

2015-2036

MMM – City Wide Integrated Public Transport Plan



VOLUME 2B



INTEGRATED
PUBLIC
TRANSPORT
NETWORK

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ABBREVIATIONS

Abbreviation	Full Description
ACSA	Airports Company South Africa
ADN	Airport Development Node
ADP	Airport Development Plan
AFC	Automated Fare Collection
AFCA	Automated Fare Collection Agent
APTMS	Advanced Public Transport Management System
ATC	Adaptive Traffic Control
BATHA	Botshabelo Amalgamated Taxi Association
BEPP	Built Environment Performance Plan
BOC	Bus Operating Company
BRT	Bus Rapid Transit
CBD	Central Business District
CBO	Community-based Organization
CCC	Centralized Control Centre
CCTV	Closed-circuit Television
CITP	Comprehensive Integrated Transport Plan
CM	Carbon Monoxide
CNG	Compressed Natural Gas
COGTA	Cooperative Governance and Traditional Affairs
CPI	Consumer Price Index
CPTR	Current Public Transport Record
CRM	Customer Relationship Management
DETEA	Department of Environmental Tourism Economic Affairs
ECE	Economic Commission of Europe
EM	Executive Mayor
EMF	Environmental Management Framework
EMV	Euro-Mastercard-VISA
FINMOD	Financial Model
GBTA	Greater Bloemfontein Taxi Association
GIS	Geographic Information System
GPRS	General Packet Radio Service
GPS	Global Positioning System
ha	Hectare
HC	Hydrocarbons
HHS	Household Survey
HOD	Head of Department
HR	Human Resources
ICE	Internal Combustion Engine
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
IMC	Integrated Marketing and Communication
IPTN	Integrated Public Transport Network
IRPTN	Integrated Rapid Public Transport Network
ITP	Integrated Transport Plan
ITS	Intelligent Transport System
IVT	In-Vehicle Time (IVT) (in Minutes)
JOC	Joint Organizing Committee
JSC	Joint Steering Committee
km	Kilometre
LAN	Local Area Network
LED	Light Emitting Diode
LIM	Linear Induction Motor

ABBREVIATIONS

Abbreviation	Full Description
MFMA	Municipal Financial Management Act
MITP	Mangaung Integrated Transport Plans
MMC	Member of Mayoral Committee
MMM	Mangaung Metropolitan Municipality
MOU	Memorandum of Understanding
MRE	Municipal Regulatory Entity
MSA	Municipal Systems Act
NATMAP	National Transport Master Plan
NDOT	National Department of Transport
NDP	National Development Plan
NEMA	National Environmental Management Act
NGO	Non-governmental Organization
NLTA	National Land Transport Act
NLTTA	National Land Transport Transition Act
NMT	Non-Motorised Transport
NOX	Nitrogen Oxide
NT	Number of Transfers (NT)
OCR	Optical Character Recognition
OD	Origin-Destination
OLS	Operating Licenses Strategy
OOP	Office of the Premier
PDM	Patronage Demand Model
PDOT	Provincial Department Of Transport
PDP	Professional Driver Permit
PLTF	Provincial Land Transport Framework
PM	Particulate Matter
PMU	Project Management Unit
POS	Point of Sale
PRASA	Passenger Rail Agency of South Africa
PT	Public Transport
PTIG	Public Transport Infrastructure Grant
PTIS	Public Transport Infrastructure and Systems Grant
PTNOG	Public Transport Network Operational Grant
PTOG	Public Transport Operational Grant
PTZ	Pan-Tilt-Zoom
PvT	Private Transport
RoW	Right of Way
RTPI	Real-time Passenger Information
SABS	South African Bureau of Standards
SAC	Schedule Adherence and Controlling
SANRAL	South African National Road Agency Limited
SANS	South African National Standards
SANTACO	South Africa National Taxi Council
SDA	Service Delivery Agreement
SDF	Spatial Development Framework
SIP	Strategic Integrated Projects
SMME	Small Medium and Micro Enterprise
SP	Stated Preference
SVMS	Strategic Variable Message Signs
SWOT	Strength Weakness Opportunity Threat
THALSDTA	Thaba Nchu Long and Short Distance Taxi Association

ABBREVIATIONS

Abbreviation	Full Description
TIMS	Traffic Management and Information System
TIS	Traveller Information System
TOM	Ticket Operating Machines
TSP	Traffic Signal Priority
ULSD	Ultra Low Sulphur Diesel
UTC	Urban Traffic Control
VDM	Vehicle Docking Manager
VMS	Variable Message Sign
VOC	Vehicle Operating Company
VOIP	Voice Over Internet Protocol
VTTS	Value of Travel Time Savings (VTTS) (in Rand/hour)
VWTS	Value of Waiting Time Savings (VWTS) (Rand/hour)
WAN	Wide Area Network
WP	Work Package
WT	Waiting Time (WT) (in Minutes)
WULA	Water Use License Application

4 Traffic Data

A substantial number of traffic surveys were completed during 2016 and 2017 throughout MMM, in order to attain existing traffic flow patterns, a directional split of traffic and to determine the peak periods (AM and PM) of all vehicular movement at particular locations. It should, however, be noted that the surveys were focussed on areas where the implementation of the IPTN is envisaged.

During 2018 detail traffic counts were completed to validate the 2016 and 2017 counts and focused on obtaining data for detailed traffic and transportation studies for IPTN implementation in the Bloemfontein CBD, along with OR Tambo Drive and along Maphisa- and Moshoeshoe Road. The detail of these traffic studies is provided in the traffic impact studies completed for the IPTN along the mentioned roads (Refer to Annexure I). The raw data collected as part of the transport surveys form part of the electronic transport register and can be obtained on request from the city.

The mentioned surveys comprise of:

- Manual Link Counts (continuous 14-hour period),
- Electronic Link Counts (7 consecutive days),
- Manual Intersection Counts (continuous 12-hour period),
- Vehicle Occupancy Counts (continuous 12-hour period),
- Pedestrian surveys (14 –hour period-specific locations).

This chapter provides information relating to the geographical position of each survey, a description of the position of the survey point and a summary of the data collected. The purpose of this chapter and volume is to provide an overview of data collected and the detail level per survey type. The detailed analysis to obtain existing passenger volumes and to calibrate the public transport demand estimation is provided in Volume 3 of the IPTN plan.

4.1 Manual Link and Intersection Survey Results(2016)

The localities of surveys executed during 2016 are presented in Figure 4-1 and Table 4-1. The surveys are summarised in:

- Table 4-2 – Intersection counts summarised per approach and vehicles class(private- and heavy vehicles);
- Table 4-3 – Total public transport passengers per public transport vehicle type;
- Table 4-4 - Total public transport vehicles per public transport vehicle type.

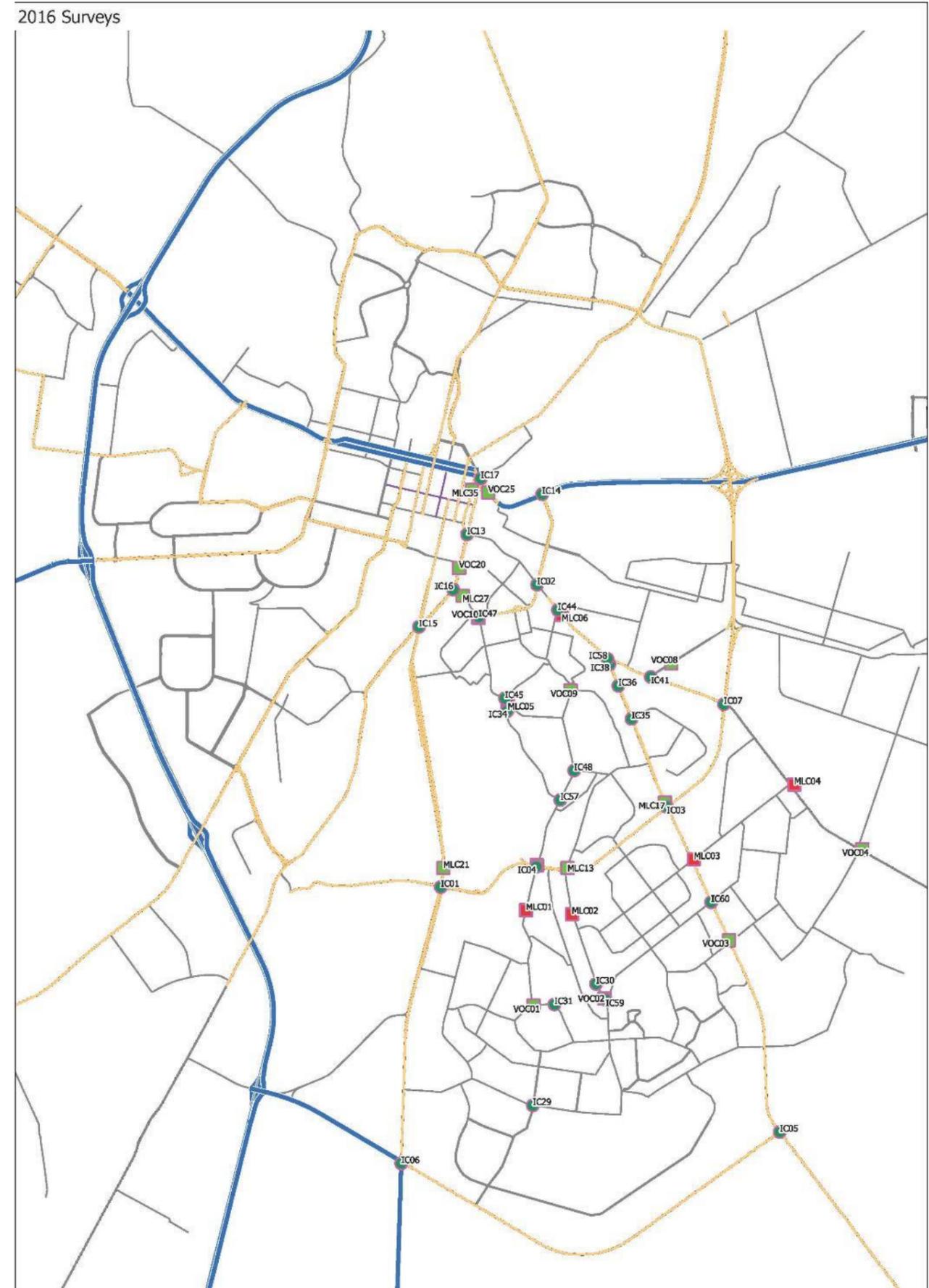


Figure 4-1: Location of surveys conducted during 2016

Table 4-1: Survey Locations (2016)

Survey Location No.	Description	X Coordinate	Y Coordinate
IC01	Kerk St/M10 (4-leg)	26,22033	-29,1727
IC02	Hamilton Rd/McGreggor St (4-leg)	26,23576	-29,1304
IC03	Dr Belcher Rd/Dewetsdorp Rd(4-leg)	26,25659	-29,1615
IC04	Moshoeshoe St/M10 (4-leg)	26,23564	-29,1699
IC05	R702/N3 (3-leg)	26,27468	-29,207
IC06	N6/Church St (4-leg)	26,21399	-29,2114
IC07	M10/Meadows St (4-leg)	26,26573	-29,1471
IC13	Fort St/Hanger St/Harvey Rd (4-leg)	26,22453	-29,1233
IC14	Mc Greggor St/N8 (4-leg)	26,23657	-29,1177
IC15	Kerk St/Harvey Rd (4-leg)	26,21683	-29,1363
IC16	Fort Hare Rd/Harvey Rd (4-leg)	26,22234	-29,1311
IC17	Nelson Mandela Dr/Berg St/Glen Rd (5-leg)	26,22674	-29,1155
IC29	Taelo MolosioaSt/Leepile St (New Count)	26,23509	-29,2033
IC30	Singonzo St/Modimogale St (New Count)	26,24522	-29,1863
IC31	Chief Moroka Crescent/Modimogale St (New Count)	26,23855	-29,1891
IC34	Maphisa Rd/Mtyobile St (New Count)	26,23098	-29,1481
IC35	Dr Belcher Rd/Anna Maggerman Crescent (New Count)	26,25092	-29,1492
IC36	Dr Belcher Rd/Hamlet St (New Count)	26,24879	-29,1445
IC38	Dr Belcher Rd/Access to Hospital (New Count)	26,24736	-29,1415
IC41	Heatherdale Rd/Sonneblom St (New Count- 3 Leg)	26,254	-29,1433
IC44	Dr Belcher Rd/Mkuhlane St (New Count)	26,23909	-29,1339
IC45	Fort Hare Rd/Mkuhlane St (New Count)	26,23063	-29,1463
IC47	Fort Hare Rd/Hamilton St (New Count)	26,22641	-29,1349
IC48	Moshoeshoe St/Seeiso Rd (New Count)	26,24171	-29,1564
IC57	Maphisa Rd/Moshoeshoe St (New Count)	26,23948	-29,1605
IC58	Dr Belcher Rd/Heatherdale Rd (New Count)	26,24705	-29,1408
IC59	Singonzo St/Unknown Rd (New Count)	26,24678	-29,1885
IC60	Dewetsdorp Rd/Unknown Rd (New Count)	26,26368	-29,1748
MLC01	Moshoeshoe St (south of M10)	26,23399	-29,176
MLC02	Singonzo St (south of M10)	26,24136	-29,1765
MLC03	Dewetsdorp Rd (south of M10)	26,26092	-29,1688
MLC04	Meadows St (South of M10 at Heidedal)	26,277	-29,1584
MLC05	Fort Hare Rd and Mkuhlane St	26,23108	-29,147
MLC06	Belcher Rd & Mkuhlane St	26,23973	-29,1346
MLC07_VOC01	Moshoeshoe St (North of Chief Moroka Crescent)	26,23518	-29,1893
MLC08_VOC02	Singonza St (at Rocklands)	26,24659	-29,1883
MLC09_VOC03	Dewetsdorp Rd (at Chris Hani)	26,26655	-29,1802
MLC10_VOC04	Meadows St (between Grasslands and Sonskyn)	26,2879	-29,1674
MLC11_VOC05	Moshoeshoe St north of M10 George Lubbe St (4 lanes)	26,23573	-29,1696
MLC13_VOC07	Monapi St (North of M10)	26,24064	-29,17
MLC14_VOC08	Sonneblom St (West of Iris St)	26,25727	-29,1414
MLC15_VOC09	Mkuhlane St and Kokozela St	26,24116	-29,1452
MLC17_VOC11	Hilton Rd and Fort Hare Rd	26,22636	-29,135
MLC21_VOC15	Dr Belcher north of M10 George Lubbe St (2 lanes)	26,25629	-29,1609
MLC22_VOC16	M30 Kerk St north of the M10 George Lubbe St (4 lanes)	26,22071	-29,17
MLC23_VOC17			
MLC26_VOC20	Monument Rd south of Rhodes Ave (4 lanes)	26,22326	-29,128
MLC27_VOC21	Fort Hare Rd east of Monument St (4 lanes)	26,22383	-29,1319
MLC31_VOC25	N8 east of Charles St (4 lanes)	26,22794	-29,1175

