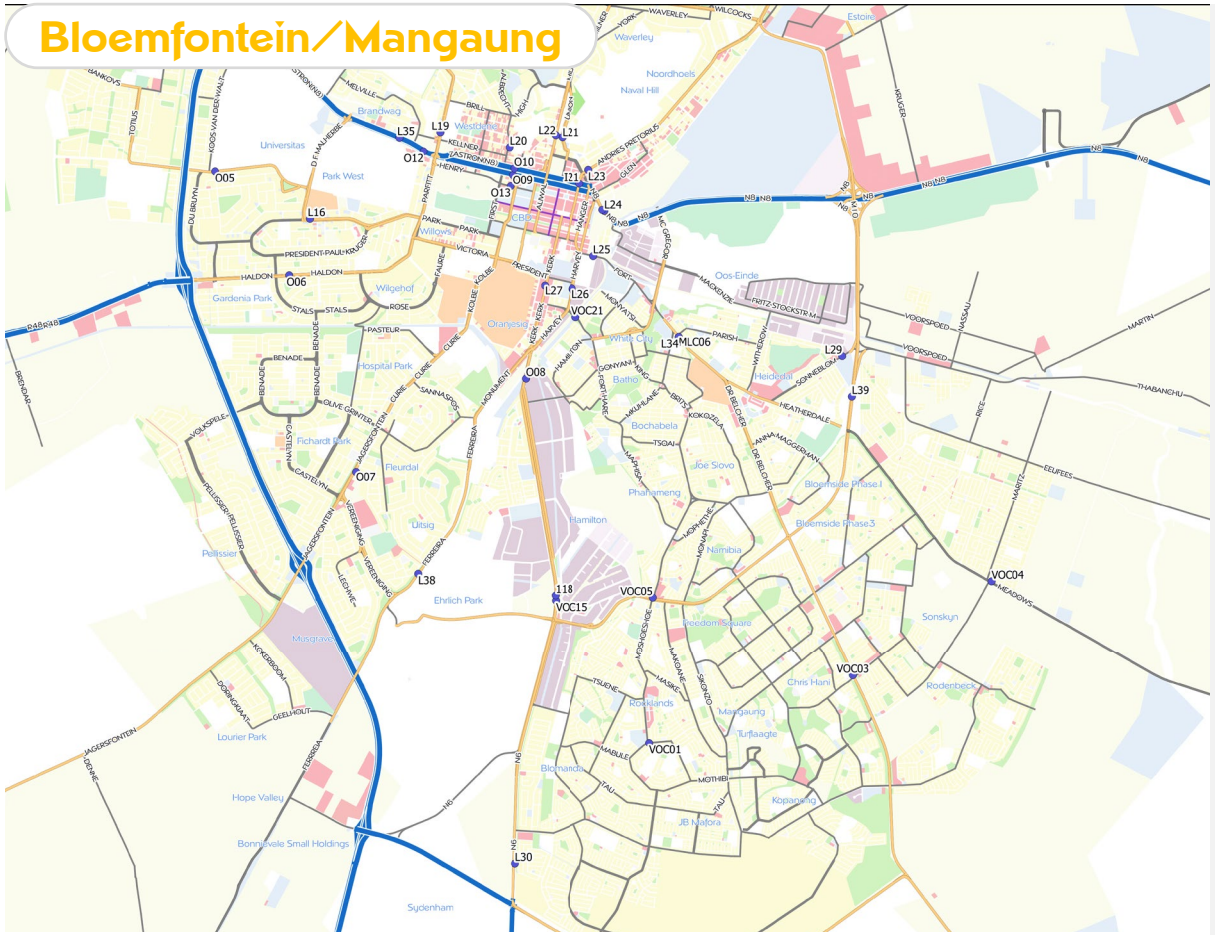
J Public Transport Validation Counts

Technical Note

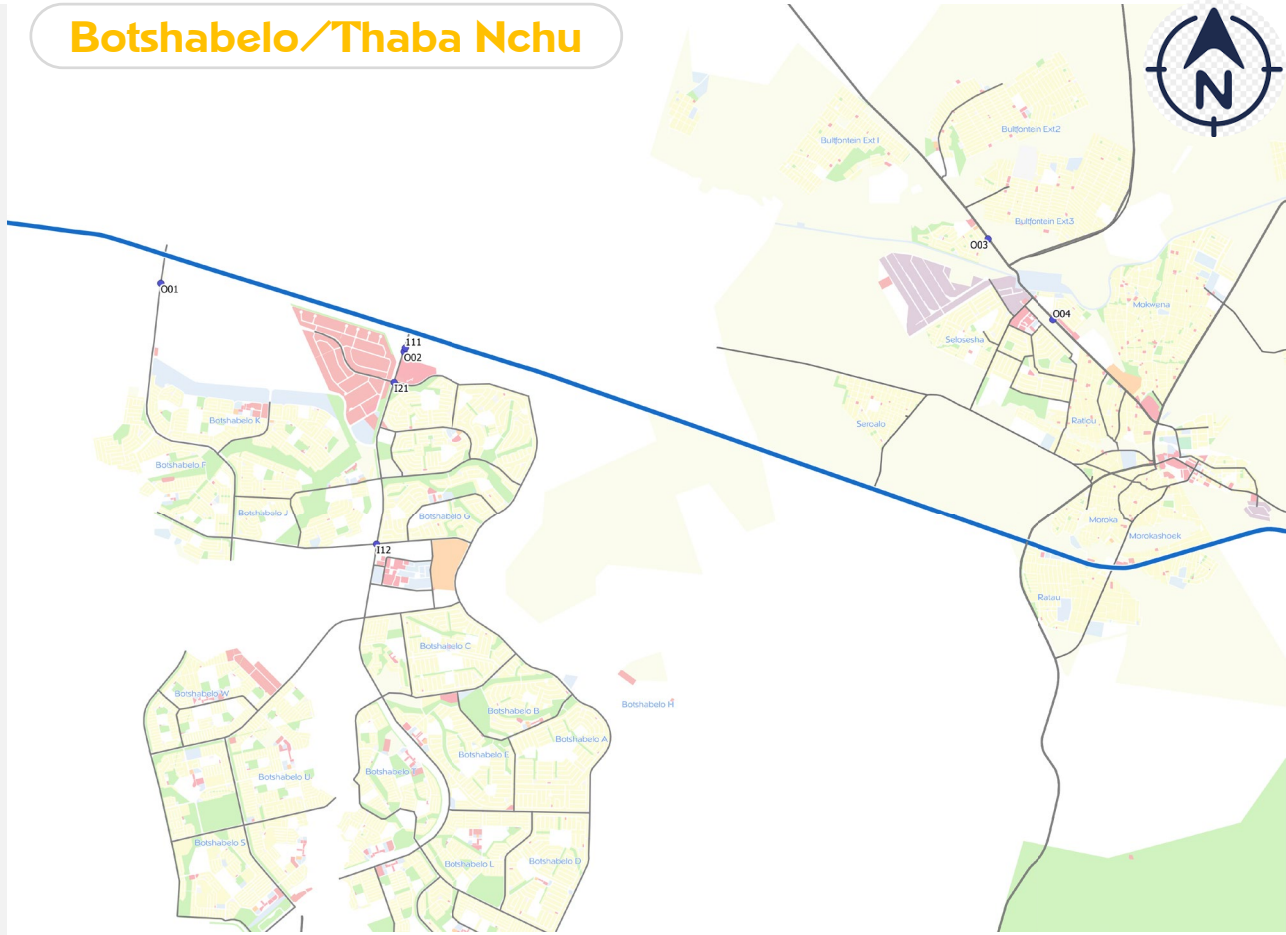
Public Transport Volumes Observed for the purpose of public transport passenger assignment