Table 4-2: Intersection Counts: Daily Vehicle Volumes per direction (2016)

Location Numbers	Description	Vehicle Type	Daily Vehicle Numbers per Direction			
			South	East	North	West
IC01	Kerk St/M10 (4-leg)	Private	3 243	6 330	4 472	5 491
		Trucks	189	2 648	813	724
		Totals	3 432	8 978	5 285	6 215
IC02	Hamilton Rd/McGreggor St (4-leg)	Pass Cars	19 713	6 505	5 626	5 549
		Trucks	986	3241	445	360
		Totals	20 699	9 746	6 071	5 909
IC03	Dr Belcher Rd/Dewetsdorp Rd (4-leg)	Pass Cars	4 423	3 405	7 421	10 247
		Trucks	412	569	1 328	350
		Totals	4 835	3 974	8 749	10 597
IC04	Moshoeshoe St/M10 (4-leg)	Pass Cars	4 348	3 810	7 271	6 906
		Trucks	477	131	637	94
		Totals	4 825	3 941	7 908	7 000
IC05	R702/N3 (3-leg)	Pass Cars	2 081	0	1 059	689
		Trucks	209	0	623	475
		Totals	2 290	0	1 682	1 164
IC06	N6/Church St (4-leg)	Pass Cars	1 437	939	1 496	1 961
		Trucks	232	231	179	206
		Totals	1 669	1 170	1 675	2 167
IC07	M10/Meadows St (4-leg)	Pass Cars	4 208	1 497	2 981	3 224
		Trucks	1 585	50	3 968	591
		Totals	5 793	1 547	6 949	3 815
IC13	Fort St/Hanger St/Harvey Rd (4-leg)	Pass Cars	4 345	4 498	7 194	0
		Trucks	247	2 097	356	0
		Totals	4 592	6 595	7 550	0
IC14	Mc Greggor St/N8 (4-leg)	Pass Cars	2 701	621	7 517	2 828
		Trucks	585	20	883	221
		Totals	3 286	641	8 400	3 049
IC15	Kerk St/Harvey Rd (4-leg)	Pass Cars	2 852	9 631	2 641	4 071
		Trucks	134	669	259	1 217
		Totals	2 986	10 300	2 900	5 288
IC16	Fort Hare Rd/Harvey Rd (4-leg)	Pass Cars	4 244	3 705	5 092	1 438
		Trucks	500	187	902	79
		Totals	4 744	3 892	5 994	1 517
IC17	Nelson Mandela Dr/Berg St/Glen Rd (5-leg)	Pass Cars	7 116	8 122	8 287	8 290
		Trucks	1 347	1 083	1 009	1 002
		Totals	8 463	9 205	9 296	9 292
IC29	Taelo MolosioaSt/Leepile St (New Count)	Pass Cars	4 421	1 409	2 127	1 753
		Trucks	3 450	183	87	82
		Totals	7 871	1 592	2 214	1 835
IC30	Singonzo St/Modimogale St (New Count)	Pass Cars	2 204	0	2 981	1 237
		Trucks	131	0	1 089	63
		Totals	2 335	0	4 070	1 300
IC31	Chief Moroka Crescent/Modimogale St (New Count)	Pass Cars	1 204	1 761	2 624	0
		Trucks	239	155	691	0
		Totals	1 443	1 916	3 315	0
IC34	Maphisa Rd/Mtyobile St (New Count)	Pass Cars	3 556	752	1 667	2 116
		Trucks	177	26	59	99
		Totals	3 733	778	1 726	2 215
IC35	Dr Belcher Rd/Anna Maggerman Crescent (New Count)	Pass Cars	1 178	4 131	2 099	4 151
		Trucks	1 582	304	277	2 409
		Totals	2 760	4 435	2 376	6 560
IC36	Dr Belcher Rd/Hamlet St (New Count)	Pass Cars	3 366	519	5 312	1 209
		Trucks	395	9	591	216
		Totals	3 761	528	5 903	1 425
IC38	Dr Belcher Rd/Access to Hospital (New Count)	Pass Cars	4 231	0	3 112	2 222
		Trucks	608	0	351	116

Location Numbers	Description	Vehicle Type	Daily Vehicle Numbers per Direction			
			South	East	North	West
		Totals	4 839	0	3 463	2 338
IC41	Heatherdale Rd/Sonneblom St (New Count- 3 Leg)	Pass Cars	0	1 492	2 098	3 509
		Trucks	0	84	250	455
		Totals	0	1 576	2 348	3 964
IC44	Dr Belcher Rd/Mkuhlane St (New Count)	Pass Cars	12 818	0	14 162	5 217
		Trucks	672	0	511	58
		Totals	13 490	0	14 673	5 275
IC45	Fort Hare Rd/Mkuhlane St (New Count)	Pass Cars	2 596	1 013	1 982	0
		Trucks	172	13	139	0
		Totals	2 768	1 026	2 121	0
IC47	Fort Hare Rd/Hamilton St (New Count)	Pass Cars	3 449	4 323	6 447	4 039
		Trucks	326	214	677	275
		Totals	3 775	4 537	7 124	4 314
IC48	Moshoeshoe St/Seeiso Rd (New Count)	Pass Cars	3 948	1 625	5 478	0
		Trucks	124	1 102	265	0
		Totals	4 072	2 727	5 743	0
IC57	Maphisa Rd/Moshoeshoe St (New Count)	Pass Cars	1 999	0	3 725	2 005
		Trucks	144	0	208	54
		Totals	2 143	0	3 933	2 059
IC58	Dr Belcher Rd/Heatherdale Rd (New Count)	Pass Cars	938	1 079	3 681	0
		Trucks	215	219	186	0
		Totals	1 153	1 298	3 867	0
IC59	Singonzo St/Unknown Rd (New Count)	Pass Cars	473	136	58	0
		Trucks	1 828	948	1 358	0
		Totals	2 301	1 084	1 416	0
IC60	DeWetsdorp Rd/Unknown Rd (New Count)	Pass Cars	2 562	0	3 188	1 250
		Trucks	1 979	0	2 378	563
		Totals	4 541	0	5 566	1 813

Table 4-3: 12-hour Public Transport Passenger Volumes per location per direction (2016)

Survey Location No. and Direction of travel	Total Pax for 4+1 Taxis	Total Pax for Mini Buses	Total Pax for Midi Buses	Total Pax for Buses	Total Pax for Artic Buses	Total Number of PT Pax
MLC01	10 822	4 134	3 396	903	333	19 588
- Northbound	5 583	450	3 156	273	333	9 795
- Southbound	5 239	3 684	240	630	-	9 793
MLC02	1 256	2 312	2 415	959	109	7 051
- Northbound	799	1 297	110	240	109	2 555
- Southbound	457	1 015	2 305	719	-	4 496
MLC03	1 101	44 839	1 445	3 786	1 660	52 831
- Northbound	820	21 231	471	1 656	1 648	25 826
- Southbound	281	23 608	974	2 130	12	27 005
MLC04	402	15 071	2 422	2 102	1 750	21 747
- Northbound	286	10 556	1 694	1 051	1 638	15 225
- Southbound	116	4 515	728	1 051	112	6 522
MLC05	7 991	14 529	2 482	2 662	665	28 329
- Northbound	4 621	7 497	1 883	1 705	556	16 262
- Southbound	3 370	7 032	599	957	109	12 067
MLC06	2 340	47 208	2 637	3 792	2 827	58 804
- Northbound	231	18 681	1 086	1 324	847	22 169
- Southbound	2 109	28 527	1 551	2 468	1 980	36 635
MLC07_VOC01	2 537	3 550	787	720	275	7 869
- Eastbound	1 307	1 565	175	236	275	3 558
- Westbound	1 230	1 985	612	484	-	4 311
MLC08_VOC02	1 475	3 355	10 137	398	329	15 694
- Northbound	575	1 471	9 978	132	274	12 430

Survey Location No. and Direction of travel	Total Pax for 4+1 Taxis	Total Pax for Mini Buses	Total Pax for Midi Buses	Total Pax for Buses	Total Pax for Artic Buses	Total Number of PT Pax
- Southbound	900	1 884	159	266	55	3 264
MLC09_VOC03	345	16 682	1 262	3 540	1 925	23 754
- Northbound	175	10 379	458	1 757	1 151	13 920
- Southbound	170	6 303	804	1 783	774	9 834
MLC10_VOC04	-	5 831	1 136	777	-	7 744
- Eastbound	-	2 177	252	236	-	2 665
- Westbound	-	3 654	884	541	-	5 079
MLC11_VOC05	10 598	7 329	11 466	1 977	275	31 645
- Northbound	5 996	2 592	11 012	1 125	275	21 000
- Southbound	4 602	4 737	454	852	-	10 645
MLC13_VOC07	895	2 920	192	565	1	4 573
- Northbound	479	1 216	74	332	1	2 102
- Southbound	416	1 704	118	233	-	2 471
MLC14_VOC08	76	8 042	926	5 364	5 164	19 572
- Eastbound	66	2 740	432	504	5 143	8 885
- Westbound	10	5 302	494	4 860	21	10 687
MLC15_VOC09	12 988	1 820	145	790	276	16 019
- Eastbound	7 597	1 296	45	532	276	9 746
- Westbound	5 391	524	100	258	-	6 273
MLC17_VOC11	72	37 728	806	8 886	1 708	49 200
- Eastbound	72	25 253	695	3 180	1 708	30 908
- Westbound	-	12 475	111	5 706	-	18 292
MLC21_VOC15	40	14 046	11 351	1 934	791	28 162
- Northbound	15	3 284	10 934	662	770	15 665
- Southbound	25	10 762	417	1 272	21	12 497
MLC22_VOC16	10 433	17 047	1 875	5 425	1 598	36 378
- Northbound	4 134	8 545	969	3 868	1 431	18 947
- Southbound	6 299	8 502	906	1 557	167	17 431
MLC23_VOC17	19	244	48	362	3	676
- Northbound	16	123	24	230	3	396
- Southbound	3	121	24	132	-	280
MLC26_VOC20	5 266	19 824	2 000	3 261	1 990	32 341
- Northbound	2 216	4 087	227	1 506	1 384	9 420
- Southbound	3 050	15 737	1 773	1 755	606	22 921
MLC27_VOC21	10 433	17 047	1 875	5 425	1 598	36 378
- Northbound	4 134	8 545	969	3 868	1 431	18 947
- Southbound	6 299	8 502	906	1 557	167	17 431
MLC31_VOC25	1 245	7 715	2 877	10 009	13 869	35 715
- Northbound	1 220	2 328	1 492	2 749	2 524	10 313
- Southbound	25	5 387	1 385	7 260	11 345	25 402

Table 4-4: 12-Hour Public Transport Vehicles per location per direction (2016)

Survey Location No. and Direct of Survey	Totals 4+1 Taxis	Totals Mini Buses	Totals Midi Buses	Totals Buses	Totals Artic Buses	Totals PT Vehicles
MLC01	5 630	618	407	39	5	6 699
- Northbound	2 704	169	387	17	-	3 277
- Southbound	2 926	449	20	22	5	3 422
MLC02	701	352	170	31	5	1 259
- Northbound	367	199	37	11	1	615
- Southbound	334	153	133	20	4	644
MLC03	578	5 172	179	138	40	6 107
- Northbound	10	2 429	76	54	28	2 597
- Southbound	568	2 743	103	84	12	3 510
MLC04	331	1 484	188	118	22	2 143
- Northbound	248	986	106	59	18	1 417

Survey Location No. and Direct of Survey	Totals 4+1 Taxis	Totals Mini Buses	Totals Midi Buses	Totals Buses	Totals Artic Buses	Totals PT Vehicles
- Southbound	83	498	82	59	4	726
MLC05	3 426	1 305	125	70	17	4 943
- Northbound	1 732	720	92	41	1	2 586
- Southbound	1 694	585	33	29	16	2 357
MLC06	1 356	5 442	228	144	73	7 243
- Northbound	124	2 588	122	76	37	2 947
- Southbound	1 232	2 854	106	68	36	4 296
MLC07_VOC01	1 551	733	90	48	5	2 427
- Eastbound	812	400	19	12	0	1 243
- Westbound	739	333	71	36	5	1 184
MLC08_VOC02	923	436	842	14	5	2 220
- Northbound	409	184	828	4	4	1 429
- Southbound	514	252	14	10	1	791
MLC09_VOC03	231	2 552	137	116	35	3 071
- Northbound	5	1 397	75	56	14	1 547
- Southbound	226	1 155	62	60	21	1 524
MLC10_VOC04	0	1 000	137	41	0	1 178
- Eastbound	0	349	29	7	0	385
- Westbound	0	651	108	34	0	793
MLC11_VOC05	5 887	923	1 042	57	5	7 914
- Northbound	2 937	323	1 004	37	2	4 303
- Southbound	2 950	600	38	20	3	3 611
MLC13_VOC07	506	578	38	21	1	1 144
- Northbound	251	299	23	12	0	585
- Southbound	255	279	15	9	1	559
MLC14_VOC08	62	1 044	111	148	88	1 453
- Eastbound	55	533	8	24	7	627
- Westbound	7	511	103	124	81	826
MLC15_VOC09	7 017	302	10	54	6	7 389
- Eastbound	3 452	212	4	20	6	3 694
- Westbound	3 565	90	6	34	0	3 695
MLC17_VOC11	21	4 190	115	246	34	4 606
- Eastbound	21	2 540	98	108	34	2 801
- Westbound	0	1 650	17	138	0	1 805
MLC21_VOC15	21	2 005	1 001	110	35	3 172
- Northbound	4	462	941	54	14	1 475
- Southbound	17	1 543	60	56	21	1 697
MLC22_VOC16	4 295	1 627	161	145	32	6 260
- Northbound	1 975	822	67	92	27	2 983
- Southbound	2 320	805	94	53	5	3 277
MLC23_VOC17	16	80	6	10	3	115
- Northbound	13	41	3	3	0	60
- Southbound	3	39	3	7	3	55
MLC26_VOC20	2 911	3 585	252	125	46	6 919
- Northbound	1 151	1 260	93	66	34	2 604
- Southbound	1 760	2 325	159	59	12	4 315
MLC27_VOC21	4 295	1 627	161	145	32	6 260
- Northbound	1 975	822	67	92	27	2 983
- Southbound	2 320	805	94	53	5	3 277
MLC31_VOC25	549	976	186	185	153	2 049
- Northbound	531	465	103	61	40	1 200
- Southbound	18	511	83	124	113	849

4.2 Manual Link and Intersection Survey Results (2017)

This section of the report reflects the status quo data of the most recent (2017) Link Counts (LC) as well as the Vehicle Occupancy Counts (VOC) taken at the locations reflected in Figure 4-2 below. The specific details of the 2017 survey locations are indicated in Table 4-5 below. The results of the surveys are summarised in:

- Table 4-6 – Intersection counts summarised per approach and vehicles class(private- and heavy vehicles);
- Table 4-7 – Total public transport passengers per public transport vehicle type;
- Table 4-8 - Total public transport vehicles per public transport vehicle type.



Figure 4-2: Locations of surveys conducted during 2017 – Bloemfontein

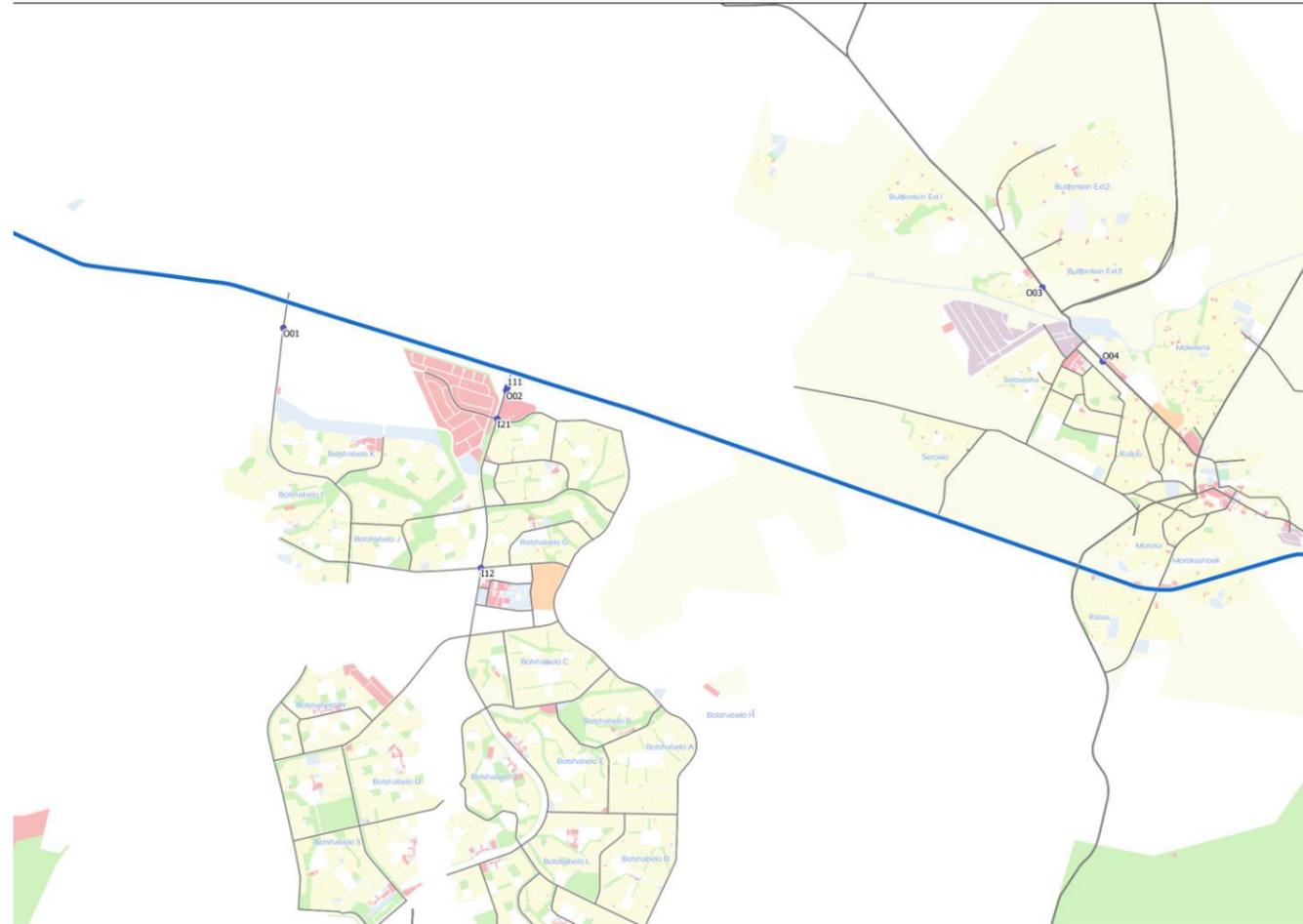


Figure 4-3: Locations of surveys conducted during 2017 – Thaba Nchu

Table 4-5: Survey Locations (2017)

Survey Point No.	Description	X-Coordinate	Y-Coordinate
I01	Nelson Mandela And Glen_Berg	26,22663	-29,1154
I02	Charles And Berg_Harvey	26,22648	-29,117
I03	Charles And Hanger	26,22543	-29,1167
I04	N8 AND LINK ROAD	26,790688	-29,220131
I05	N8 AND JAN VAN RIEBEECK	26,865123	-29,226979°
I06	ROAD C AND ROAD D	26,838975	-29,209938
I07	ROAD C AND MARKET	26,841846	-29,215139
I08	St Georges And Hanger	26,22395	-29,1218
I09	St Georges And Harvey	26,22491	-29,1219
I10	Peet And Hanger	26,2242	-29,1206
I11	Peet And Harvey	26,22524	-29,1209
I13	Hanger And St Andrews	26,22482	-29,1191
I14	N8 Main Road To Botshabelo	26,8168750522	-29,2275183751
I15	N8 Main Road To Botshabelo	26,8165529496	-29,2283056483
I16	Harvey And St Andrews	26,22563	-29,1193
I17	ROAD F AND BRAND	26,8385220727	-29,2159527668
I18	1st Ave And Park	26,21017	-29,1207
I19	Aliwal And Zastron	26,21928	-29,113
I20	Aliwal And Nelson Mandla	26,21909	-29,1138
I21	Road B And Road O	26,70891	-29,2039
I21	Road B And Road O	26,22442	-29,114
I22	Harvey And Fort	26,22445	-29,1234
I23	Alexandra And Zastron	26,22579	-29,1143

Survey Point No.	Description	X-Coordinate	Y-Coordinate
I24	1st Ave And Zastron	26,21265	-29,1116
I25	1st Ave And Nelson Mandela	26,21244	-29,1124
I26	Nelson Mandela And Zastron	26,20211	-29,1103
I27	Nelson Mandela And Df Malherbe	26,18875	-29,105
I28	Kolbe_Pres Boshoff And Victoria	26,21147	-29,124
I29	Faure And Victoria	26,20351	-29,1224
I30	Parfitt_ Walter Sisulu And Victoria	26,19874	-29,1214
I31	Park And Betoger	26,20627	-29,1198
I32	Park And Ella	26,20816	-29,1203
L01	Road A_South Of Botshabelo-F	26,67703	-29,2359
L02	Road G_Botshabelo Rural	26,69529	-29,2437
L03	Road H_Botshabelo U	26,70496	-29,2517
L04	Road I_Botshabelo T	26,71583	-29,2763
L05	Road L_Botshabelo E	26,72295	-29,268
L06	Road H_Botshabelo C	26,71088	-29,2503
L07	Road G_Botshabelo Ba	26,70781	-29,2386
L08	Road J_Botshabelo Ia	26,7045	-29,2134
L09	Road K_Botshabelo J	26,70528	-29,2187
L10	Road K_Botshabelo H	26,70977	-29,218
L11	Road A_South Of N8	26,66718	-29,2032
L13	Kolbe Street	26,21114	-29,1249
L14	Walter Sisulu	26,19831	-29,1224
L15	President Paul Kruger	26,19298	-29,1194
L16	President Paul Kruger_East Of Df Malherbe	26,18285	-29,1187
L17	Roth Street East Of Faure	26,20279	-29,1249
L18	Df Malherbe_South Of Nelson Mandela	26,18725	-29,1065
L19	Gen Dan Pienaar_North Of Kellner Street	26,20291	-29,1071
L20	1st Ave_North Of Barnes Street	26,21357	-29,1091
L21	Aiwal Street_North Of 4th Street	26,22171	-29,1077
L22	Union Ave_South Of Delville Street	26,22068	-29,1075
L23	Raymond Mhlaba_East Of Alexandra	26,2258	-29,1121
L24	N8_South Of Charles Street	26,2283	-29,1177
L25	Fort Street_East Of Harvey	26,22655	-29,1237
L26	Harvey_South Of Rhodes Ave	26,22324	-29,1282
L27	Harvey_South Of President	26,21904	-29,1277
L28	Vereeniging Dr_North Of Jurgens Potgieter	26,19159	-29,1645
L29	Sonneblom Street_West Of M10 Interchange	26,2649	-29,1372
L30	Church Street M30	26,21438	-29,2055
L31	Road L East Of N6	26,19994	-29,2003
L32	Road M_In Blomanda	26,23089	-29,2102
L33	Olive Grinter_Between Eliot And Raath Streets	26,18616	-29,144
L34	Dr Belcher_South Of Devis Street	26,23972	-29,1346
L35	N8_West Of Melville Drive	26,19663	-29,1078
L36	Victoria East Of Streeten	26,20242	-29,1221
L37	President Ave_East Of Pres Brand	26,21637	-29,1255
L38	Ferreira Rd_North Of Vereeniging Drive	26,19948	-29,1664
L39	M10_South Of Thaba Nchu Interchange	26,26638	-29,1426
O01	Road A South of N8 Interchange Botshabelo	26,66921	-29,1892
O02	Road B South Of N8 Interchange	26,7106	-29,1993
O03	Thaba Nchu	26,8135956118	-29,1863051337
O04	Thaba Nchu	26,8183465223	-29,1917757157
O05	M14 In Wynand Mouton	26,16824	-29,1123
O06	Walter Sisulu	26,17964	-29,1263
O07	Jagerfontein	26,18992	-29,1527
O08	Oliver Tambo	26,21609	-29,1402

Survey Point No.	Description	X-Coordinate	Y-Coordinate
O09	Nelson Mandela	26,21409	-29,1128
O10	Zastron	26,21429	-29,1119
O11	Parfitt Ave	26,20154	-29,1131
O12	Nelson Mandela	26,20031	-29,1097
O13	Charles Street	26,21372	-29,1143

Table 4-6: Summary of Intersection Count Volumes per Link Count per Direction (2017)

Location Numbers	Description	Vehicle Type	Vehicle Volumes per Direction			
			South	East	North	West
I01	Nelson Mandela and Glen Berg	Pass Cars	14 091	2 858	14 972	105
		Mini - Buses	703	630	751	1
		Midi - Buses	127	30	85	1
		Buses	130	106	60	-
		Art Buses	105	99	23	-
		Trucks	592	174	479	3
		Totals	15 748	3 897	16 370	110
		I02	Charles and Berg Harvey	Pass Cars	-	1 488
Mini - Buses	-			125	72	829
Midi - Buses	-			16	899	47
Buses	-			1	35	114
Art Buses	-			-	25	83
Trucks	-			87	218	142
Totals	0			1 717	5 068	4 063
I03	Charles and Hanger			Pass Cars	5 982	2 079
		Mini - Buses	1 917	66	-	40
		Midi - Buses	89	7	-	4
		Buses	202	11	-	2
		Art Buses	148	7	-	-
		Trucks	216	67	-	-
		Totals	8 554	2 237	0	2 106
		I08	St Georges and Hanger	Pass Cars	8 679	999
Mini - Buses	4 529			756	-	424
Midi - Buses	100			79	-	56
Buses	206			23	-	102
Art Buses	125			11	-	113
Trucks	234			31	-	109
Totals	13 873			1 899	0	3 761
I09	St Georges and Harvey			Pass Cars	-	577
		Mini - Buses	-	702	5 157	404
		Midi - Buses	-	106	287	67
		Buses	-	-	167	11
		Art Buses	-	-	97	7
		Trucks	-	24	-	-
		Totals	0	1 409	12 158	3 248
		I10	Peet and Hanger	Pass Cars	7 346	-
Mini - Buses	2 698			-	-	-
Midi - Buses	88			-	-	-
Buses	44			-	-	-
Art Buses	23			-	-	-
Trucks	222			-	-	-
Totals	10 421			0	0	0
I11	Peet and Harvey Road			Pass Cars	-	193
		Mini - Buses	-	510	2 056	122
		Midi - Buses	-	12	187	2
		Buses	-	-	177	-
		Art Buses	-	-	98	-
		Totals	-	815	8 023	550