Counts Used to attain passenger demand
AM Peak Period

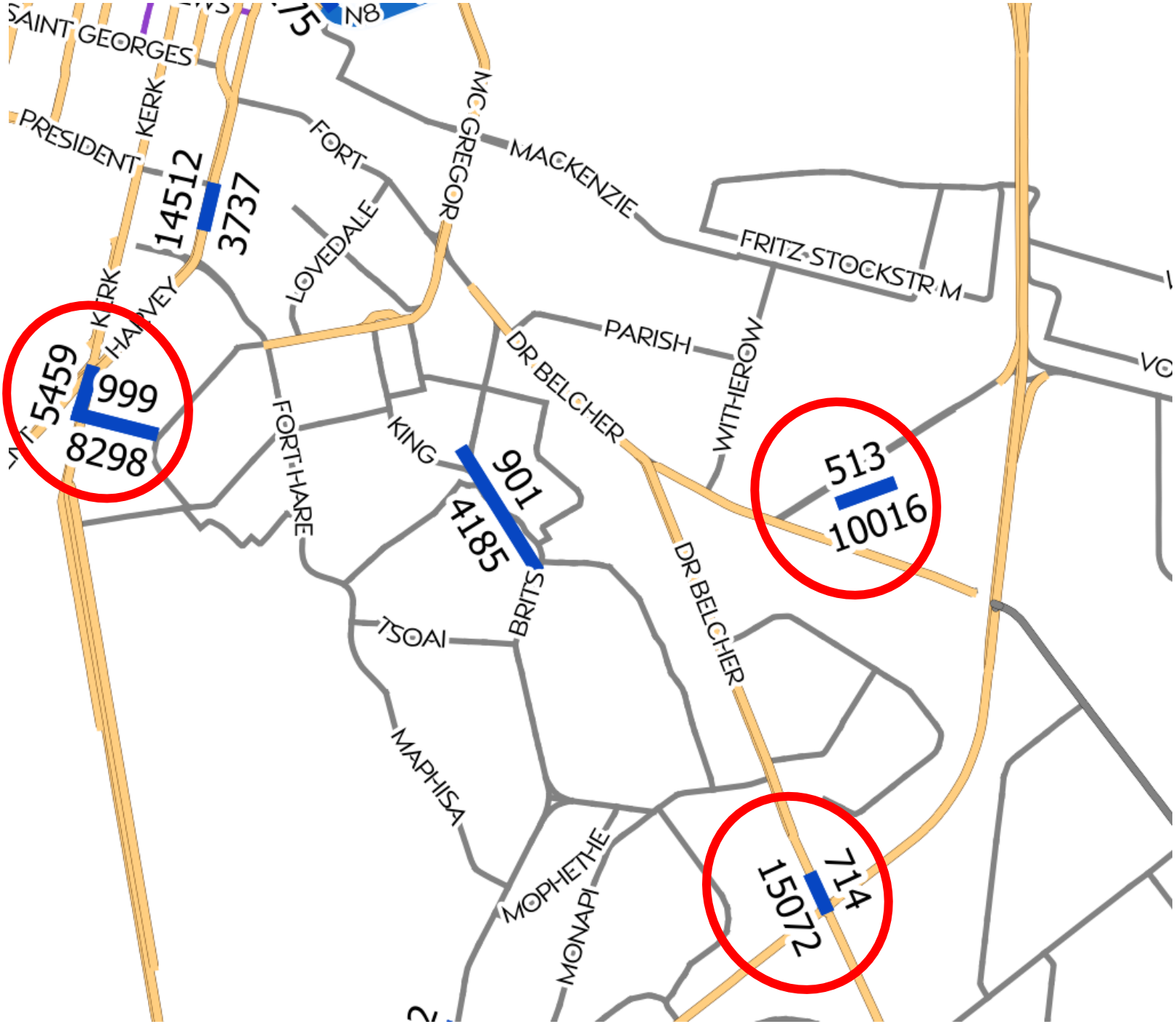
Bloemfontein/Mangaung

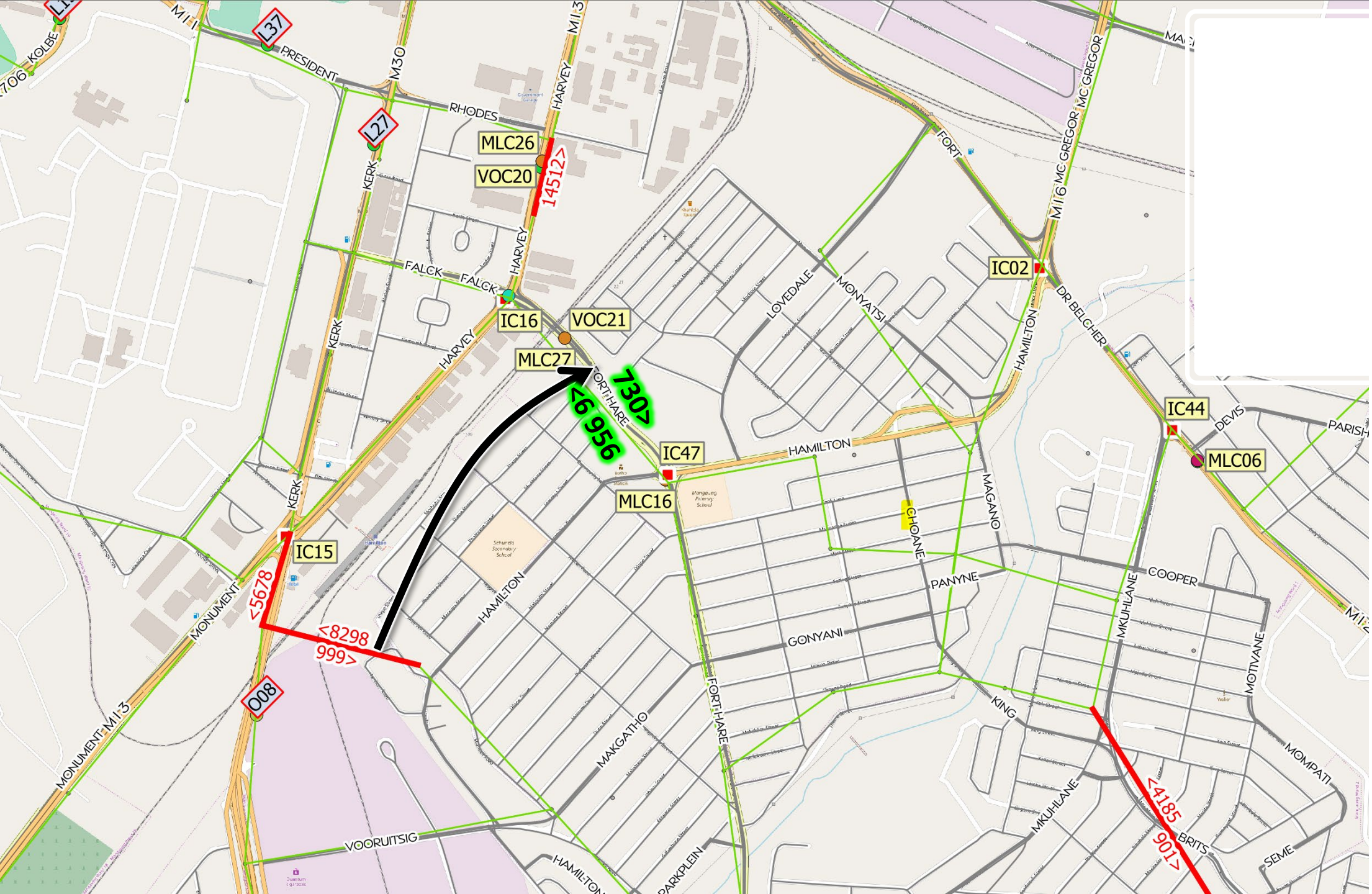


Botshabelo/Thaba Nchu



Issues Identified




L37
PRESIDENT
M30
RHODES
L27
KERK
MLC26
VOC20
14512>
HARVEY
FALCK
IC16
VOC21
MLC27
730>
<6 956
FORT HARE
IC47
MLC16
HAMILTON
LOVEDALE
MONYATSI
FORT
MC GREGOR
IC02
DR BELCHER
IC44
DEVIS
MLC06
PARISH
MAGANO
CHOANE
PANYNE
COOPER
MKUHLANE
MOTIVANE
GONYANI
KING
MOMPATI
BRITS
SEME
<4185
901>
IC15
<5678
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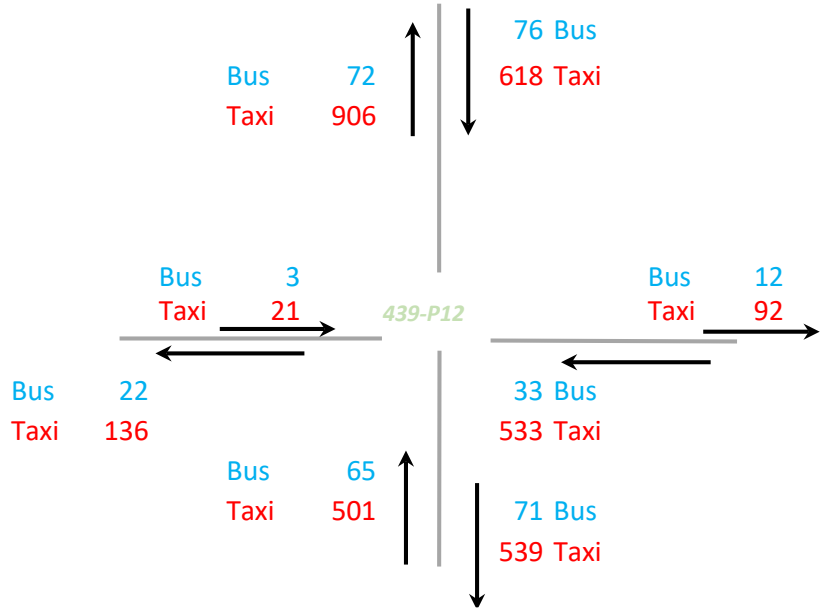
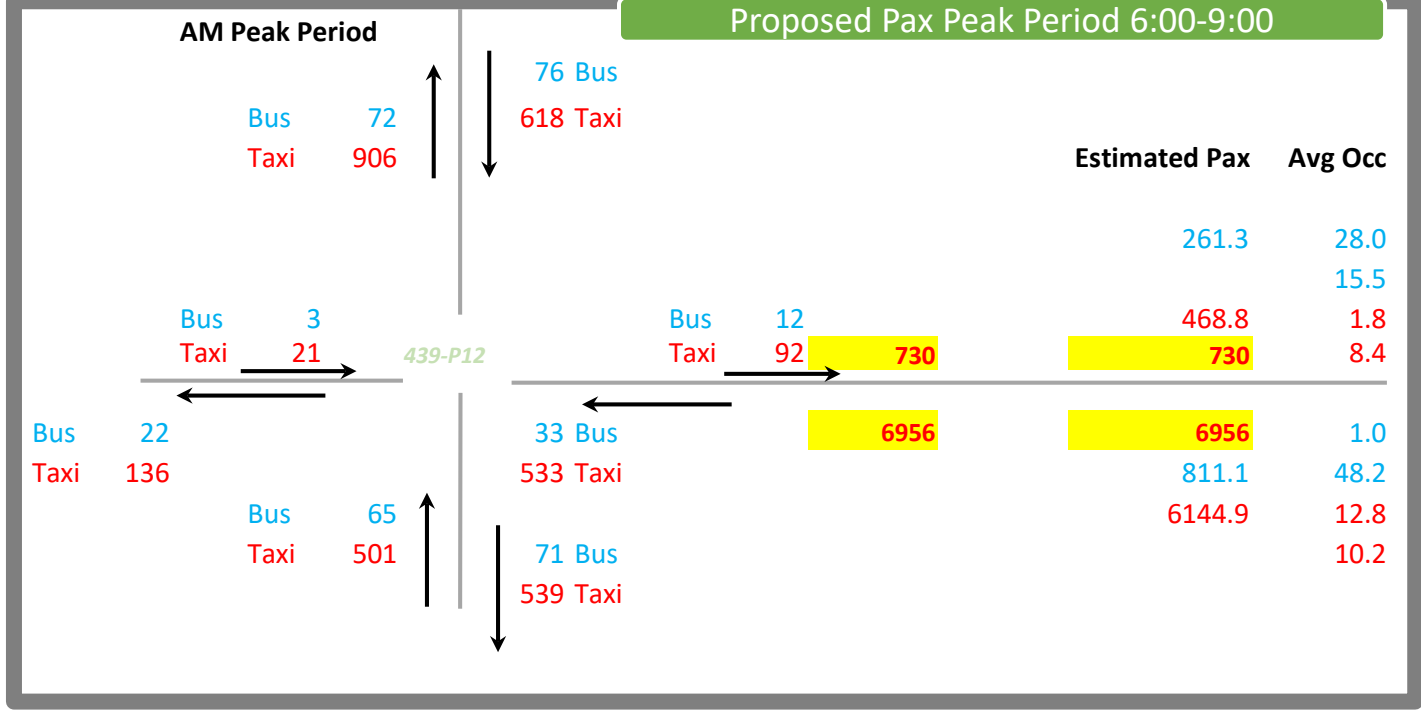
999>
O08
MONUMENT
MAKGATHO
PARKPLEIN
VOORUITSIG

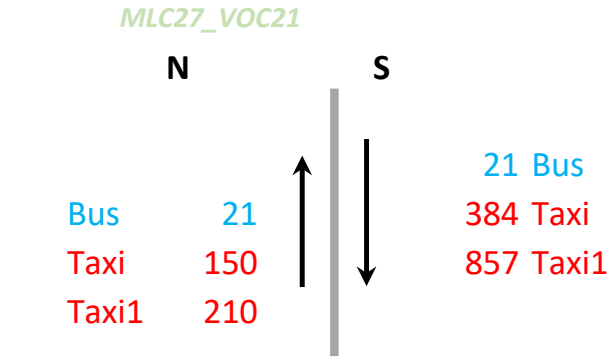
Veh Peak Period 6:00-9:00(2018)



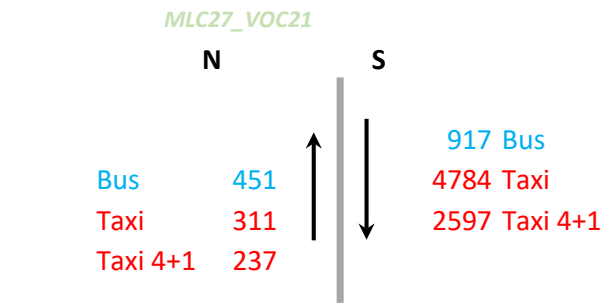
Proposed Pax Peak Period 6:00-9:00



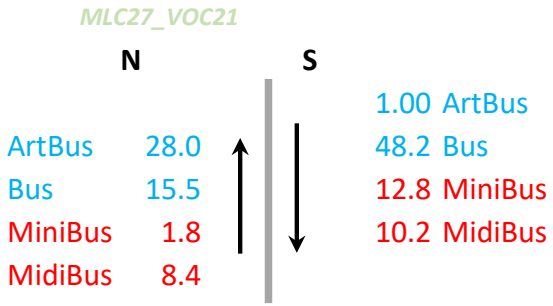
Veh Peak Period 6:00-9:00(2016)

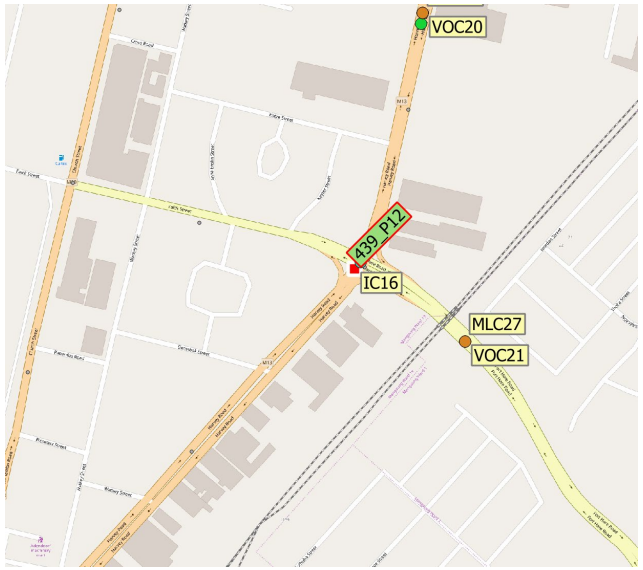


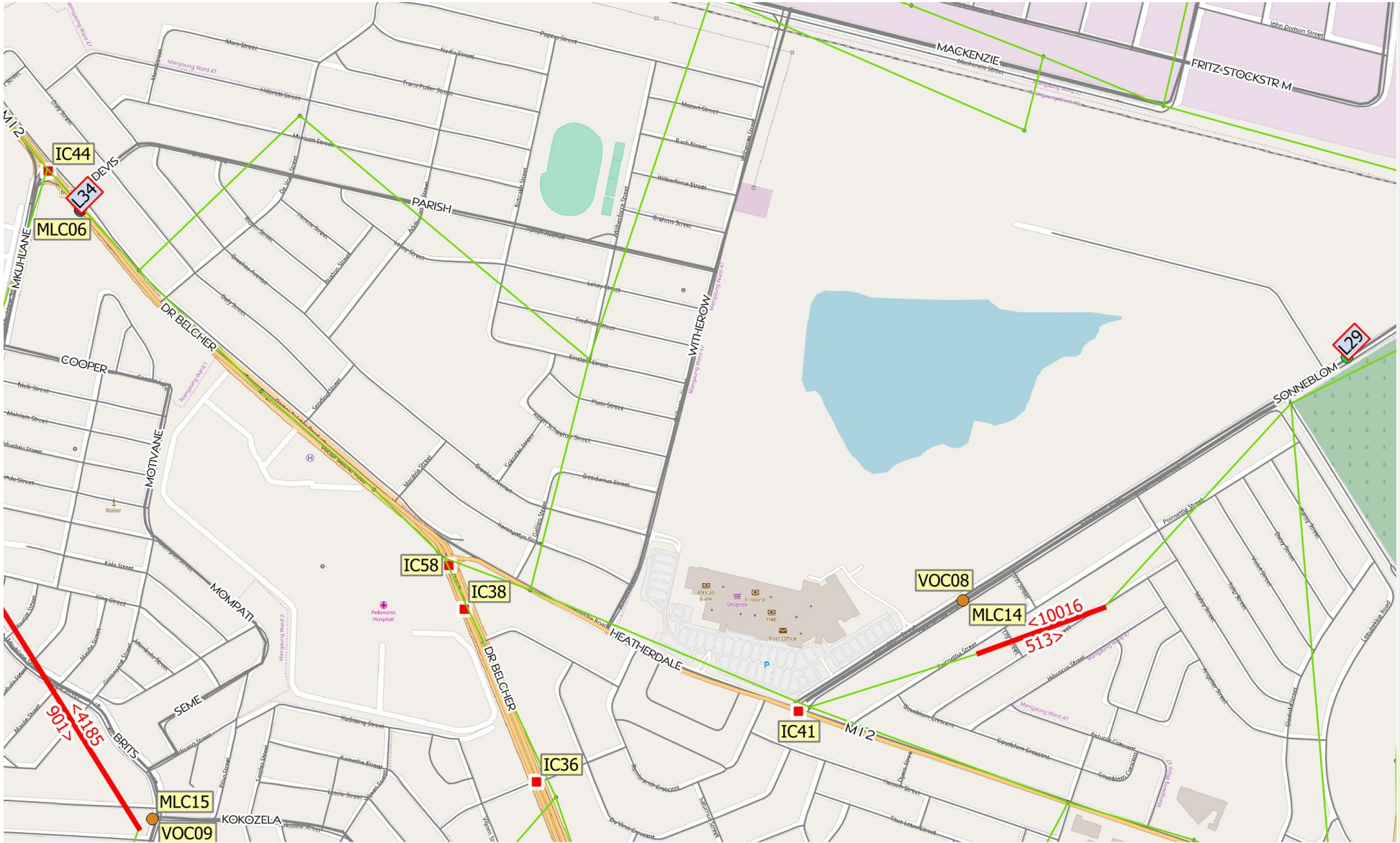
Pax Peak Period 6:00-9:00(2016)



Avg Occ Peak Period 6:00-9:00(2016)






MACKENZIE
FRITZ STOCKSTR M
IC44
L34
MLC06
DEVIS
PARISH
MKUHLANE
DR BELCHER
COOPER
WITHEROW
L29
SONNEBLOM
MOTIVANE
IC58
IC38
VOC08
MLC14
<10016
513>
MOMPATI
HEATHERDALE
DR BELCHER
IC41
SEME
<4185
901>
BRITS
IC36
MLC15
KOKOZELA
VOC09

Veh Peak Period 6:00-9:00(2017)

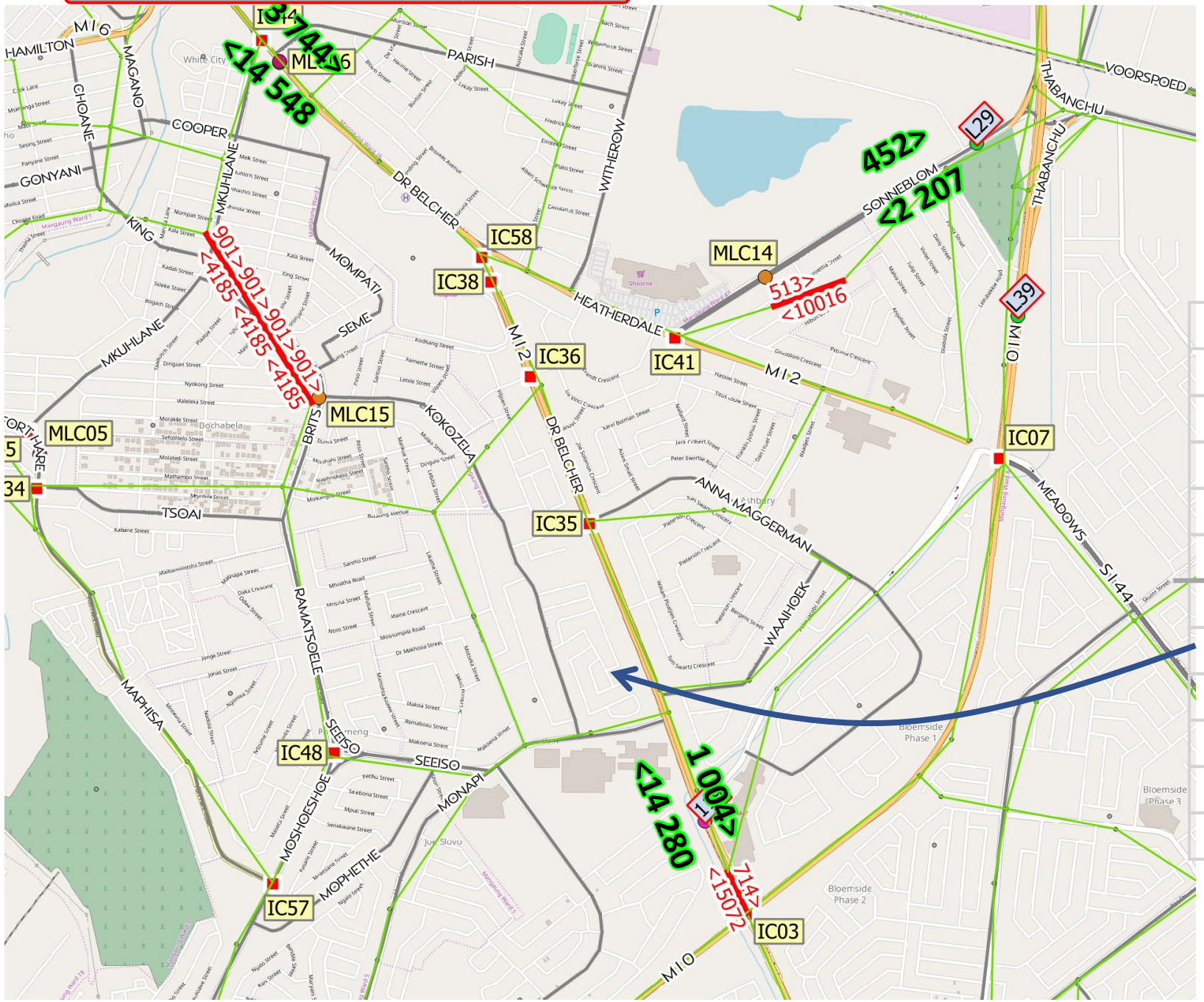
						Proposed
		ArtBus	3			1.00
		Bus	8			29.44
		Midi Taxi	11			0.00
		Mini Taxi	76			1.47
		Priv	428			
	L29	Heavy	14			
E				451.6		
W						
	ArtBus	4		2207.8		65.8
	Bus	8				44.1
	Midi Taxi	13				12.3
	Mini Taxi	132				10.9
	Priv	676				
	Heavy	18				

ArtBus	1.0	
Bus	29.4	E
MiniBus	1.5	*MLC14_VOC08*
MidiBus	0.0	MLC14_VOC08_E
		MLC14_VOC08_W
MidiBus	12.3	*MLC14_VOC08*
MiniBus	10.9	W
Bus	44.1	
ArtBus	65.8	