Location Numbers	Description	Vehicle Type	Vehicle Volumes per Direction			
			South	East	North	West
		Trucks	-	-	213	4
		Totals	0	715	8 241	454
I12	Road B and Road E	Pass Cars	2 814	1 388	2 850	716
		Mini - Buses	1 398	106	1 083	433
		Midi - Buses	117	8	129	14
		Buses	60	16	54	7
		Art Buses	47	7	21	-
		Trucks	109	84	162	32
		Totals	4 545	1 609	4 299	1 202
		I13	Hanger and St Andrews	Pass Cars	6 617	-
Mini - Buses	2 420			-	-	205
Midi - Buses	94			-	-	33
Buses	365			-	-	56
Art Buses	282			-	-	40
Trucks	227			-	-	162
Totals	10 005			0	0	4 308
I16	Harvey and St Andrews			Pass Cars	-	70
		Mini - Buses	-	9	1 018	1 172
		Midi - Buses	-	4	163	23
		Buses	-	-	24	145
		Art Buses	-	-	21	83
		Trucks	-	5	165	56
		Totals	-	88	3 939	4 895
		I18	1st Ave and Park	Pass Cars	-	4 637
Mini - Buses	-			176	145	410
Midi - Buses	-			26	17	74
Buses	-			18	7	44
Art Buses	-			6	10	33
Trucks	-			90	79	146
Totals	-			4 953	7 028	8 077
I19	Aliwal and Zastron			Pass Cars	-	-
		Mini - Buses	-	-	31	545
		Midi - Buses	-	-	18	71
		Buses	-	-	18	55
		Art Buses	-	-	12	43
		Trucks	-	-	77	344
		Totals	-	-	6 195	14 538
		I20	Aliwal and Nelson Mandela	Pass Cars	-	13 375
Mini - Buses	-			460	36	-
Midi - Buses	-			36	14	-
Buses	-			59	47	-
Art Buses	-			29	44	-
Trucks	-			407	85	-
Totals	-			14 366	7 366	-
I21	Road B and Road O			Pass Cars	2 778	785
		Mini - Buses	1 073	745	51	754
		Midi - Buses	149	29	106	11
		Buses	84	25	56	9
		Art Buses	67	1	27	-
		Trucks	139	114	183	123
		Totals	4 290	1 699	1 835	2 563
		I22	Harvey and Fort	Pass Cars	6 383	7 206
Mini - Buses	2 970			1 793	6 151	-
Midi - Buses	276			134	267	-
Buses	80			134	143	-
Art Buses	28			101	86	-
Trucks	266			224	267	-
Totals	10 003			10 691	14 183	-

Location Numbers	Description	Vehicle Type	Vehicle Volumes per Direction			
			South	East	North	West
		Totals	10 003	9 592	14 243	0
I23	Alexandra and Zastron	Pass Cars	12 726	-	5 870	10 185
		Mini - Buses	609	-	278	291
		Midi - Buses	27	-	23	43
		Buses	63	-	27	23
		Art Buses	18	-	8	8
		Trucks	368	-	190	361
		Totals	13 811	0	6 396	10 911
		I24	1st Ave and Zastron	Pass Cars	5 830	-
Mini - Buses	26			-	31	461
Midi - Buses	9			-	4	80
Buses	2			-	1	71
Art Buses	-			-	-	39
Trucks	44			-	39	389
Totals	5 911			0	6 868	14 764
I25	1st Ave and Nelson Mandela			Pass Cars	6 621	13 950
		Mini - Buses	25	460	91	-
		Midi - Buses	92	48	9	-
		Buses	3	81	5	-
		Art Buses	1	58	2	-
		Trucks	64	478	53	-
		Totals	6 806	15 075	7 724	0
I26	Nelson Mandela and Zastron	Pass Cars	12 029	14 326	11 813	16 926
		Mini - Buses	83	281	50	204
		Midi - Buses	17	57	3	29
		Buses	22	70	19	27
		Art Buses	3	44	9	11
		Trucks	159	404	118	366
		Totals	12 313	15 182	12 012	17 563
I27	Nelson Mandela and DF Malherbe	Pass Cars	6 305	14 370	2 356	12 253
		Mini - Buses	176	225	107	111
		Midi - Buses	34	63	10	49
		Buses	8	59	14	31
		Art Buses	3	34	3	10
		Trucks	66	388	26	355
Totals	6 592	15 139	2 516	12 809		
I28	Kolbe Pres Boshoff and Victoria	Pass Cars	10 937	10 892	15 165	5 597
		Mini - Buses	214	296	110	82
		Midi - Buses	70	76	14	16
		Buses	70	76	14	16
		Art Buses	11	8	20	1
		Trucks	130	193	221	98
		Totals	11 432	11 541	15 544	5 810
I29	Faure and Victoria	Pass Cars	4 374	5 456	3 099	5 609
		Mini - Buses	36	114	43	54
		Midi - Buses	22	25	17	13
		Buses	12	16	4	7
		Art Buses	4	5	-	-
		Trucks	43	154	26	115
Totals	4 491	5 770	3 189	5 798		
I30	Parfitt_ Walter Sisulu and Victoria	Pass Cars	124	5 962	5 524	2 041
		Mini - Buses	-	34	98	23
		Midi - Buses	-	13	3	3
		Buses	-	9	8	-
		Art Buses	-	3	-	-
		Trucks	19	152	113	50
Totals	143	6 173	5 746	2 117		

Location Numbers	Description	Vehicle Type	Vehicle Volumes per Direction			
			South	East	North	West
I31	Park and Betoger	Pass Cars	-	5 068	532	7 452
		Mini - Buses	-	267	4	360
		Midi - Buses	-	37	-	49
		Buses	-	24	2	29
		Art Buses	-	16	-	48
		Trucks	-	102	1	138
		Totals	-	5 514	539	8 076
		I32	Park and Ella	Pass Cars	1 376	5 625
Mini - Buses	99			498	-	407
Midi - Buses	5			44	-	76
Buses	-			12	-	52
Art Buses	-			14	-	39
Trucks	28			110	-	119
Totals	1 508			6 303	0	7 742

Table 4-7: 12-hour Public Transport Passenger Volumes per location per direction 2017

Survey Location No. and Direction of travel	Total Pax for 4+1 Taxis	Total Pax for Mini Buses	Total Pax for Midi Buses	Total Pax for Buses	Total Pax for Artic Buses	Total Number of PT Pax
VOC-01	304	207	336	1 498	1 529	3 874
- Northbound	112	71	116	163	111	573
- Southbound	192	136	220	1 335	1 418	3 301
VOC-02	964	1 652	3 919	6 225	8 290	21 050
- Northbound	408	691	1 831	1 927	2 456	7 313
- Southbound	556	961	2 088	4 298	5 834	13 737
VOC-03	1 792	1 680	1 07	1 016	1 038	5 633
- Northbound	992	916	66	771	872	3 617
- Southbound	800	764	41	245	166	2 016
VOC-04	1 936	2 720	113	2 217	821	7 807
- Northbound	1 152	1 509	67	1 319	818	4 865
- Southbound	784	1 211	46	898	3	2 942
VOC-05	672	1 412	748	929	2 966	6 727
- Eastbound	176	641	389	339	1 752	3 297
- Westbound	496	771	359	590	1 214	3 430
VOC-06	372	436	194	721	549	2 272
- Eastbound	200	51	128	297	438	1 114
- Westbound	172	385	66	424	111	1 158
VOC-07	1 008	1 954	899	1 619	766	6 246
- Northbound	508	1 358	713	880	1	3 460
- Southbound	500	596	186	739	765	2 786
VOC-08	2 076	21 591	1 445	4 084	3 968	33 164
- Northbound	1 476	10 773	814	2 049	1 977	17 089
- Southbound	600	10 818	631	2 035	1 991	16 075
VOC-10_E	700	2 987	436	1 404	1 009	6 536
- Eastbound	700	2 987	436	1 404	1 009	6 536
VOC_009_W	656	4 216	928	4 031	3 189	13 020
- Westbound	656	4 216	928	4 031	3 189	13 020
VOC-12	692	5 857	1 116	1 952	2 155	11 772
- Eastbound	400	1 134	199	541	556	2 830
- Westbound	292	4 723	917	1 411	1 599	8 942
VOC-13	1 332	1 753	358	98	109	3 650
- Eastbound	956	771	112	65	-	1 904
- Westbound	376	982	246	33	109	1 746

Table 4-8: 12-Hour Public Transport Vehicles per location per direction (2017)

Survey Location No. and Direct of Survey	Total Vehicles for Mini Buses	Total Vehicles for Midi Buses	Total Vehicles for Buses	Total Vehicles for Artic Buses	Total Vehicles for PT Vehicles
LO1	24	3	10	-	37
- Northbound	10	2	6	-	18

Survey Location No. and Direct of Survey	Total Vehicles for Mini Buses	Total Vehicles for Midi Buses	Total Vehicles for Buses	Total Vehicles for Artic Buses	Total Vehicles for PT Vehicles
- Southbound	14	1	4	-	19
LO2	764	44	56	13	877
- Eastbound	368	18	27	4	417
- Westbound	396	26	29	9	460
LO3	51	2	-	13	66
- Eastbound	26	2	-	7	35
- Westbound	25	-	-	6	31
LO4	937	10	27	3	977
- Northbound	594	8	16	3	621
- Southbound	343	2	11	-	356
LO5	200	13	5	18	236
- Eastbound	82	6	4	7	99
- Westbound	118	7	1	11	137
LO6	59	11	5	-	75
- Eastbound	26	3	1	-	30
- Westbound	33	8	4	-	45
LO7	307	18	27	9	361
- Eastbound	102	12	12	6	132
- Westbound	205	6	15	3	229
LO8	135	16	7	2	160
- Eastbound	81	6	4	-	91
- Westbound	54	10	3	2	69
LO9	568	53	25	7	653
- Eastbound	331	18	10	3	362
- Westbound	237	35	15	4	291
LO10	80	20	18	9	127
- Eastbound	48	11	10	6	75
- Westbound	32	9	8	3	52
LO11	284	32	31	8	355
- Northbound	140	21	20	5	186
- Southbound	144	11	11	3	169
LO13	402	147	91	25	665
- Northbound	201	66	48	12	327
- Southbound	201	81	43	13	338
LO15	1 177	163	114	42	1 496
- Eastbound	572	73	36	12	693
- Westbound	605	90	78	30	803
LO16	718	112	41	32	903
- Eastbound	316	50	11	4	381
- Westbound	402	62	30	28	522
LO17	93	56	25	2	176
- Eastbound	40	29	10	-	79
- Westbound	53	27	15	2	97
LO18	464	96	27	33	620
- Northbound	234	52	21	25	332
- Southbound	230	44	6	8	288
LO19	69	4	44	22	139
- Northbound	27	1	17	10	55
- Southbound	42	3	27	12	84
LO20	54	9	3	-	66
- Northbound	30	4	2	-	36
- Southbound	24	5	1	-	30
LO21	260	20	52	32	364
- Northbound	42	9	27	16	94
- Southbound	218	11	25	16	270
LO22	605	48	21	1	675
- Northbound	358	27	11	1	397

Survey Location No. and Direct of Survey	Total Vehicles for Mini Buses	Total Vehicles for Midi Buses	Total Vehicles for Buses	Total Vehicles for Artic Buses	Total Vehicles for PT Vehicles
- Southbound	247	21	10	-	278
LO23	395	57	46	27	525
- Eastbound	216	28	27	16	287
- Westbound	179	29	19	11	238
LO24	1 123	423	510	332	2 388
- Northbound	514	189	227	176	1 106
- Southbound	609	234	283	156	1 282
LO25	5 591	411	249	171	6 422
- Eastbound	2 778	176	141	99	3 194
- Westbound	2 813	235	108	72	3 228
LO26	3 859	259	129	64	4 311
- Northbound	1 855	120	69	34	2 078
- Southbound	2 004	139	60	30	2 233
LO27	1 528	140	136	42	1 846
- Northbound	844	64	82	34	1 024
- Southbound	684	76	54	8	822
LO28	69	7	37	1	114
- Eastbound	36	5	17	1	59
- Westbound	33	2	20	-	55
LO29	558	130	72	35	795
- Eastbound	310	65	43	16	434
- Westbound	248	65	29	19	361
LO30	70	13	4	-	87
- Northbound	52	11	3	-	66
- Southbound	18	2	1	-	21
LO31	21	175	30	15	241
- Eastbound	12	127	14	7	160
- Westbound	9	48	16	8	81
LO32	351	9	10	1	371
- Northbound	108	2	5	1	116
- Southbound	243	7	5	-	255
LO33	276	75	28	16	395
- Eastbound	128	33	6	-	167
- Westbound	148	42	22	16	228
LO34	5 940	201	158	62	6 361
- Eastbound	2 990	116	87	38	3 231
- Westbound	2 950	85	71	24	3 130
LO35	354	123	80	59	616
- Eastbound	187	62	50	41	340
- Westbound	167	61	30	18	276
LO36	188	42	27	4	261
- Eastbound	95	28	16	2	141
- Westbound	93	14	11	2	120
LO37	581	107	65	20	773
- Eastbound	364	77	28	10	479
- Westbound	217	30	37	10	294
LO38	63	30	9	-	102
- Northbound	31	9	4	-	44
- Southbound	32	21	5	-	58
LO39	809	190	53	23	1 075
- Northbound	357	78	16	12	463
- Southbound	452	112	37	11	612
O01	28	33	15	5	81
- Northbound	15	22	12	4	53
- Southbound	13	11	3	1	28
O02	147	199	80	45	471
- Northbound	73	99	46	24	242

Survey Location No. and Direct of Survey	Total Vehicles for Mini Buses	Total Vehicles for Midi Buses	Total Vehicles for Buses	Total Vehicles for Artic Buses	Total Vehicles for PT Vehicles
- Southbound	74	100	34	21	229
O05	181	82	34	52	349
- Eastbound	106	38	14	27	185
- Westbound	75	44	20	25	164
O06	49	20	14	10	93
- Eastbound	43	4	8	3	58
- Westbound	6	16	6	7	35
O07	242	83	40	10	375
- Northbound	109	34	23	9	175
- Southbound	133	49	17	1	200
O08	2 235	131	160	82	2 608
- Northbound	1 127	69	93	47	1 336
- Southbound	1 108	62	67	35	1 272
O09	429	67	102	61	659
- Eastbound	429	67	102	61	659
O10	452	77	62	38	629
- Westbound	452	77	62	38	629
O11	159	49	35	2	245
- Northbound	73	23	17	1	114
- Southbound	86	26	18	1	131
O12	662	109	68	54	893
- Eastbound	433	64	39	37	573
- Westbound	229	45	29	17	320
O13	248	27	2	1	278
- Eastbound	134	16	1	1	152
- Westbound	114	11	1	-	126

4.3 Electronic Counts Results (2017)

The survey positions of the 7-day electronic counts are presented in Figure 4-4 and Figure 4-5 and the detail per site provided in Table 4-9. The 24-hour total vehicles per station are presented in Table 4-10.