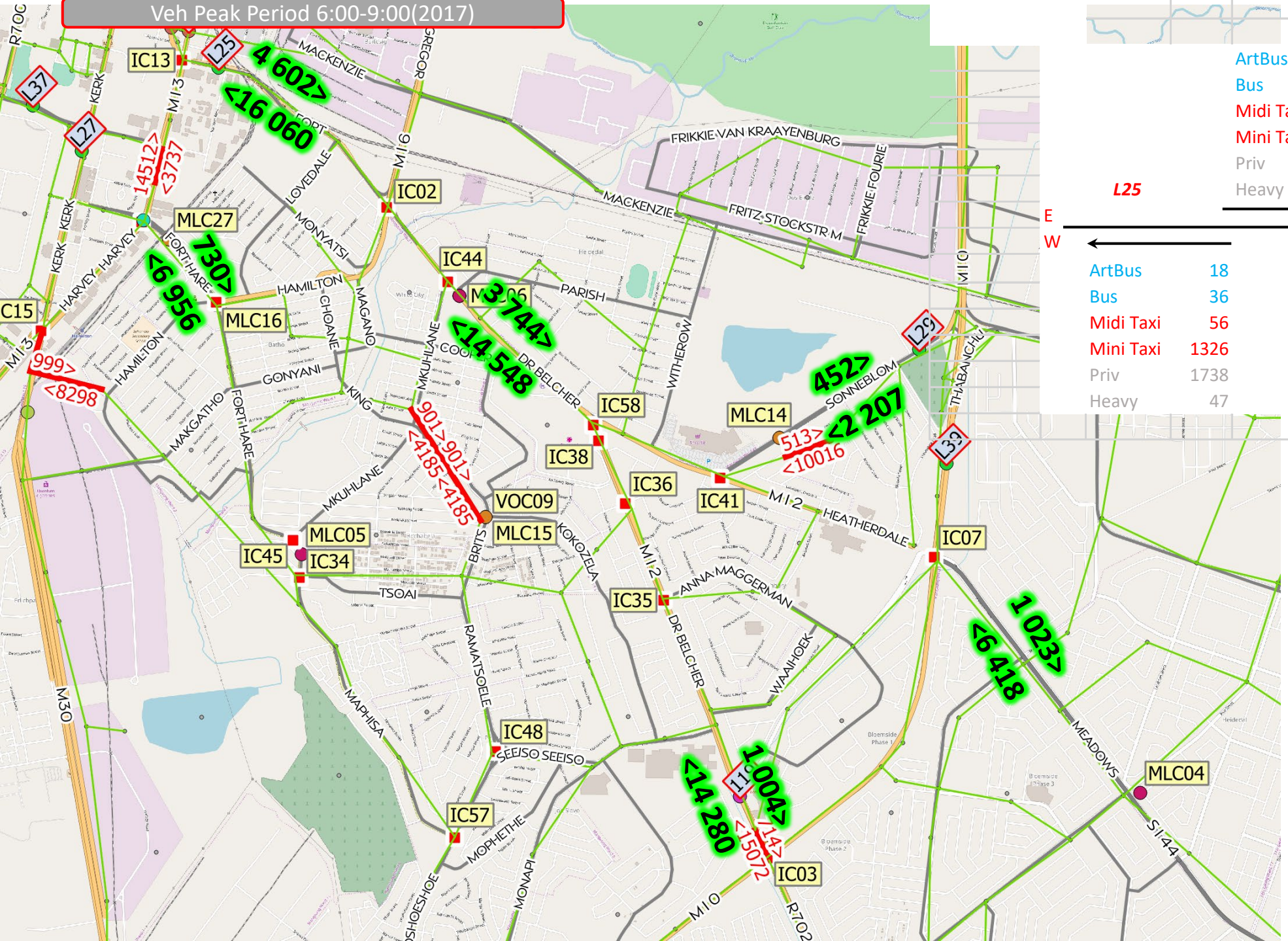
Veh Peak Period 6:00-9:00(2017)

						Proposed
		ArtBus	6			0.00
		Bus	32			21.36
		Midi Taxi	34			9.00
		Mini Taxi	1240			2.30
		Priv	1201			
	L34	Heavy	39			
E		→		**3743.7**		
W		←				
	ArtBus		14	**14547.8**		82.0
	Bus		37			60.4
	Midi Taxi		54			9.9
	Mini Taxi		1189			8.9
	Priv		1969			
	Heavy		35			

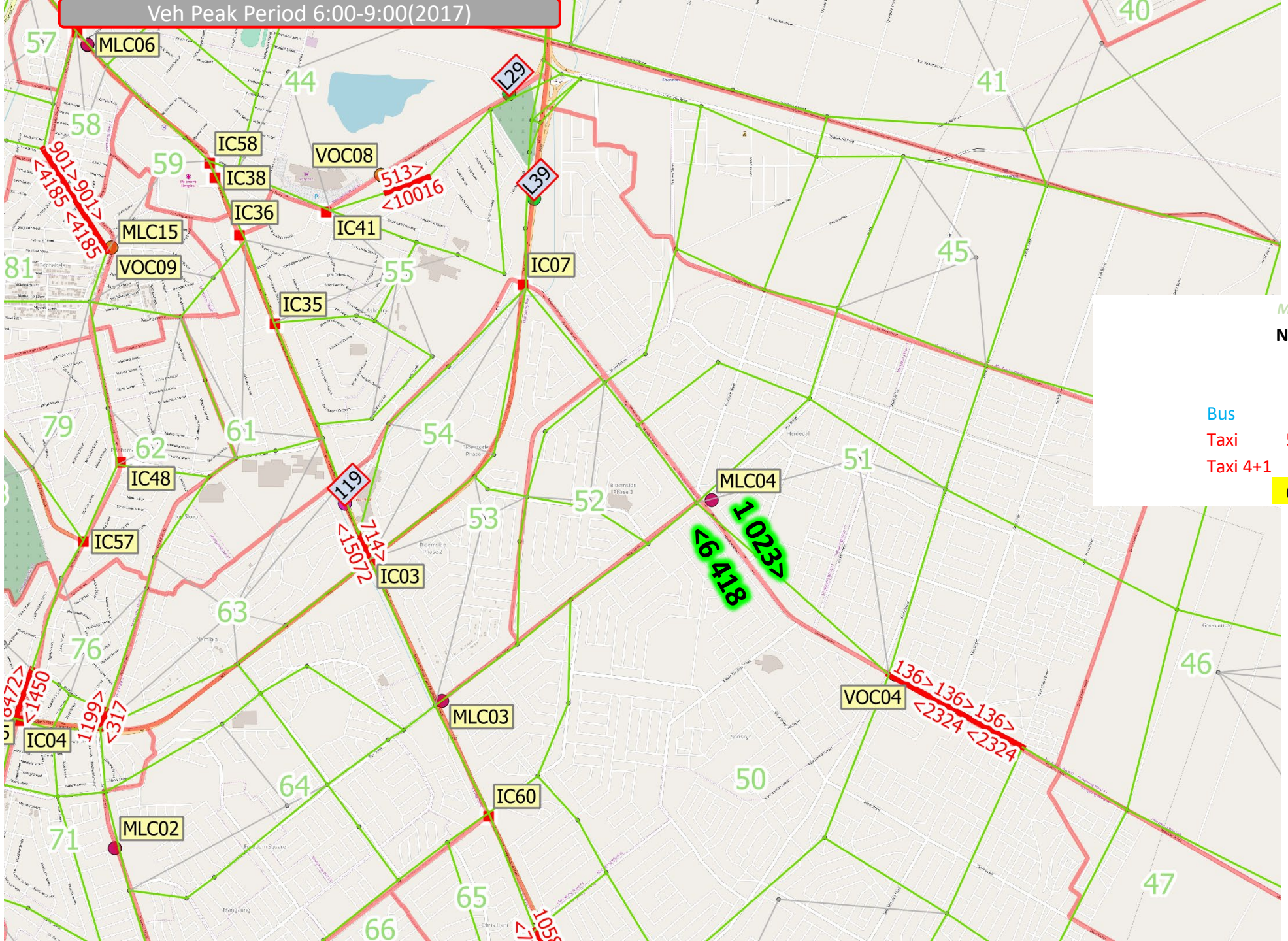
Veh Peak Period 6:00-9:00(2017)



40%		74	74
15	Heavy	185	
483	Priv	1749	
50%		876.3106	930
			1,004
34%		835.9	14,280
860	Priv	2479	
50	Heavy	129	
66%			85
			14,365

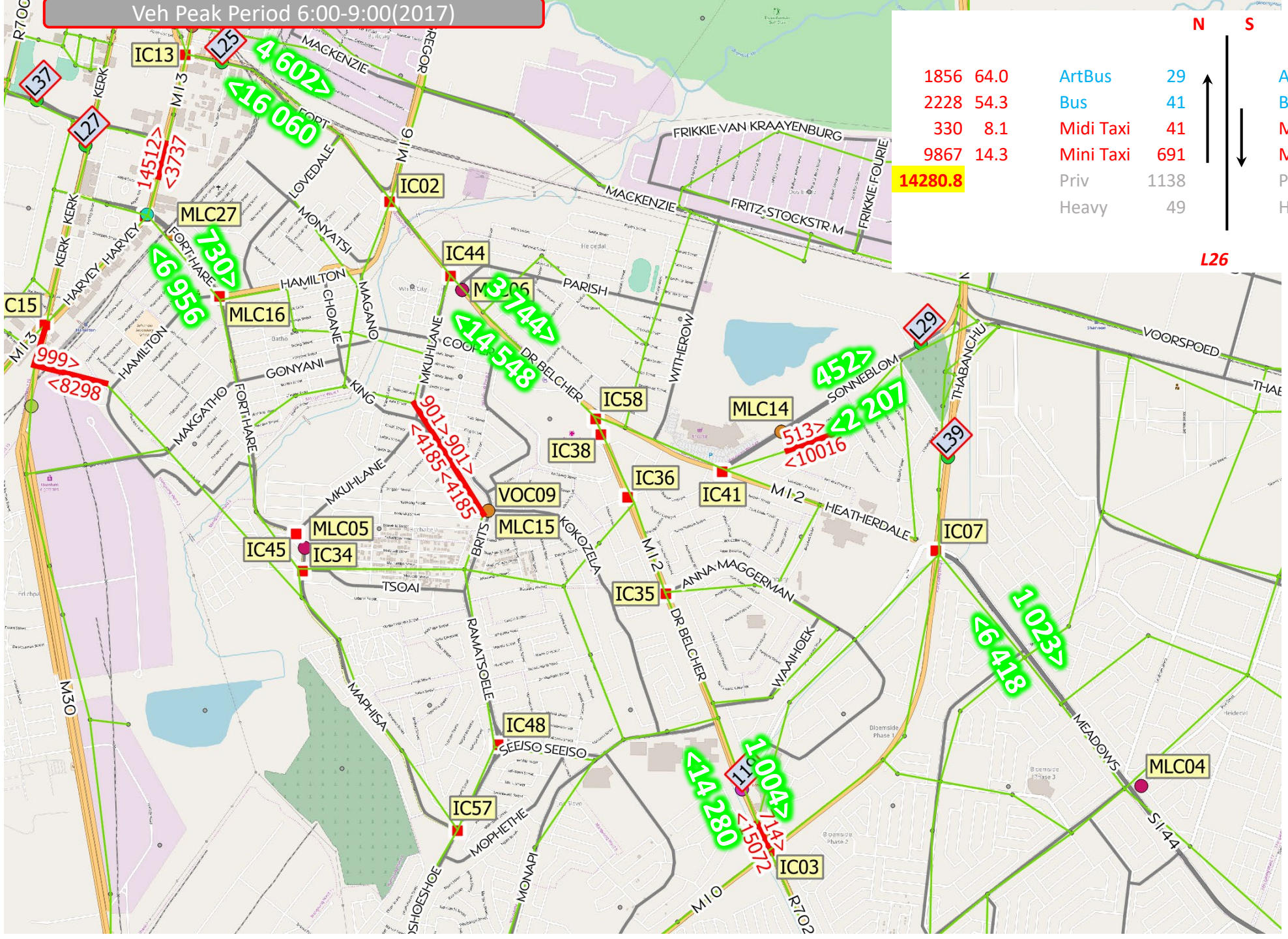


			Proposed
	ArtBus	38	0.00
	Bus	46	21.36
	Midi Taxi	57	9.00
	Mini Taxi	1163	2.30
	Priv	1618	
L25	Heavy	39	
E →		4602.2	
W ←		16060.0	
	ArtBus	18	82.0
	Bus	36	60.4
	Midi Taxi	56	9.9
	Mini Taxi	1326	8.9
	Priv	1738	
	Heavy	47	



MLC04

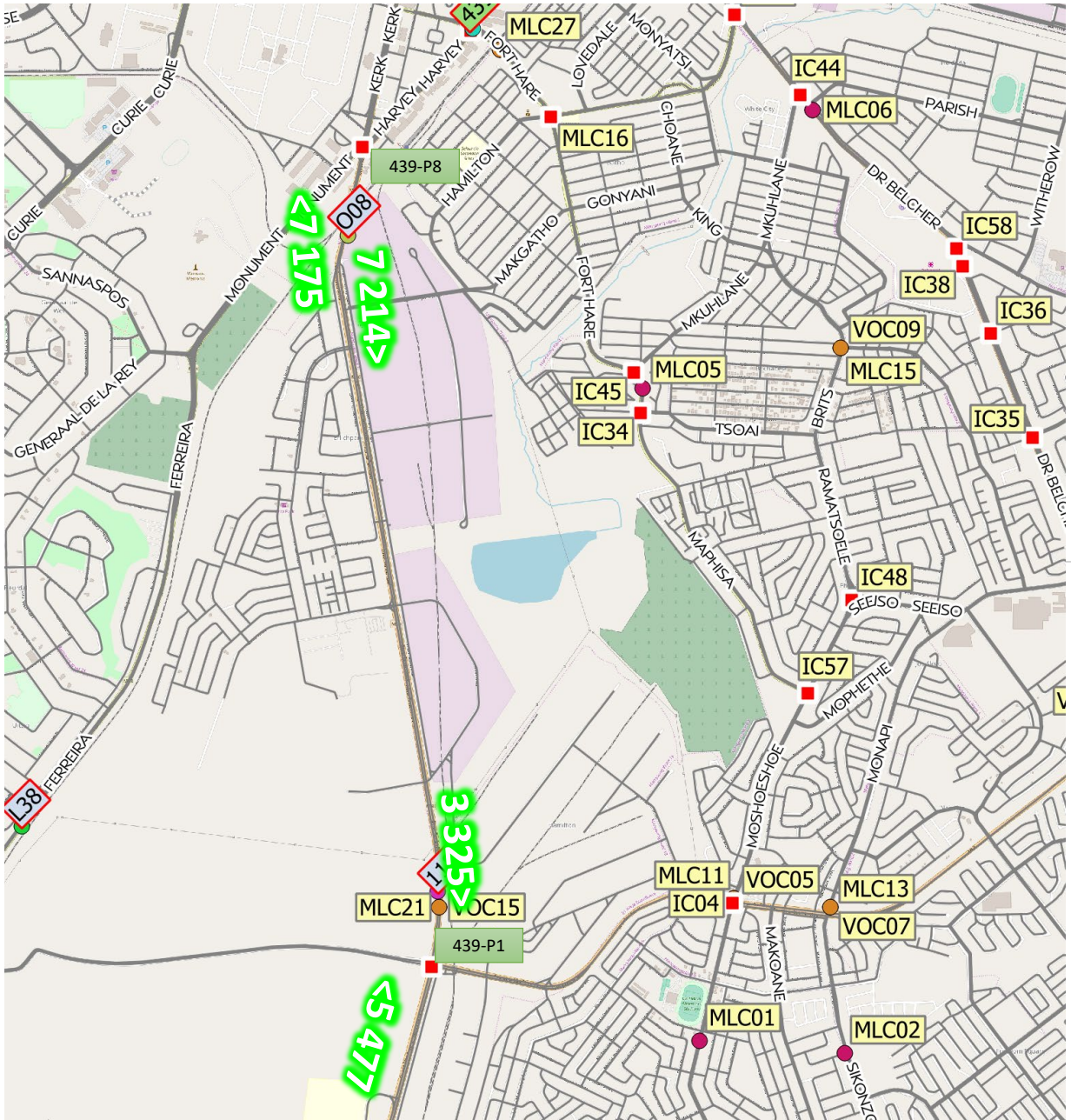
N		S	
			1023
			760 Bus
Bus	977		243 Taxi
Taxi	5370		20 Taxi 4+1
Taxi 4+1	71		
	6418		

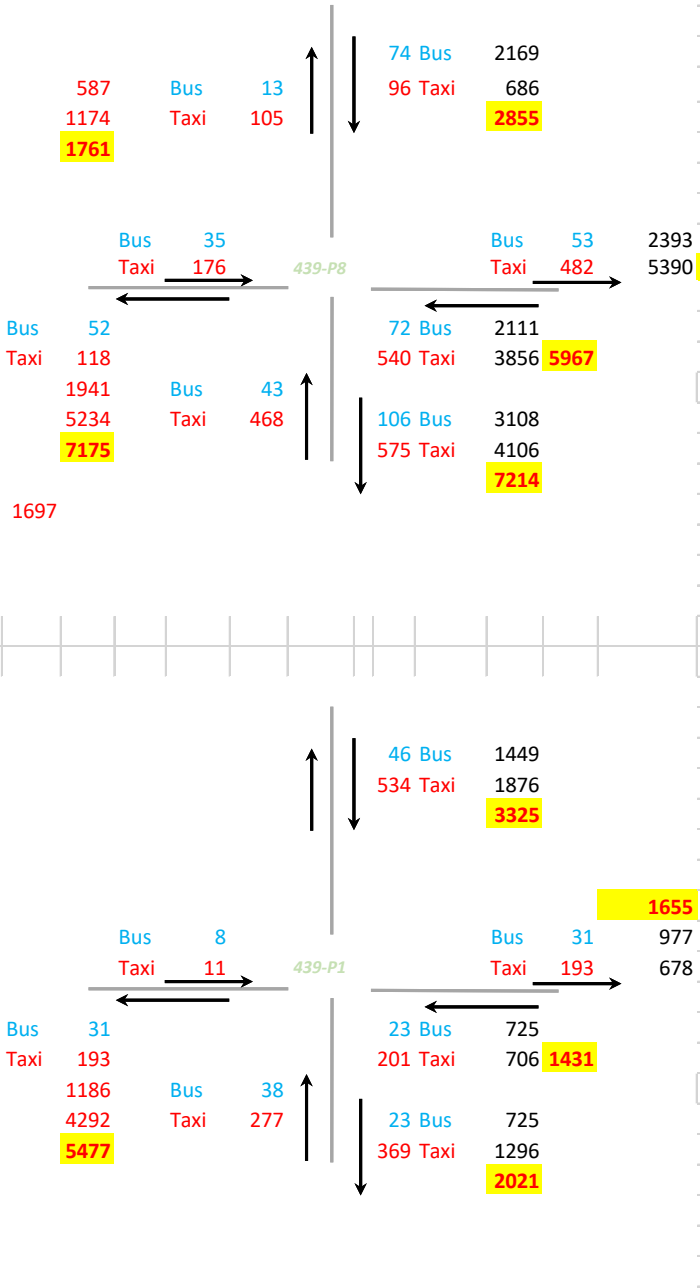


N				S			
1856	64.0	ArtBus	29	ArtBus	10	44.6153846	446.2
2228	54.3	Bus	41	Bus	15	28.2	423.0
330	8.1	Midi Taxi	41	Midi Taxi	62	1.65390505	102.5
9867	14.3	Mini Taxi	691	Mini Taxi	837	1.55555556	1302.0
14280.8		Priv	1138	Priv	1442		2273.7
		Heavy	49	Heavy	41		

L26

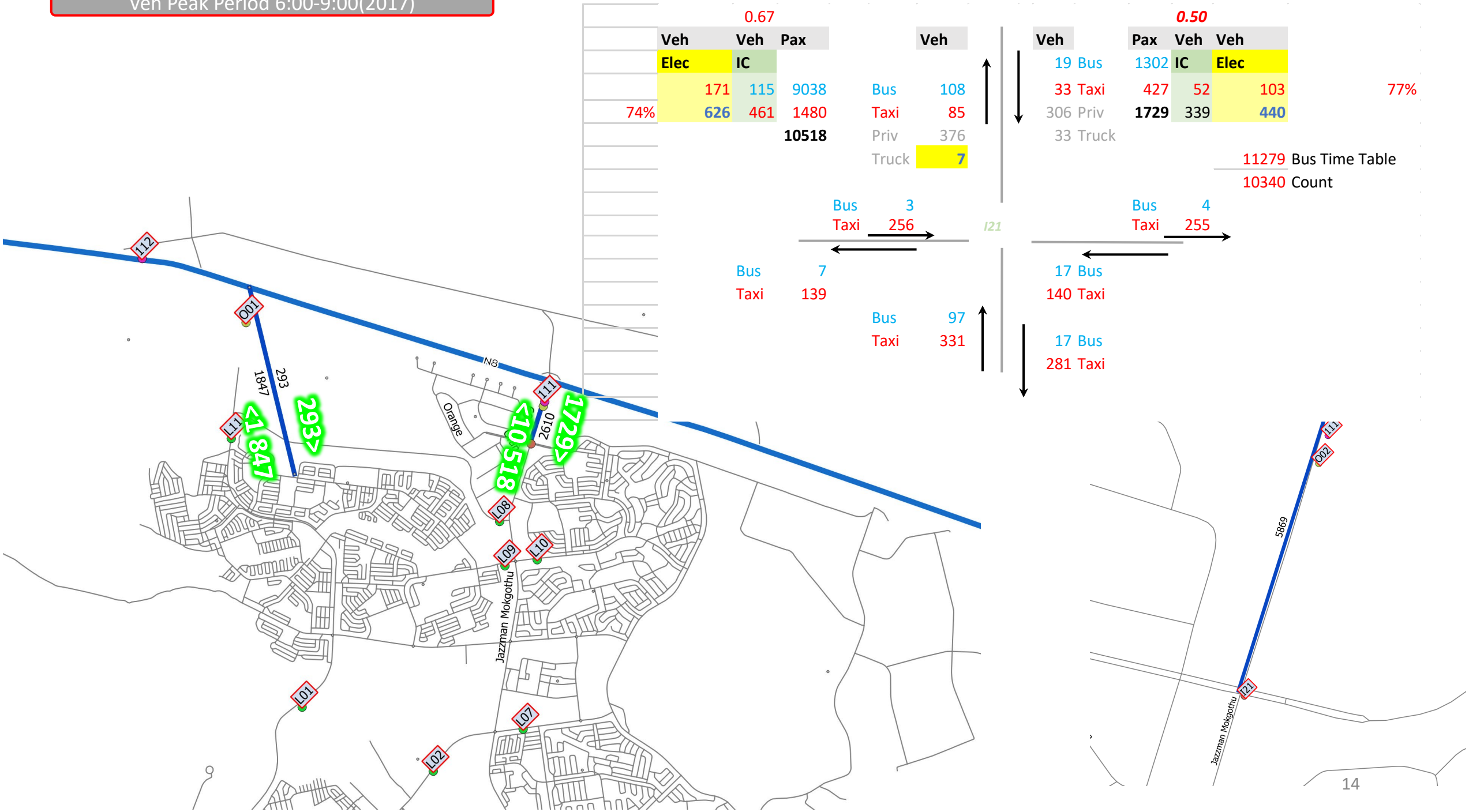
Veh Peak Period 6:00-9:00(2017)