Figure 4-4: Locations of electronic surveys conducted during 2017 - Bloemfontein



Figure 4-5: Locations of electronic surveys conducted during 2017 – Thaba Nchu, Botshabelo

Table 4-9: Electronic Counts Listed

No	STATION NO	LOCATION 1	ROAD TYPE	LOCATION		NO OF LANES
				Between	and	
A	888110	N8	Surface	Selosesha 26	Botshabelo west	3
B	888111	Botshabelo main rd	Surface	N8		4
C	888112	N8	Surface	BFN	Botshabelo east	3
D	888113	Sand du Plessis st	Gravel		Kruger st	1(2)
E	888114	Andries Pretorius	Surface	Utrecht st	Haarlem	4
F	888115	Eeufees rd	Surface	Deal rd	Versailles st	4
G	888116	Bybel huis	Surface	N1	Jac Van Rhyn rd	6
H	888117	Walter Sesulu	Surface	N8	Van Schalkwyk st	3
I	888118	Kerk st	Surface	M10	Harley st	4
J	888119	DR Belcher rd	Surface			4
K	888120	Jagersfontein/Currie	Surface	N1		2

Table 4-10: Electronic Counts Summary

Date	Week Day	Heavy	Total	Light				Heavy	Total	Light
F110		East to Selosesha			West to Botshabelo Main Rd			Both Directions		
13/11/2017	Monday	3 330	510	3 840				3 330	510	3 840
14/11/2017	Tuesday	6 379	1 117	7 496				6 379	1 117	7 496
15/11/2017	Wednesday	7 091	1 192	8 283				7 091	1 192	8 283
16/11/2017	Thursday	6 895	1 126	8 021				6 895	1 126	8 021
17/11/2017	Friday	8 684	1 238	9 922				8 684	1 238	9 922
18/11/2017	Saturday	7 693	594	8 287				7 693	594	8 287
19/11/2017	Sunday	5 695	463	6 158				5 695	463	6 158
20/11/2017	Monday	6 712	1 168	7 880				6 712	1 168	7 880
21/11/2017	Tuesday	6 619	1 186	7 805				6 619	1 186	7 805
22/11/2017	Wednesday	6 624	1 170	7 794				6 624	1 170	7 794
23/11/2017	Thursday	6 996	1 235	8 231				6 996	1 235	8 231
24/11/2017	Friday	483	139	622				483	139	622
F111		North to N8			South to Botshabelo			Both Directions		
13/11/2017	Monday	1 003	182	1 185	989	285	1 274	1 992	467	2 459
14/11/2017	Tuesday	2 431	573	3 004	2 171	525	2 696	4 602	1 098	5 700
15/11/2017	Wednesday	2 726	602	3 328	2 466	577	3 043	5 192	1 179	6 371
16/11/2017	Thursday	2 751	607	3 358	2 536	585	3 121	5 287	1 192	6 479
17/11/2017	Friday	3 322	698	4 020	3 232	672	3 904	6 554	1 370	7 924
18/11/2017	Saturday	3 120	376	3 496	3 066	377	3 443	6 186	753	6 939
19/11/2017	Sunday	2 170	251	2 421	1 918	249	2 167	4 088	500	4 588
20/11/2017	Monday	2 657	608	3 265	2 312	571	2 883	4 969	1 179	6 148
21/11/2017	Tuesday	2 472	602	3 074	2 308	567	2 875	4 780	1 169	5 949
22/11/2017	Wednesday	2 474	579	3 053	2 294	576	2 870	4 768	1 155	5 923
23/11/2017	Thursday	2 658	625	3 283	2 462	617	3 079	5 120	1 242	6 362
24/11/2017	Friday	257	138	395	125	20	145	382	158	540
F112		East to Botshabelo			West to Bloemfontein			Both Directions		
13/11/2017	Monday	1 302	331	1 633	881	198	1 079	2 183	529	2 712
14/11/2017	Tuesday	3 486	824	4 310	3 650	866	4 516	7 136	1 690	8 826
15/11/2017	Wednesday	3 975	879	4 854	3 951	888	4 839	7 926	1 767	9 693

Date	Week Day	Heavy	Total	Light				Heavy	Total	Light
16/11/2017	Thursday	3 921	843	4 764	3 878	873	4 751	7 799	1 716	9 515
17/11/2017	Friday	5 220	966	6 186	4 653	1 015	5 668	9 873	1 981	11 854
18/11/2017	Saturday	4 011	465	4 476	4 052	541	4 593	8 063	1 006	9 069
19/11/2017	Sunday	2 370	325	2 695	3 275	354	3 629	5 645	679	6 324
20/11/2017	Monday	3 550	894	4 444	3 861	903	4 764	7 411	1 797	9 208
21/11/2017	Tuesday	3 210	758	3 968	3 717	875	4 592	6 927	1 633	8 560
22/11/2017	Wednesday	3 461	814	4 275	3 651	872	4 523	7 112	1 686	8 798
23/11/2017	Thursday	3 733	885	4 618	4 018	915	4 933	7 751	1 800	9 551
24/11/2017	Friday	959	243	1 202	2 279	458	2 737	3 238	701	3 939
F113		To ABC Brick(East)			To Kruger St(West)			Both Directions		
17/11/2017	Friday	391	193	584						
18/11/2017	Saturday	283	97	380						
19/11/2017	Sunday	136	31	167						
20/11/2017	Monday	582	249	831						
21/11/2017	Tuesday	643	288	931						
22/11/2017	Wednesday	621	303	924						
23/11/2017	Thursday	604	334	938						
24/11/2017	Friday	669	263	932						
25/11/2017	Saturday	275	106	381						
26/11/2017	Sunday	129	66	195						
27/11/2017	Monday	144	55	199						
F114		To Utrecht St(South)			To Haarlem St(North)			Both Directions		
14/11/2017	Tuesday	1 657	378	2 035	1 570	303	1 873	3 227	681	3 908
15/11/2017	Wednesday	3 405	751	4 156	3 017	733	3 750	6 422	1 484	7 906
16/11/2017	Thursday	3 560	728	4 288	3 233	716	3 949	6 793	1 444	8 237
17/11/2017	Friday	4 348	716	5 064	4 102	718	4 820	8 450	1 434	9 884
18/11/2017	Saturday	2 668	402	3 070	2 618	334	2 952	5 286	736	6 022
19/11/2017	Sunday	2 264	185	2 449	2 333	249	2 582	4 597	434	5 031
20/11/2017	Monday	2 856	469	3 325	2 960	607	3 567	5 816	1 076	6 892
21/11/2017	Tuesday	2 899	608	3 507	3 037	690	3 727	5 936	1 298	7 234
22/11/2017	Wednesday	2 868	595	3 463	2 942	737	3 679	5 810	1 332	7 142
23/11/2017	Thursday	3 225	669	3 894	3 115	751	3 866	6 340	1 420	7 760
24/11/2017	Friday	212	107	319	209	83	292	421	190	611
F115		To Deal Rd(South)			To Versailles St(North)			Both Directions		
14/11/2017	Tuesday	3 555	318	3 873	4 421	266	4 687	7 976	584	8 560
15/11/2017	Wednesday	6 580	480	7 060	6 804	495	7 299	13 384	975	14 359
16/11/2017	Thursday	6 565	464	7 029	6 730	414	7 144	13 295	878	14 173
17/11/2017	Friday	7 264	459	7 723	7 487	421	7 908	14 751	880	15 631
18/11/2017	Saturday	4 987	228	5 215	5 119	173	5 292	10 106	401	10 507
19/11/2017	Sunday	3 788	127	3 915	3 808	104	3 912	7 596	231	7 827
20/11/2017	Monday	6 787	420	7 207	6 866	430	7 296	13 653	850	14 503
21/11/2017	Tuesday	6 535	501	7 036	6 769	430	7 199	13 304	931	14 235
22/11/2017	Wednesday	6 650	502	7 152	6 887	480	7 367	13 537	982	14 519
23/11/2017	Thursday	7 030	500	7 530	7 120	471	7 591	14 150	971	15 121
24/11/2017	Friday	261	46	307	292	28	320	553	74	627
F116		East to Jac van Rhyn Rd(East)			West to N1(West)			Both Directions		

Date	Week Day	Heavy	Total	Light				Heavy	Total	Light
14/11/2017	Tuesday	8 609	428	9 037	11 647	405	12 052	20 256	833	21 089
15/11/2017	Wednesday	15 295	647	15 942	15 247	707	15 954	30 542	1 354	31 896
16/11/2017	Thursday	14 800	668	15 468	14 911	687	15 598	29 711	1 355	31 066
17/11/2017	Friday	16 347	652	16 999	16 376	667	17 043	32 723	1 319	34 042
18/11/2017	Saturday	10 467	349	10 816	10 786	337	11 123	21 253	686	21 939
19/11/2017	Sunday	6 985	195	7 180	7 253	265	7 518	14 238	460	14 698
20/11/2017	Monday	14 967	576	15 543	14 948	638	15 586	29 915	1 214	31 129
21/11/2017	Tuesday	14 818	676	15 494	14 751	727	15 478	29 569	1 403	30 972
22/11/2017	Wednesday	14 953	698	15 651	15 046	692	15 738	29 999	1 390	31 389
23/11/2017	Thursday	16 227	784	17 011	15 889	797	16 686	32 116	1 581	33 697
24/11/2017	Friday	738	64	802	563	93	656	1 301	157	1 458
F117		East to Stals Rd			West to Van Schalkwyk St			Both Directions		
14/11/2017	Tuesday	3 468	181	3 649	3 054	128	3 182	6 522	309	6 831
15/11/2017	Wednesday	4 877	248	5 125	4 528	209	4 737	9 405	457	9 862
16/11/2017	Thursday	4 872	228	5 100	4 262	189	4 451	9 134	417	9 551
17/11/2017	Friday	5 825	221	6 046	5 131	201	5 332	10 956	422	11 378
18/11/2017	Saturday	4 541	103	4 644	4 121	83	4 204	8 662	186	8 848
19/11/2017	Sunday	3 580	50	3 630	2 934	47	2 981	6 514	97	6 611
20/11/2017	Monday	4 726	177	4 903	4 364	165	4 529	9 090	342	9 432
21/11/2017	Tuesday	4 956	250	5 206	4 623	201	4 824	9 579	451	10 030
22/11/2017	Wednesday	5 646	268	5 914	5 108	207	5 315	10 754	475	11 229
23/11/2017	Thursday	5 772	248	6 020	5 364	204	5 568	11 136	452	11 588
24/11/2017	Friday	234	17	251	223	13	236	457	30	487
F118		To Harley St(North)			To M10(South)			Both Directions		
15/11/2017	Wednesday	5 179	414	5 593	6 747	363	7 110	11 926	777	12 703
16/11/2017	Thursday	11 092	884	11 976	11 476	817	12 293	22 568	1 701	24 269
17/11/2017	Friday	11 942	982	12 924	12 661	876	13 537	24 603	1 858	26 461
18/11/2017	Saturday	8 248	441	8 689	8 768	377	9 145	17 016	818	17 834
19/11/2017	Sunday	5 557	218	5 775	6 017	185	6 202	11 574	403	11 977
20/11/2017	Monday	10 486	849	11 335	11 397	818	12 215	21 883	1 667	23 550
21/11/2017	Tuesday	10 320	860	11 180	11 128	841	11 969	21 448	1 701	23 149
22/11/2017	Wednesday	10 469	894	11 363	11 154	861	12 015	21 623	1 755	23 378
23/11/2017	Thursday	10 722	980	11 702	11 485	891	12 376	22 207	1 871	24 078
24/11/2017	Friday	808	90	898	664	112	776	1 472	202	1 674
F119		To Monapi Rd(North)			To M10(South)			Both Directions		
14/11/2017	Tuesday	3 333	205	3 538	4 572	239	4 811	7 905	444	8 349
15/11/2017	Wednesday	9 093	576	9 669	9 677	628	10 305	18 770	1 204	19 974
16/11/2017	Thursday	8 828	577	9 405	9 518	545	10 063	18 346	1 122	19 468
17/11/2017	Friday	9 917	541	10 458	10 483	683	11 166	20 400	1 224	21 624
18/11/2017	Saturday	8 785	260	9 045	9 476	392	9 868	18 261	652	18 913
19/11/2017	Sunday	6 762	168	6 930	7 514	262	7 776	14 276	430	14 706
20/11/2017	Monday	8 821	517	9 338	9 378	675	10 053	18 199	1 192	19 391
21/11/2017	Tuesday	8 461	528	8 989	9 014	646	9 660	17 475	1 174	18 649
22/11/2017	Wednesday	8 448	510	8 958	8 888	576	9 464	17 336	1 086	18 422

5 Public Transport Surveys

5.1 Mini-Bus Taxi Supply

5.1.1 Taxi Associations

The mini-bus taxi industry in Bloemfontein plays an important role in the daily transport of the local population of Mangaung. Taxi services are provided throughout the entire Bloemfontein, Botshabelo and Thaba Nchu areas. This transport mode is primarily provided by three (3) registered Taxi Associations namely:

- Greater Bloemfontein Taxi Association (GBTA).
- Thalsta Taxi Association,
- Bata Taxi Association,

The Thalsta Taxi association provides taxi services to Thaba Nchu, the Bata Taxi Association provides services to the Botshabelo and GBTA provides taxi services within the Bloemfontein area. It should be noted that the GBTA also includes 4+1 taxi's which provide transport in the Bloemfontein CBD area.