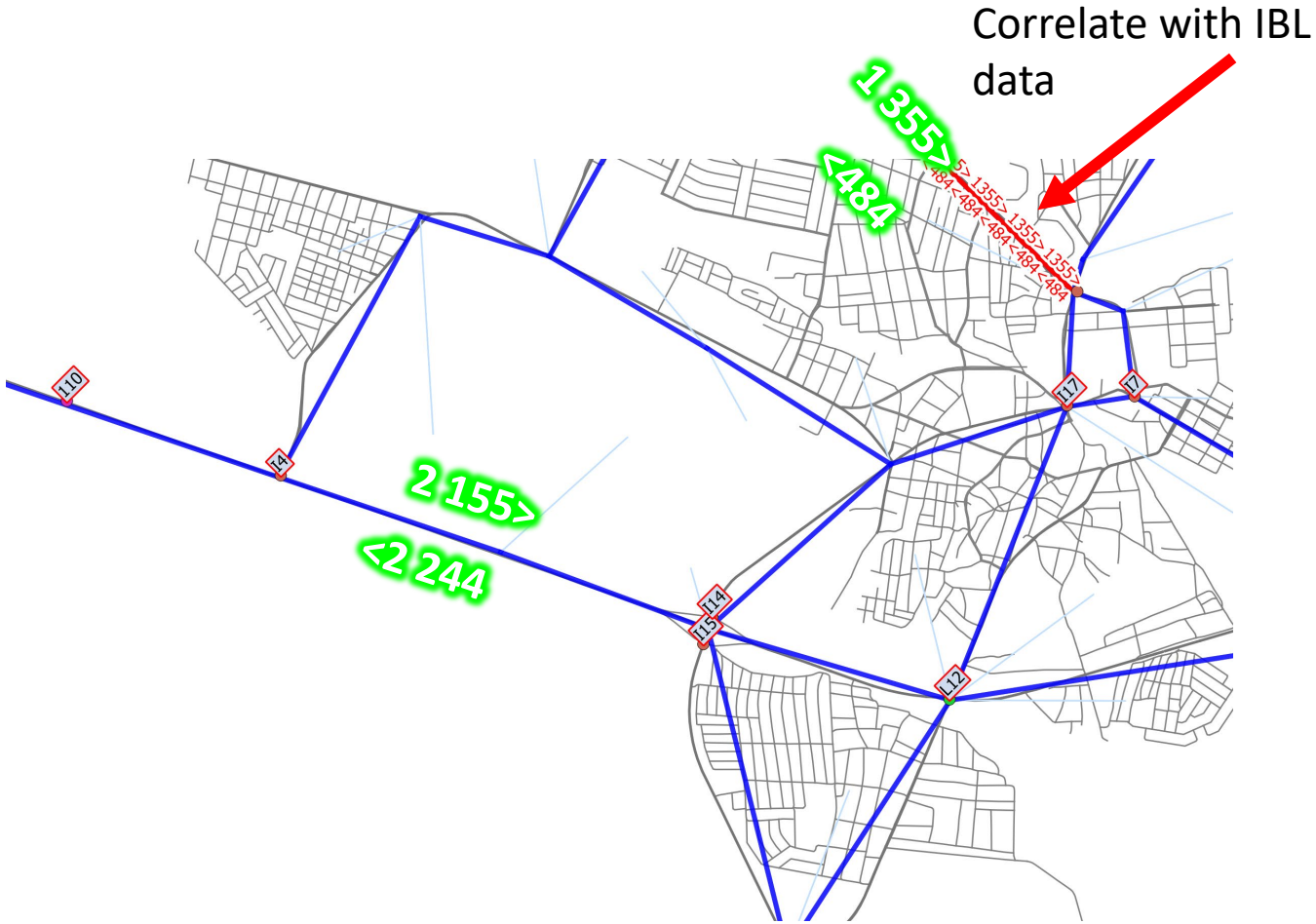


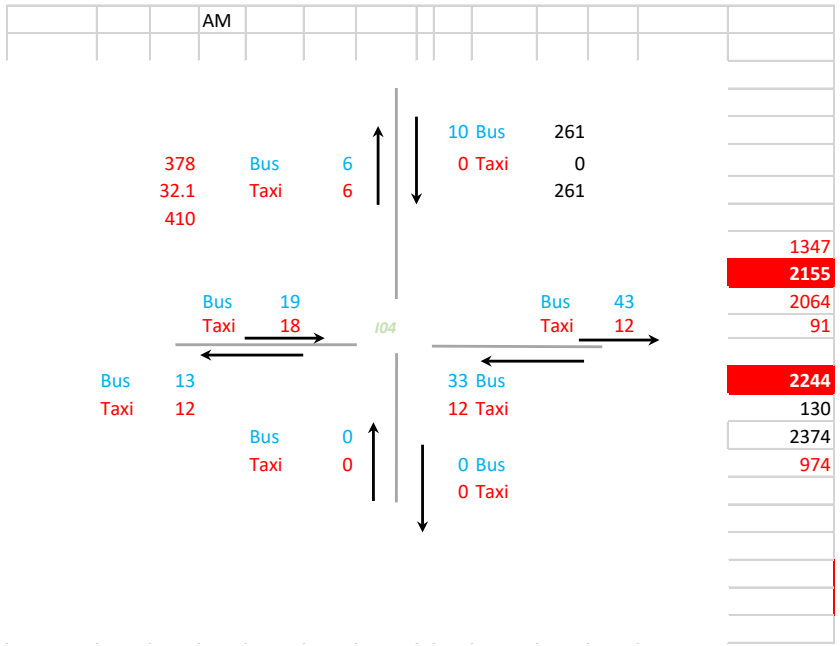
	1	2	3	4
	North_Private	_Taxi	_Bus	avy
1	2	3	4	5
		N	S	
	ArtBus	55.00	39.93	ArtBus
	Bus	35.29	18.70	Bus
	MiniBus	9.76	7.95	MiniBus
	MidiBus	12.61	6.33	MidiBus
		N	S	
	0.00	55.00	46.00	0.00
	0.00	7.40	17.00	0.00
	0.00	11.77	2.12	0.00
	0.00	19.22	4.90	0.00

Veh Peak Period 6:00-9:00(2017)



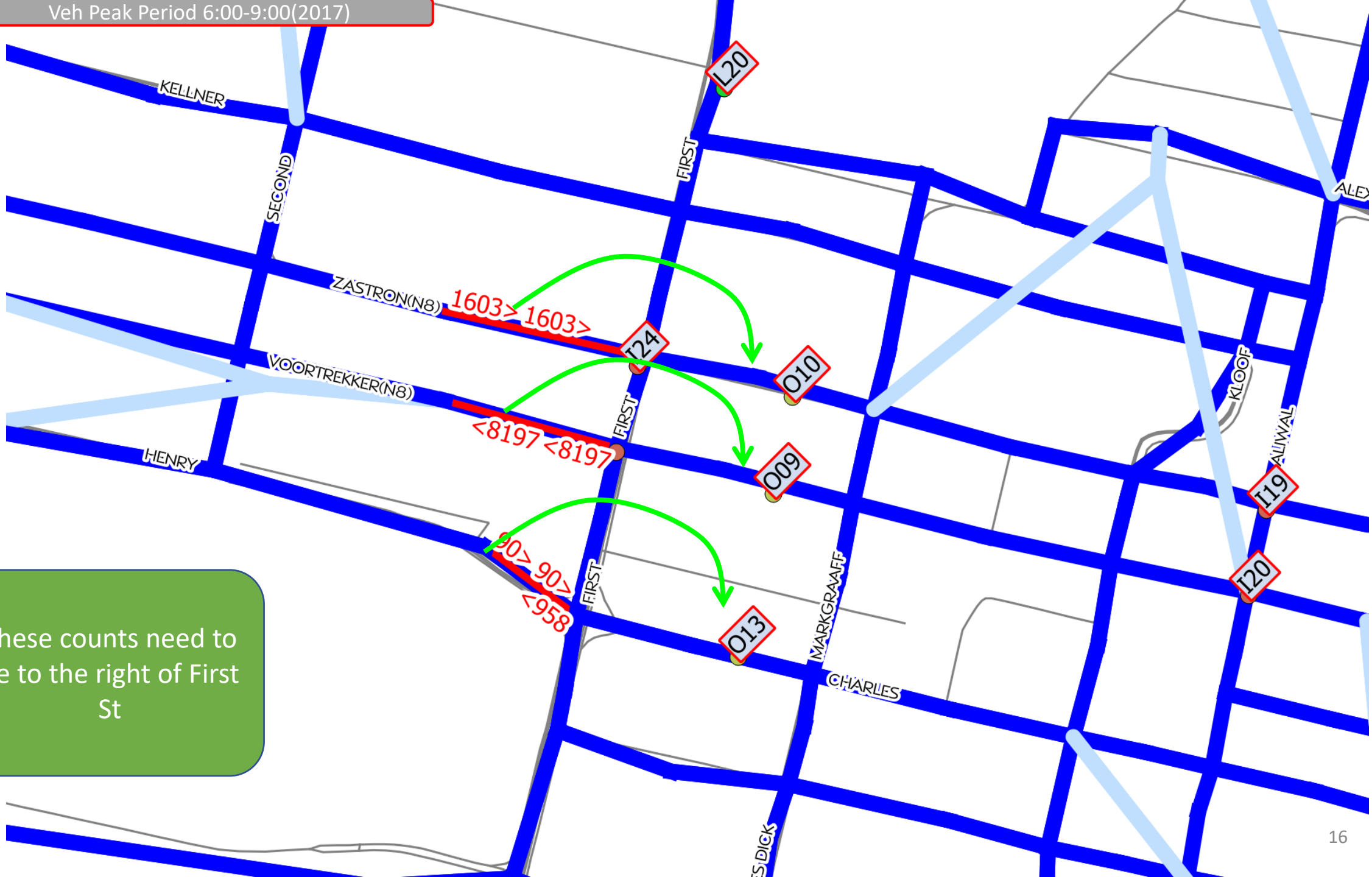
Veh Peak Period 6:00-9:00(2017)





- Several assumptions were made
- If we have issues to “balance” total trips we need to remove this volume first.

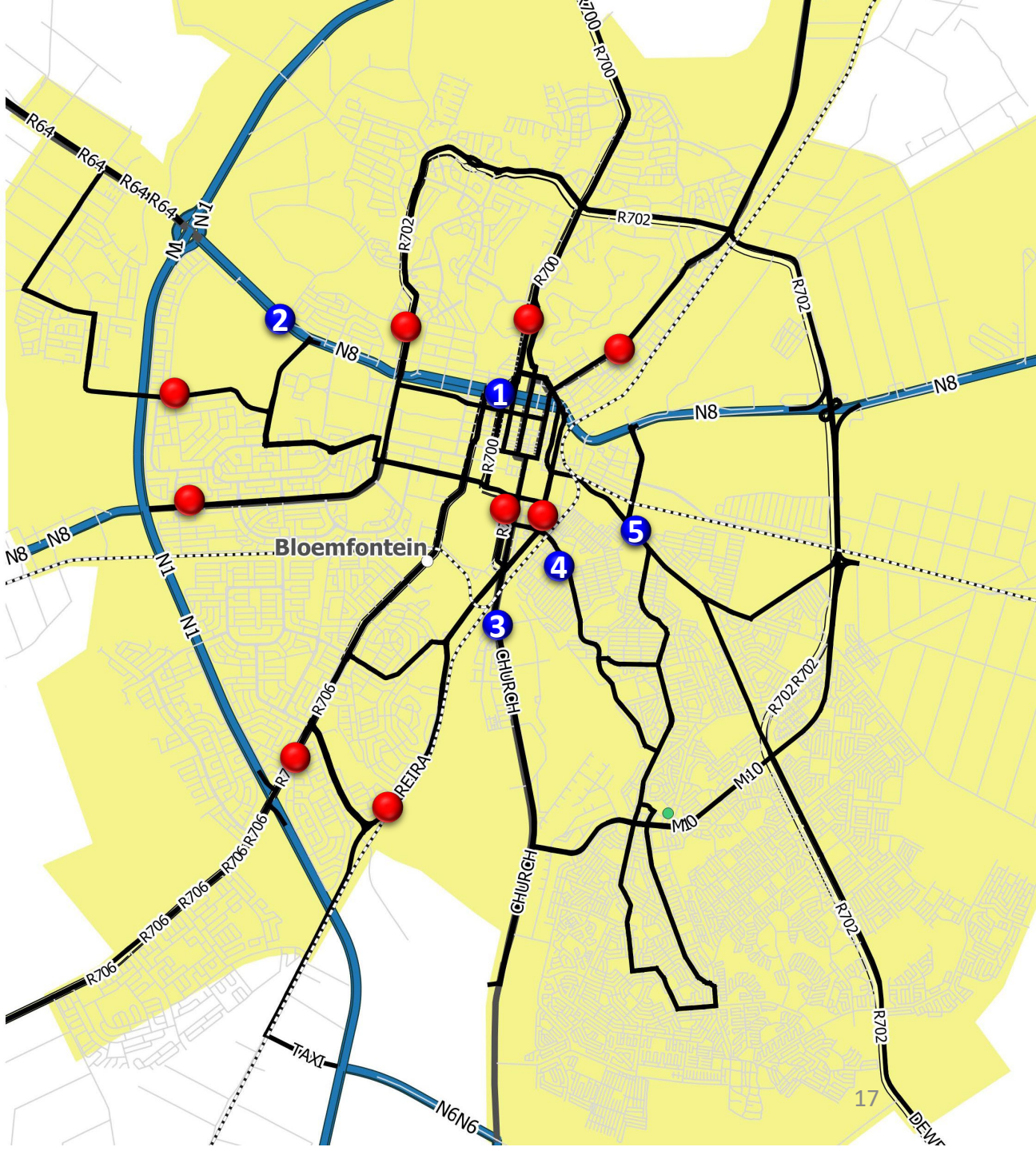
Veh Peak Period 6:00-9:00(2017)



These counts need to be to the right of First St

Veh Peak Period 6:00-9:00(2017)

- City wide counts:
  - Number of taxi and bus at converging points in network
  - Daily taxi and bus trips



Position 1

- Estimated volume – 14 800 per day

Zastron

		Priv	Taxi	MidiTaxi	Bus	ArtBus		
	Daily	13063	452	77	62	38		
	AM Peak Hour		80	17	17	10		
	AM Peak Period		189	31	35	21		
	AM Peak Hour PAX		239	54	122	0	415	402
O10	AM Peak Period PAX		519	131	309	355	1314	1212
	Daily PAX		1943	367	1201	847	4358	2393
	Daily PAX		3273	907	4196	3002	11378	3799
O9	AM Peak Period PAX		1590	489	3624	2372	8075	3948
	AM Peak Hour PAX		646	176	2217	1309	4348	1386
	AM Peak Period		155	28	61	27		Without Langenhoven and other routes
	AM Peak Hour		64	8	21	14		
	Daily	13,998	429	67	102	61		
		Priv	Taxi	MidiTaxi	Bus	ArtBus		

6,192	On-board survey estimates			
	6,076	8,443	14,519	
	Brandwag	Universitas		

1 212>
<3 948

Estimated volume stemming from on-board taxi volumes and part of business plan

Nelson Mandela

Position 2

Nelson Mandela

- Estimated volume – 14 800 per day

	Priv	Taxi	MidiTaxi	Bus	ArtBus	
Daily	17,217	229	45	29	17	
AM Peak Hour		47	4	5	1	
AM Peak Period		92	21	16	9	
AM Peak Hour PAX		13	0	0	0	13
AM Peak Period PAX		32	0	70	0	102
		782	153	540	490	1965

O12			3735	896	1422	1526	7579
	AM Peak Period PAX		1532	649	747	1199	4127
	AM Peak Hour PAX		888	451	642	981	2962
	AM Peak Period		127	42	15	15	
	AM Peak Hour		75	18	8	8	
	Daily	16,548	433	64	39	37	
		Priv	**Taxi**	**MidiTaxi**	**Bus**	**ArtBus**	

Nelson Mandela

2 268>
<1 428

574.5

Langenhoven and some Brandwag

98

L35

ArtBus	8
Bus	14
Midi Taxi	21
Mini Taxi	77
Priv	4881
Heavy	83

E → **2268**

W ← **1428**

ArtBus	21
Bus	30
Midi Taxi	33
Mini Taxi	106
Priv	3257
Heavy	111

Position 3

	Priv	Taxi	MidiTaxi	Bus	ArtBus	Northbound
Daily	11400	1103	63	65	33	0
AM Peak Hour		200	9	8	2	
AM Peak Period		446	18	14	9	
AM Peak Hour PAX		1451	121	280	109	1961
AM Peak Period PAX		3194	176	505	492	4367
		7558	694	1950	1804	12006
O8		6267	570	1900	1639	10376
AM Peak Period PAX		2381	109	735	1366	4591
AM Peak Hour PAX		1282	82	260	437	2061
AM Peak Period		511	21	47	43	
AM Peak Hour		236	10	8	11	
Daily	10692	1094	71	83	47	
	Priv	**Taxi**	**MidiTaxi**	**Bus**	**ArtBus**	Southbound

OR Tambo

OR Tambo

15,089	12,799
	OR Tambo

Estimated volume stemming from on-board taxi volumes and part of business plan

Position 4

	Priv	Taxi	MidiTaxi	Bus	ArtBus	Northbound
Daily						
AM Peak Hour		170	24			
AM Peak Period		391	44			
AM Peak Hour PAX		1233	323			
AM Peak Period PAX		2800	430			

Fort Hare

8076 10,432 14,103

2356 Maphisa

Fort Hare

AM Peak Period PAX		839	104		
AM Peak Hour PAX		348	74		
AM Peak Period		180	20		
AM Peak Hour		64	9		
Daily					
	Priv	Taxi	MidiTaxi	Bus	ArtBus	SOUTHBOUND

Estimated volume stemming from on-board taxi volumes and part of business plan

Position 5

	TO CBD		From CBD			
Daily	**Veh trips**	**Pax**	**Veh trips**	**Pax**	**Total**	**Estimation**
Taxi	2,990	17,022	2,950	14,786	31,808	40,320
Midibus Taxi	116	586	85	519	1,105	
Bus	87	3,045	71	3,001	6,046	15,680
Articulated Bus	38	1,676	24	1,638	3,314	
	Daily Total Pax	22,329		19,944	**42,273**	**56,000**
	Bus %	21%		23%		

- Information utilised:
  - Link count (L34)
  - Vehicle occupancy estimated
  - Bus Occupancy cross checked total bus with bus data obtained from IBL

			N	S			
0	64.0	ArtBus	0	ArtBus	0	44.62	0.0
163	54.3	Bus	3	Bus	2	28.20	56.4
32	8.1	Midi Taxi	4	Midi Taxi	8	1.65	13.2
114	14.3	Mini Taxi	8	Mini Taxi	15	1.56	23.3
309.4		Priv	760	Priv	995		**93.0**
		Heavy	25	Heavy	27		

L38

N S

1856	64.0	ArtBus	29	↑	↓	ArtBus	10	44.62 446.2
2228	54.3	Bus	41			Bus	15	28.20 423.0
330	8.1	Midi Taxi	41			Midi Taxi	62	1.65 102.5
9867	14.3	Mini Taxi	691			Mini Taxi	837	1.56 1302.0
14280.8		Priv	1138			Priv	1442	2273.7
		Heavy	49			Heavy	41	

L26

N S

1920	64.0	ArtBus	30	↑	↓	ArtBus	0	44.62 0.0
3260	54.3	Bus	60			Bus	16	28.20 451.2
145	8.1	Midi Taxi	18			Midi Taxi	20	1.65 33.1
1514	14.3	Mini Taxi	106			Mini Taxi	58	1.56 90.2
6838.5		Priv	2448			Priv	4738	574.5
		Heavy	56			Heavy	94	

L27

N S

10900	109	ArtBus	100	↑	↓	ArtBus	117	55.00 6435.0
7517	52	Bus	144			Bus	224	49.00 10976.0
949	8	Midi Taxi	121			Midi Taxi	151	11.76 1775.8
3878	16	Mini Taxi	247			Mini Taxi	352	15.14 5330.3
23244.1		Priv	3849			Priv	4390	24517.0
		Heavy	149			Heavy	182	