An extensive electronic on-board survey was conducted in order to gather operational data of the GBTA services within the Bloemfontein CBD area. This on-board was necessary to identify the routes, the passenger numbers and the operational data of the respective associations. The on-board survey was conducted during 2017 in order to inform the planning process of the IPTN and to assist with the determination of the potential impact the IPTN might have on the taxi industry in particular. The raw data obtained from the on-board surveys as well as the outputs are attached to this report as Annexure F. These on-board surveys were conducted with the knowledge and assistance of the Taxi industry as the industry had to sign-off on the final data which will be utilised to determine the impact on future taxi operations and to provide guidance with the taxi industry compensation model. Due to the proposed alignment of the first phasing of the IPTN, it was necessary to primarily focus on the taxi industry operating in those areas. For this reason, only the GBTA operations were surveyed at length and the Thaba Nchu and Botshabelo services had to be abandoned. Limited funding and the future phasing of the IPTN to Thaba Nchu and Botshabelo rendered it less important at this point in time.

Specific outcomes from the survey provided an indication of the service offerings provided by the GBTA, especially in the areas where Phase 1 and 2 of the IPTN will affect their market share and subsequent profitability. Table 5-1 provides a summary of the operational data of GBTA.

Table 5-1: Operational Data of Taxi Associations (all routes)

Taxi Associations	Number of Vehicles	Members	Areas Operated	No Routes Operated
GBTA On-board Surveys	1 135* (757)**	580*	Entire Bloemfontein CBD	12
GBTA 5- day Facility Survey	728			
4+1 Taxis	87		Entire Bloemfontein CBD	12
Thalsta Taxi Association [#]	230	318	Thaba Nchu and into Bloemfontein CBD	16
Bata Taxi Association [#]	130		Botshabelo and into Bloemfontein CBD	16
Totals				

Note: * - Modelled fleet and Member size based on on-board survey process with Vehicle Availability Factor (VAR) of 100%.

** - Modelled fleet size based on on-board survey process with 67% VAR.

[#] - Association was not included in the electronic on-board survey process and numbers mentioned above can thus not be confirmed.

5.2 Minibus-taxi Facilities

A number of formal, semi-formal and informal taxi facilities were identified and surveyed during 2016. These surveys were conducted with the assistance of the management of the associations as well as selected taxi association members. These associations operate mainly from the following formal locations, namely:

- Thalsta Taxi facility (Blue Rank),
- Bata Taxi facility, and;
- The Greater Bloemfontein Taxi facility.

The abovementioned taxi associations operate specific routes from these facilities which were surveyed in order to determine their operational extent.

5.2.1 Thalsta Taxi Facilities

The Thalsta Taxi Association operates from the taxi facilities shown in Figure 5-1 below.

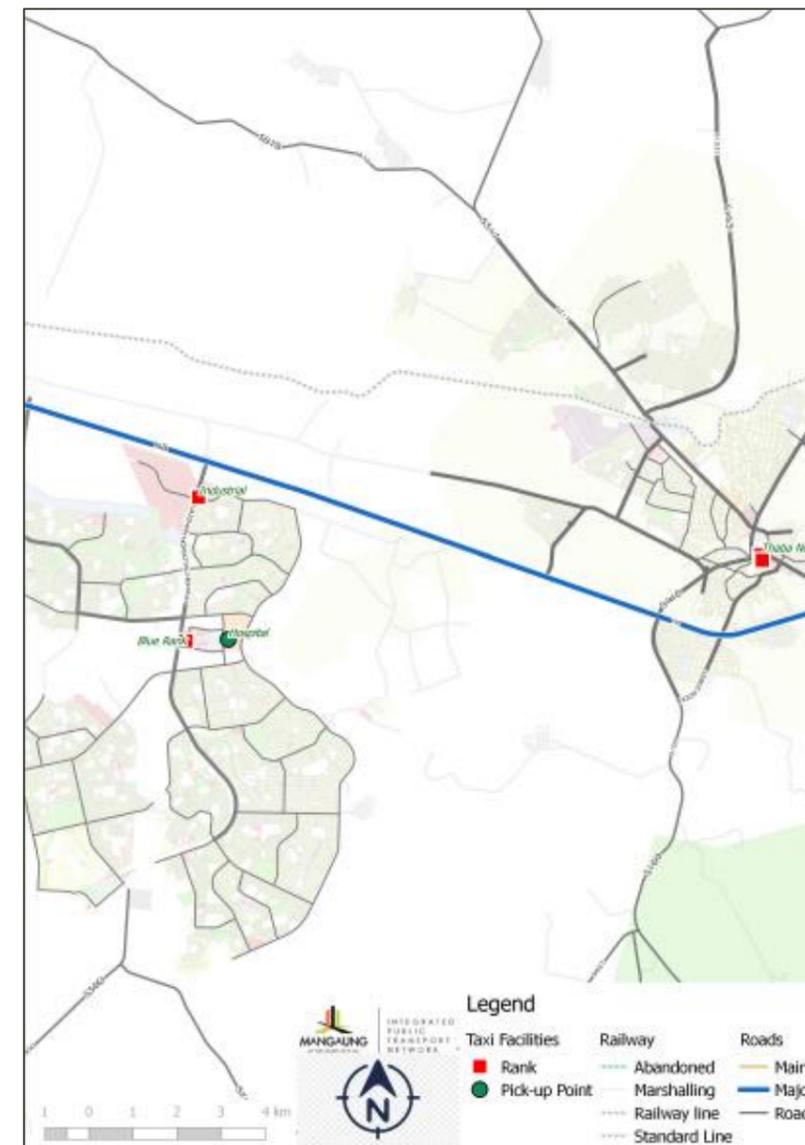


Figure 5-1: Locations of Thalsta and BATA Taxi Facilities

The details for the locations of these facilities are indicated in Table 5-2 below.

Table 5-2: Details of Thalsta Taxi facilities

Rank Name	Location	Area (m ²)	X – Coordinate	Y – Coordinate
Main Rank	Brand Street	2 326	-29.2164	26.8410
4 + 1 Rank (Ext Rank)	Joseph Street	1 170	-29.2153	26.8406

5.2.2 Bata Taxi Facilities

The Bata Taxi Association operates from the taxi facilities shown in Figure 5-1.

Table 5-3: Details of Bata Taxi facilities

Rank Name	Location	Approximate Area (m ²)	X - Coordinate	Y - Coordinate
Industrial Rank	Main Road	2 788	-29.2036	26.7096
Long-Distance (Hospital) Rank	Main Road	3 715	-29.2325	26.71651
Local (Blue) Rank	Main Road	5 964	-29.2328	26.7067

5.2.3 GBTA Taxi Facilities

The Greater Bloemfontein Taxi Association (GBTA) operates from various formal and informal taxi facilities throughout the city. The facilities, in the instance of GBTA coincides with the route names as these routes originate or terminate at a particular facility location as indicated in the operations section below.

Due to the proposed IPTN phasing, limited budget and short timelines, it was decided not to proceed with the on-board taxi surveys for the Thalsta and Bata Taxi Associations. Based on this decision no confirmed taxi operational information is available for the Thalsta and Bata Taxi Associations.

It should however also be noted that the minibus taxi industry operates from three (3) formal facilities of which the main intermodal facility is not currently being used by GBTA. GBTA organise themselves and are currently collecting and picking up passengers in the adjacent streets next to the intermodal facility. Road reserves in a radius of approximately one kilometre around the inter-modal facility appear to be unorganised and congested, specifically within the AM and PM peak periods. It is thus of paramount importance that the facility becomes operational and are used by the GBTA on a 24-hour basis.

Figure 5-2 represents the various taxi facility locations utilised on a daily basis by the GBTA taxi association. These facilities vary in their level of operability. Some of the facilities are either formal, semi-formal or informal.



Figure 5-2: Locations of GBTA Taxi Facilities

The facility survey was conducted to obtain information on:

- Origin and destinations,
- Vehicle types,
- Passenger numbers and utilisation of routes and vehicles,
- Number of vehicles entering and exiting the facility,
- Taxi and passenger waiting times.

This taxi facility information was captured over a two (2) week, five (5) days period and the information was gathered over a 12-hr period (5 AM to 6 PM) for the days mentioned below. The survey period included the following weekdays:

- Friday
- Saturday
- Sunday
- Tuesday
- Thursday

The aim was to have as broad as possible spread over a one-week period (including weekends) in order to obtain a holistic view of taxi and passenger movement as well as the preferred origins and destinations. Table 5-4 thus provides a list of ranks, pick-up points as well as the origins and destinations which the various associations service.

Table 5-4: Taxi Origin and Destinations

Association And (Service Area)	Facility Type	Origin	Destination
Thalsta Taxi Association (Thaba Nchu)	Rank	Thaba Nchu Ld	Various
		Thaba Nchu TR	Bochabela
		Thaba Nchu TR	Botshabelo B
		Thaba Nchu TR	Excelsior
		Thaba Nchu TR	Motlatla
		Thaba Nchu TR	Ratau
		Thaba Nchu TR	Ratlou
		Thaba Nchu TR	Rooifontein
		Thaba Nchu TR	Selosesha
		Thaba Nchu TR	Selosesha X 11
		Thaba Nchu TR	Seroalo
		Thaba Nchu TR	Tweespruit
		Thaba Nchu TR	Unknown
		Thaba Nchu TR	Zone 1
Rank	4 + 1 (Ext Rank)	Albert Moroka Secondary	
		Makurung	
		Sananyoka	
		Zone 1	
		Zone 2	
		Zone 3&4	
Rank	Industrial Rank	Bloemfontein	
		Botshabelo BA	
		Botshabelo F	
		Botshabelo H	
		Botshabelo J	
		Botshabelo S	
		Botshabelo V	
		Botshabelo W	
		Katamelo Primary	

Association And (Service Area)	Facility Type	Origin	Destination	
	Pick-Up	Long-Distance Rank (Hospital)	Thaba Nchu	
			Unknown	
			Blue Rank	
			Botshabelo BA	
			Botshabelo C	
			Botshabelo G	
			Botshabelo H	
			Botshabelo K	
			Botshabelo W	
			Industrial	
			Botshabelo BA	
			Botshabelo D	
	Rank	Local (Blue) Rank	Botshabelo F	
			Botshabelo G	
			Botshabelo H	
			Botshabelo K	
			Botshabelo L	
			Botshabelo M	
			Botshabelo N	
			Botshabelo S	
			Botshabelo T	
			Botshabelo U	
			Botshabelo V	
			Botshabelo W	
H1				
Industrial				
J1				
Thaba Nchu				
Pick-Up	Academy	Batho		
		Bochabela		
		CBD		
		Maphisa		
		Pick-Up	Anna Maggerman	CBD
		Pick-Up	Bainsvlei	Bainsvlei
				Bainsvlei Settlement
				CBD
		Pick-Up	Batho Police Station	Langenhovenpark
				CBD
		Pick-Up	Bloemside_1	Blomanda
CBD				
Pick-Up	Brandwag	CBD		
		Mimosa		
		Tempe		
		UFS		
		Unknown		
Rank	BSQ	Bainsvlei		
		Bayswater		
		CBD		
		Heuwelsig		
		Langenhovenpark		
		Mimosa Mall		
		Noordhoek		
		Pentagonpark		
		Preller Square Centre		
		Tempe		
UFS				
Universitas				

Association And (Service Area)	Facility Type	Origin	Destination
			Universitas Hospital
			Unknown
			Woodlands
	Pick-Up	Casino	CBD
			Lourie Park
			Pellissier
			Unknown
	Pick-Up	Cross Rd	Bloemside
			CBD
			Heidedal
			Namibia
	Pick-Up	Devis Street	CBD
	Pick-Up	Engen	CBD
	Pick-Up	Fauna	CBD
	Pick-Up	Freedom Square	Bloemside
			CBD
			Heidedal
	Pick-Up	Grassland Super Market	CBD
	Pick-Up	Heidedal Police Station	CBD
	Pick-Up	Home Affairs	Bergman
			Bloemside
			CBD
			Heidedal
	Pick-Up	Hostetel1	Bloemside
			CBD
			Heidedal
	Pick-Up	Hyperama	CBD
			Bloemside
			CBD
			HEIDEDAL
			Hyperama
	Pick-Up	Ipopeng	Ipopeng
	Pick-Up	KFC	Bergman
			BLOEMSIDE
			CBD
			HEIDEDAL
	Pick-Up	Langenhoven Park	CBD
			LANGENHOVENPARK
	Pick-Up	Lourie Park	CBD
			LOURIERPARK
			Sowesto
	Pick-Up	Mafora Central	BLOMANDA
			CBD
			Rocklands
	Pick-Up	Mafora East	BLOMANDA
			CBD
			DINAWENG
			Mafora
			Phase 2
	Pick-Up	Mafora West	BLOMANDA
			DINAWENG
			Mafora
			Phase 2
	Pick-Up	Maitland	Bergman
			BLOEMSIDE
			GRASSLANDS
			HEIDEDAL

Association And (Service Area)	Facility Type	Origin	Destination
	Pick-Up	Makro	CBD
	Pick-Up	Maphisa	CBD
			Rocklands
	Pick-Up	Masakhane	CBD
	Pick-Up	Meadows	BLOEMSIDE
			CBD
			HEIDEDAL
	Pick-Up	Mimosa	CBD
	Pick-Up	Monape Street	CBD
	Pick-Up	National Hospital	CBD
			Unknown
	Pick-Up	Northridge Mall	CBD
			Unknown
	Pick-Up	Pasteur Hospital	CBD
			LOURIERPARK
			PELLISSIER
	Pick-Up	Pelenomi Hospital	CBD
	Pick-Up	Phahameng 4+1	BATHO
			BOCHABELA
			Boohebela Primary
			Bothaville
			BOTSHABELO B
			CBD
			Mahlohonolo I.School
			MALELEKA
			Maphisa
			Maphisa, Batho
			PHAHAMENG
			Rocklands
			Unknown
	Pick-Up	Phelindaba	Phase 4
			Phelindaba
	Pick-Up	Rocklands	BLOMANDA
			CBD
			Rocklands
	Pick-Up	Rose Park Hospital	CBD
			Hyperama
	Pick-Up	SA Truck	CBD
			Phase 2
	Pick-Up	Shoprite	BLOMANDA
			Bophelong
			CHRIS HANI
			Ipopeng
			Mafora
			NAMIBIA
			PHAHAMENG
			Phase 2
			Phelindaba
			Rocklands
			Unknown
	Pick-Up	Sowetso	Bloemfontein - South High School
			Fauna
			FICHARDTPARK
			Hypermarket
			Hyperama
			LANGENHOVENPARK

Association And (Service Area)	Facility Type	Origin	Destination
			Lourie Park
			LOURIERPARK
			National Museum
			PELLISSIER
	Pick-Up	Sowetso	Rosepark Hospital
	Pick-Up	Tempe	CBD
	Pick-Up	Turfkaagte	Phase 4
			Turflage Cross
	Rank	Twin City Mall	BLOEMSIDE
			CBD
			GRASSLANDS
	Rank	UFS	Unknown
	Pick-Up	Vista Park	CBD

5.3 Minibus-Taxi Operations

5.3.1 GBTA Taxi routes

Specific high activity areas provided input to stops/station locations and assisted with the capturing and refinement of the route alignments. These routes are identified as the following, namely:

- Mafora Central,
- Mafora East,
- Mafora West,
- Ipopeng,
- Brandwag,
- Universitas,
- Langenhoven Park,
- Turflaagte,
- Freedom Square,
- Heidedal,
- Namibia,
- Hyperama.