L24

				N	S				
64	64.0	ArtBus	1		ArtBus	0		37.00	0.0
380	63.4	Bus	6		Bus	3		54.33	163.0
143	9.5	Midi Taxi	15		Midi Taxi	13		8.00	104.0
2805	18.3	Mini Taxi	153		Mini Taxi	95		6.17	585.8
3391.9		Priv	1459		Priv	931			852.8
		Heavy	12		Heavy	14			

L22

<3 391

853>

AM

				N	S				
0	64.0	ArtBus	0		ArtBus	0		37.00	0.0
0	63.4	Bus	0		Bus	0		54.33	0.0
10	9.5	Midi Taxi	1		Midi Taxi	1		8.00	8.0
55	18.3	Mini Taxi	3		Mini Taxi	7		6.17	43.2
64.5		Priv	2169		Priv	1317			51.2
		Heavy	3		Heavy	5			

L20

				N	S				
320	64.0	ArtBus	5			ArtBus	5	37.00	185.0
380	63.4	Bus	6			Bus	15	54.33	815.0
0	9.5	Midi Taxi	0			Midi Taxi	2	8.00	16.0
165	18.3	Mini Taxi	9			Mini Taxi	26	6.17	160.3
865.4		Priv	2948			Priv	1914		**1176.3**
		Heavy	11			Heavy	14		

L19

<865

1176>

AM

				N	S				
448	64.0	ArtBus	7			ArtBus	5	37.00	185.0
761	63.4	Bus	12			Bus	14	54.33	760.7
19	9.5	Midi Taxi	2			Midi Taxi	2	8.00	16.0
348	18.3	Mini Taxi	19			Mini Taxi	66	6.17	407.0
1576.1		Priv	2645			Priv	1280		**1368.7**
		Heavy	11			Heavy	13		

L21

<1 576

13 69>

MLC11_VOC05_N MLC11_VOC05_S

MLC11_VOC05

	N	S
		1450
Bus	703	133 Bus
Taxi	5881	356 Taxi
Taxi 4+1	1888	961 Taxi 4+1
	8472	

1 450>
< 8 475

MLC09_VOC03

	N	S
		1079
		1058
Bus	1284	419 Bus
Taxi	6563	576 Taxi
Taxi 4+1	1	63 Taxi 4+1
	7848	
	8005	

	188		
Bus	53	7	E
Taxi	87	10	VOC-05
Taxi1	48	11	VOC-05 _E
			VOC-05 _W
Taxi1	164		VOC-05
Taxi	568		W
Bus	1330		
	2062		

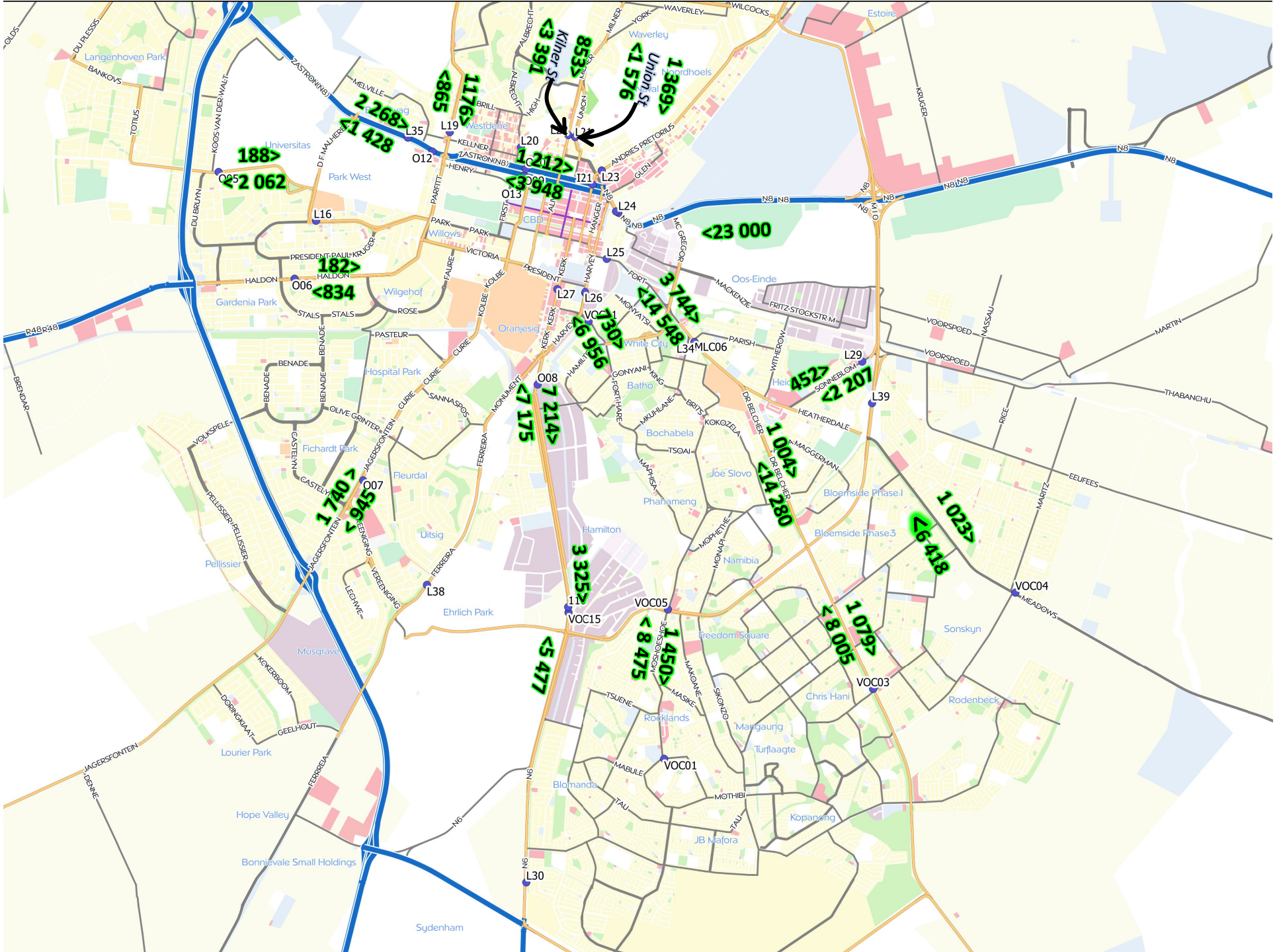
	182		
Bus	104	7	E
Taxi	50	10	VOC-06
Taxi1	28	11	VOC-06 _E
			VOC-06 _W
Taxi1	60		VOC-06
Taxi	339		W
Bus	435		
	834		

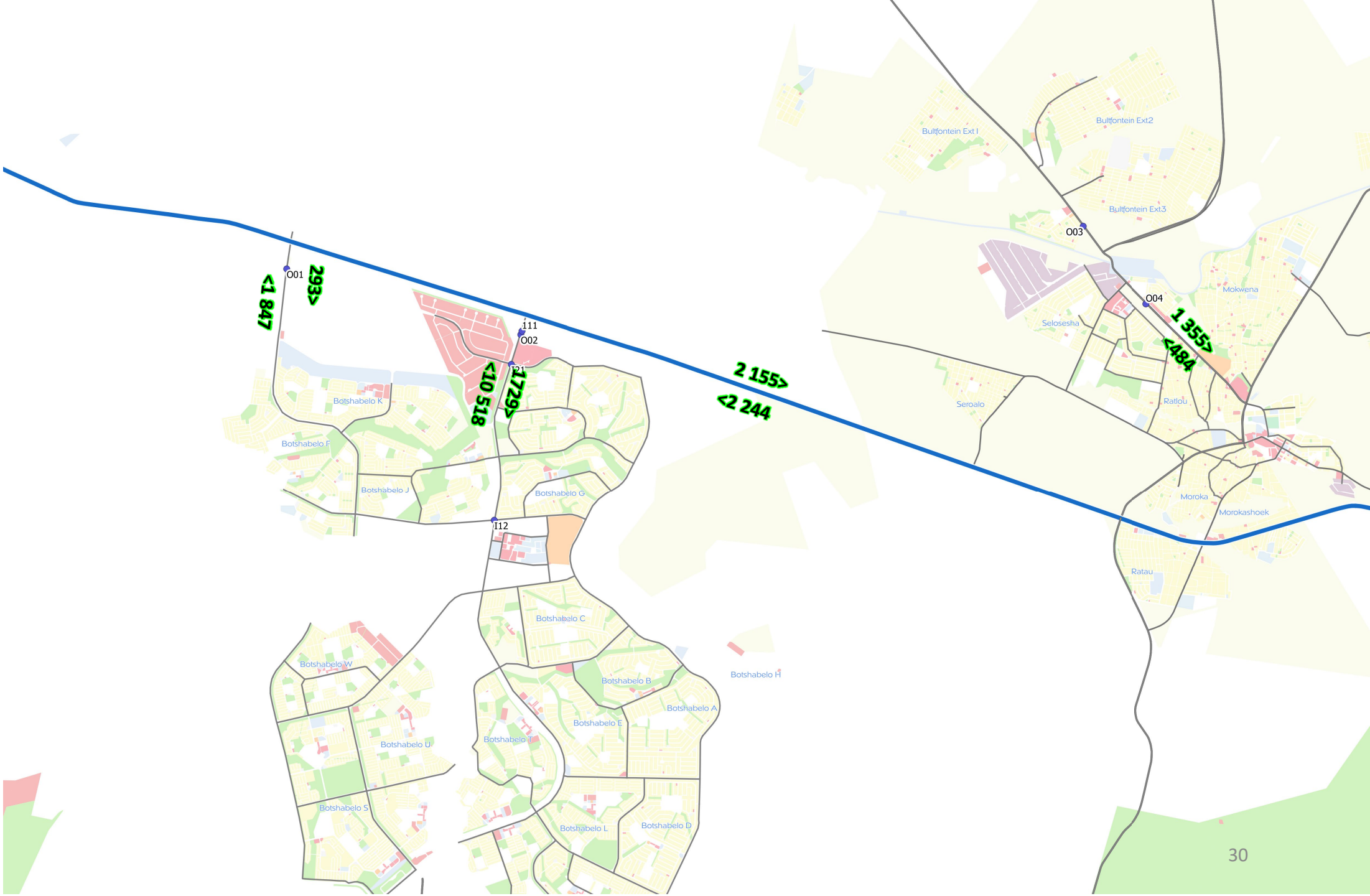
VOC-07 _N VOC-07 _S

VOC-07

N		S	
		945	
Bus	815	709	Bus
Taxi	721	116	Taxi
Taxi 4+1	204	120	Taxi 4+1
	1740		

AM Peak Period – Public Transport Passengers

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O04
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Bultfontein Ext2
Bultfontein Ext3
Mokwena
Selosesha
Seroalo
Ratlou
Moroka
Morokashoek
Ratau
Botshabelo K
Botshabelo F
Botshabelo J
Botshabelo G
I12
Botshabelo C
Botshabelo W
Botshabelo B
Botshabelo H
Botshabelo A
Botshabelo E
Botshabelo T
Botshabelo U
Botshabelo S
Botshabelo L
Botshabelo D