The abovementioned routes are represented by the various maps indicated below. Figure 5-3 provides an indication of the taxi route and drop-off and pick-up points of passengers on the route known as Mafora Central. The points highlighted in green in Figure 5-3 represent all stops made by the taxi industry along the Mafora Central route. The consolidation of stopping points provides an indication where potential stops can be positioned when the design of the IPTN is considered. Figure 5-3, Figure 5-4 and Figure 5-5 provide maps on the taxi routes and stops obtained during the extensive on-board survey process for Mafora East, Mafora West and Mafora Central.

Figure 5-6 to Figure 5-14 provide maps with route alignments and taxi stops for the remaining routes mentioned above. This route information was used in order to determine the coverage areas for the respective phases of the planned IPTN.

Legend for Maps – Number of pax boarding/alighting per stop:

- 0
- 1
- 2 - 4
- 5 - 10
- 11 - 21

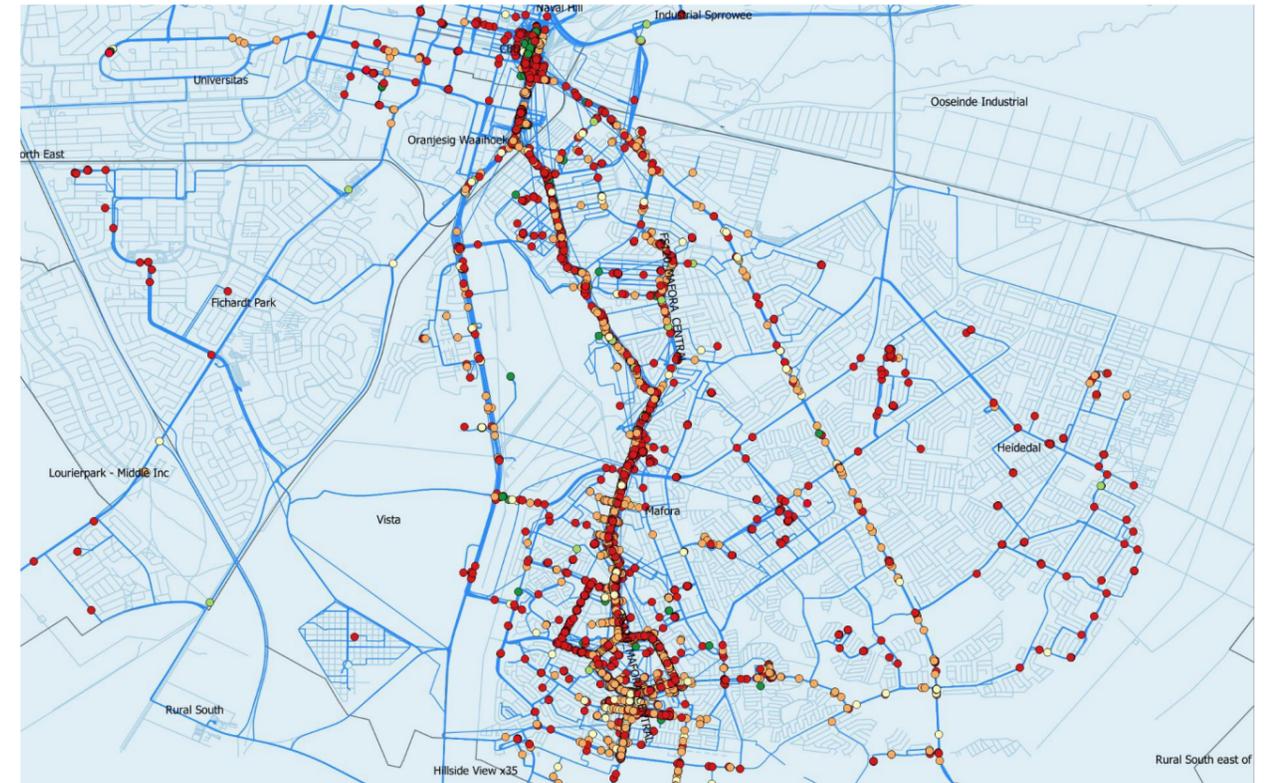


Figure 5-3: Existing Taxi Route Alignment for Mafora Central

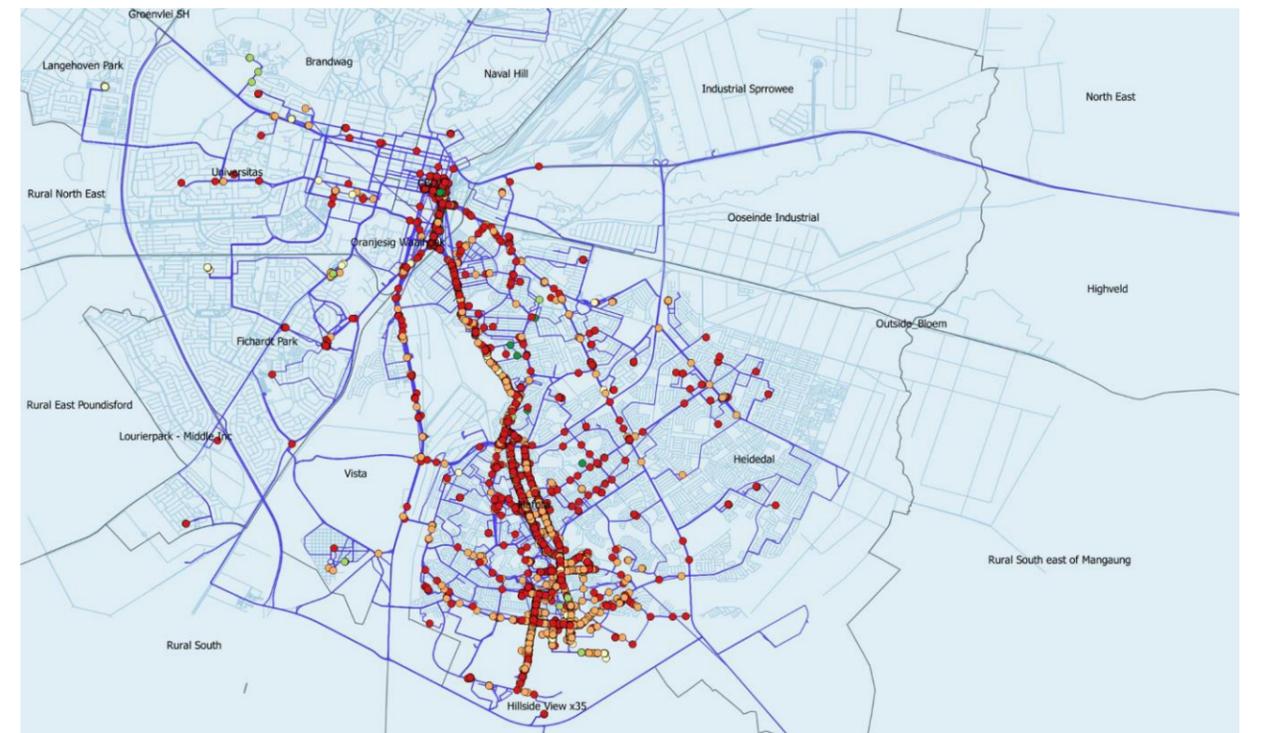


Figure 5-4: Existing Taxi Route Alignment for Mafora East

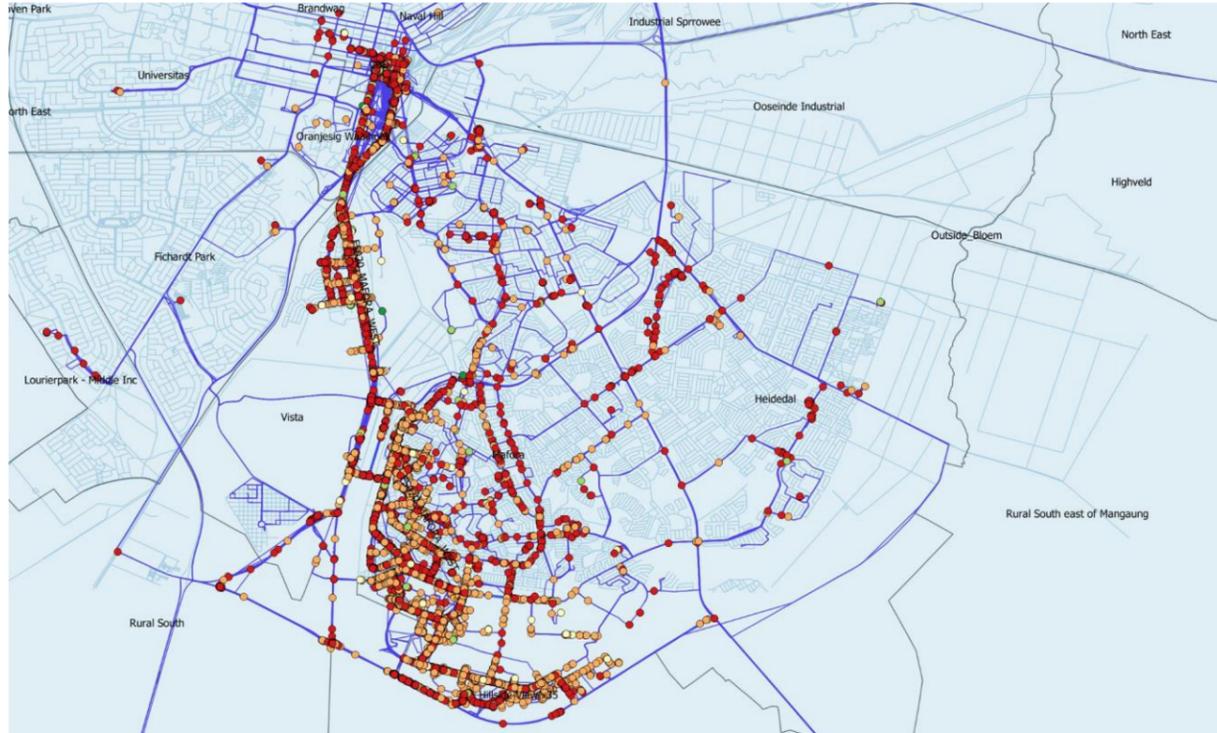


Figure 5-5: Existing Taxi Route Alignment for Mafora West



Figure 5-7: Existing Taxi Route Alignment for Brandwag

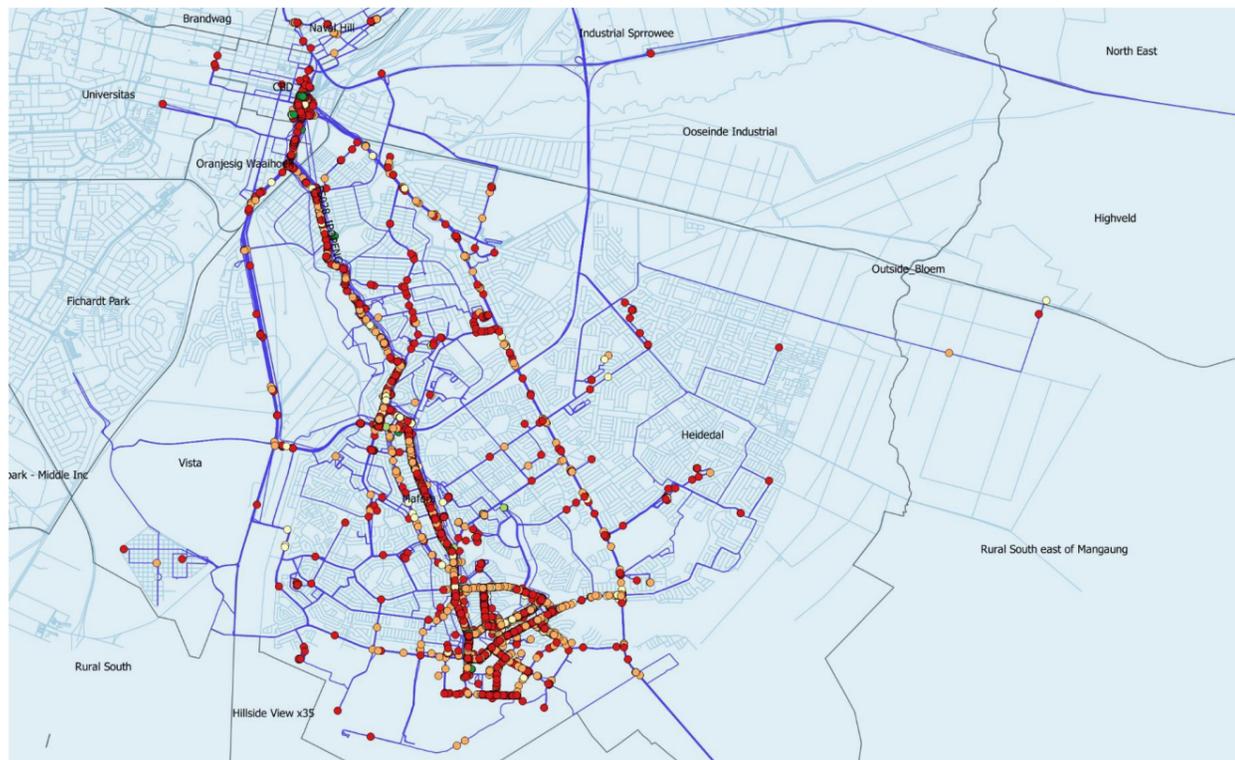


Figure 5-6: Existing Taxi Route Alignment for Ipopeng

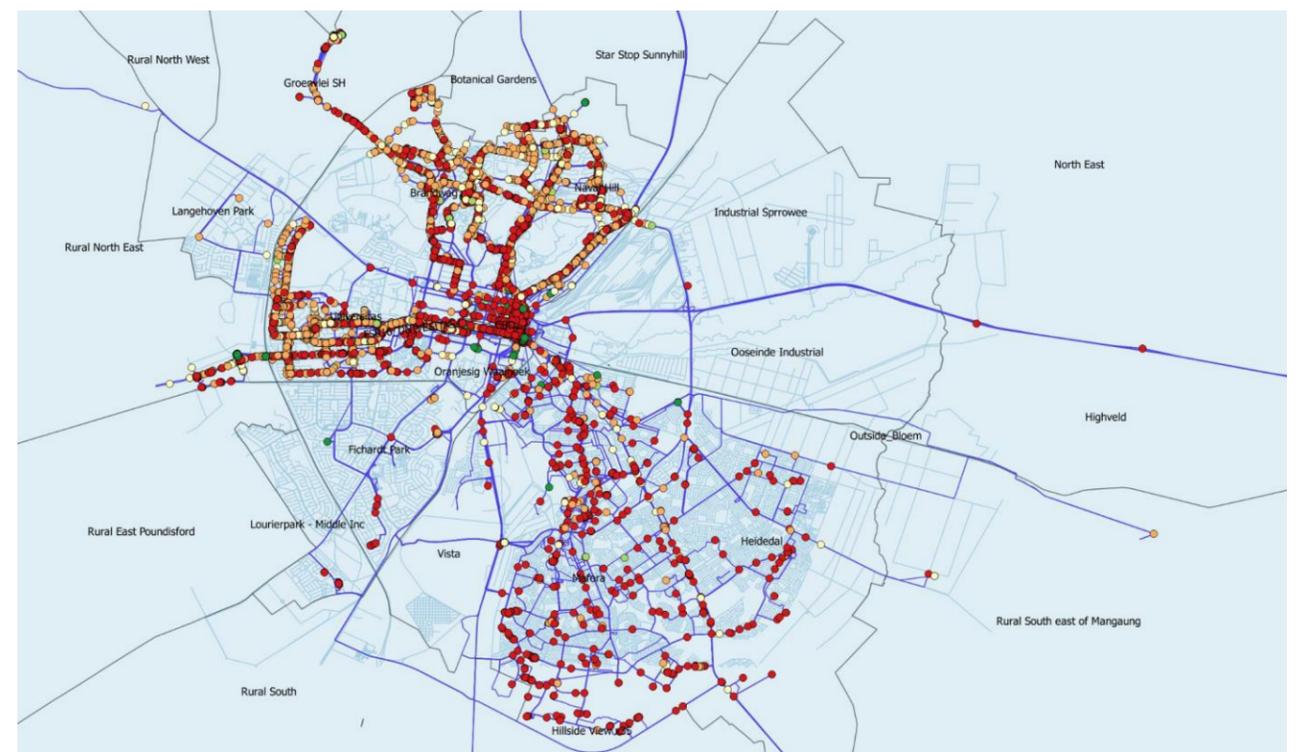


Figure 5-8: Existing Taxi Route Alignment for Universitas

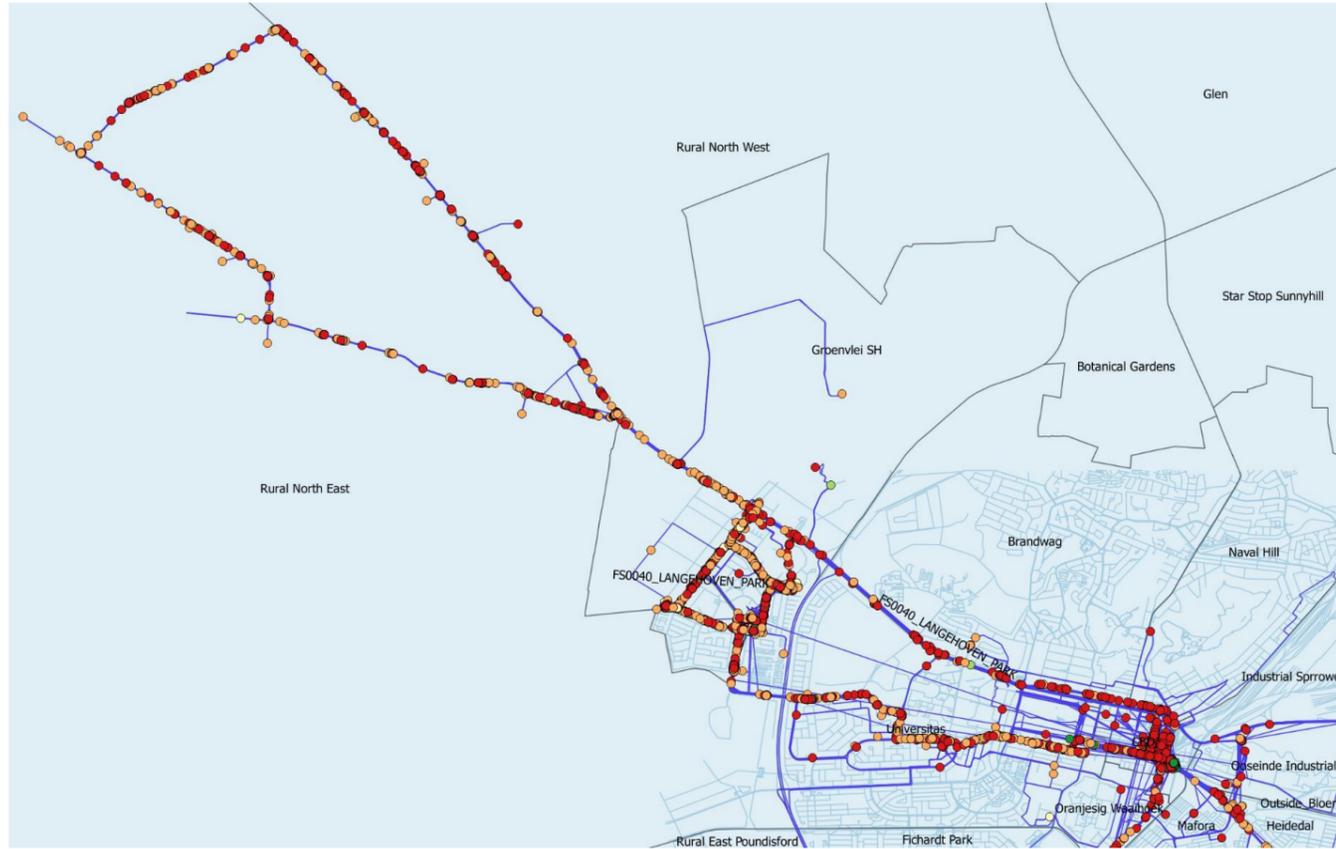


Figure 5-9: Existing Taxi Route Alignment for Langenhoven Park

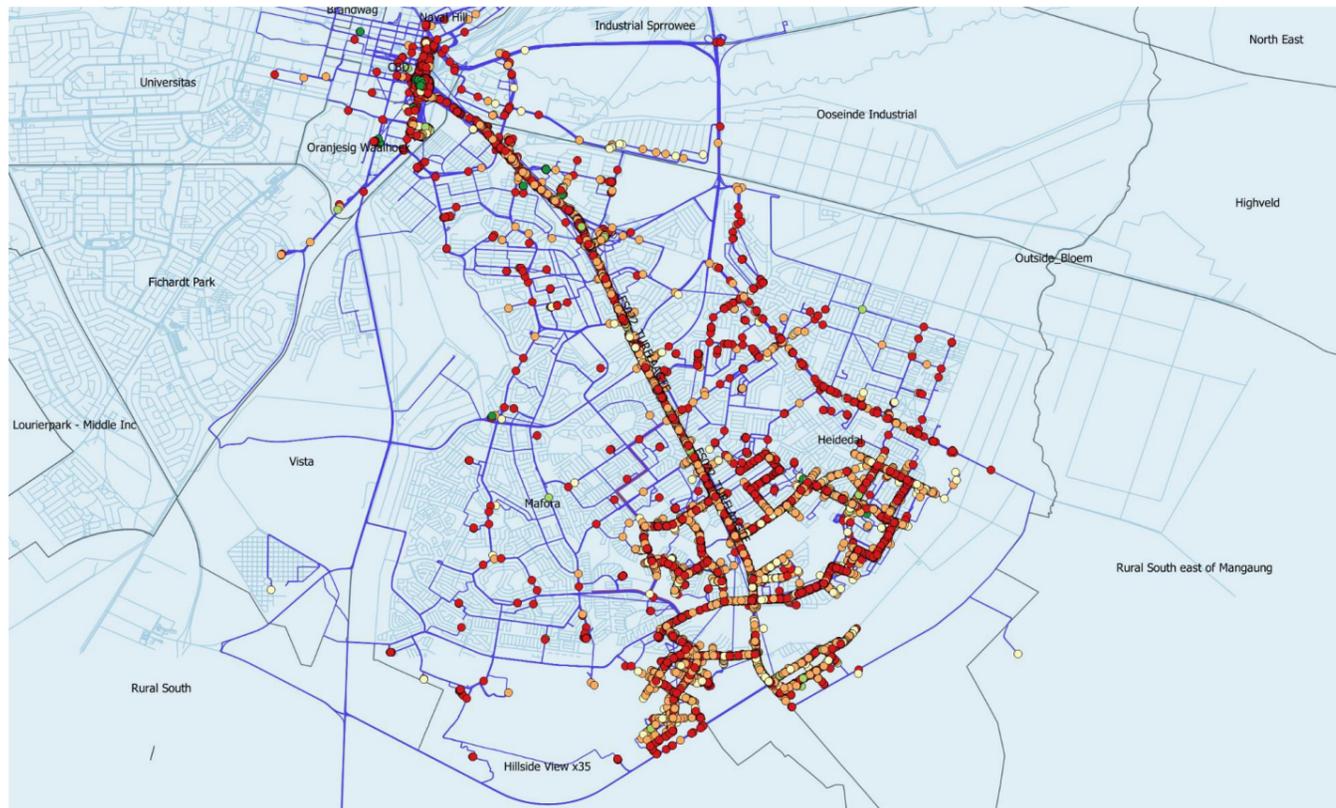


Figure 5-10: Existing Taxi Route Alignment for Turflaagte

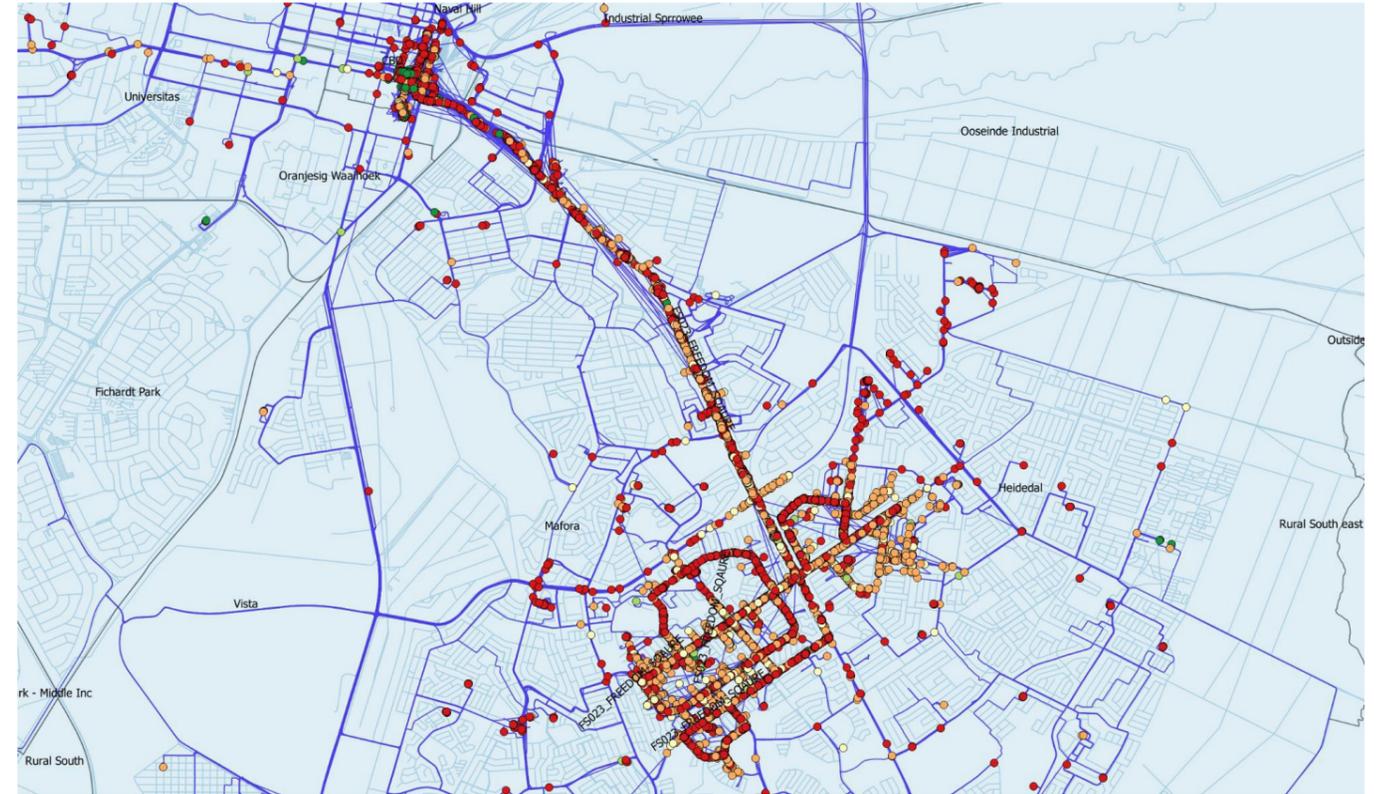


Figure 5-11: Existing Taxi Route Alignment for Freedom Square

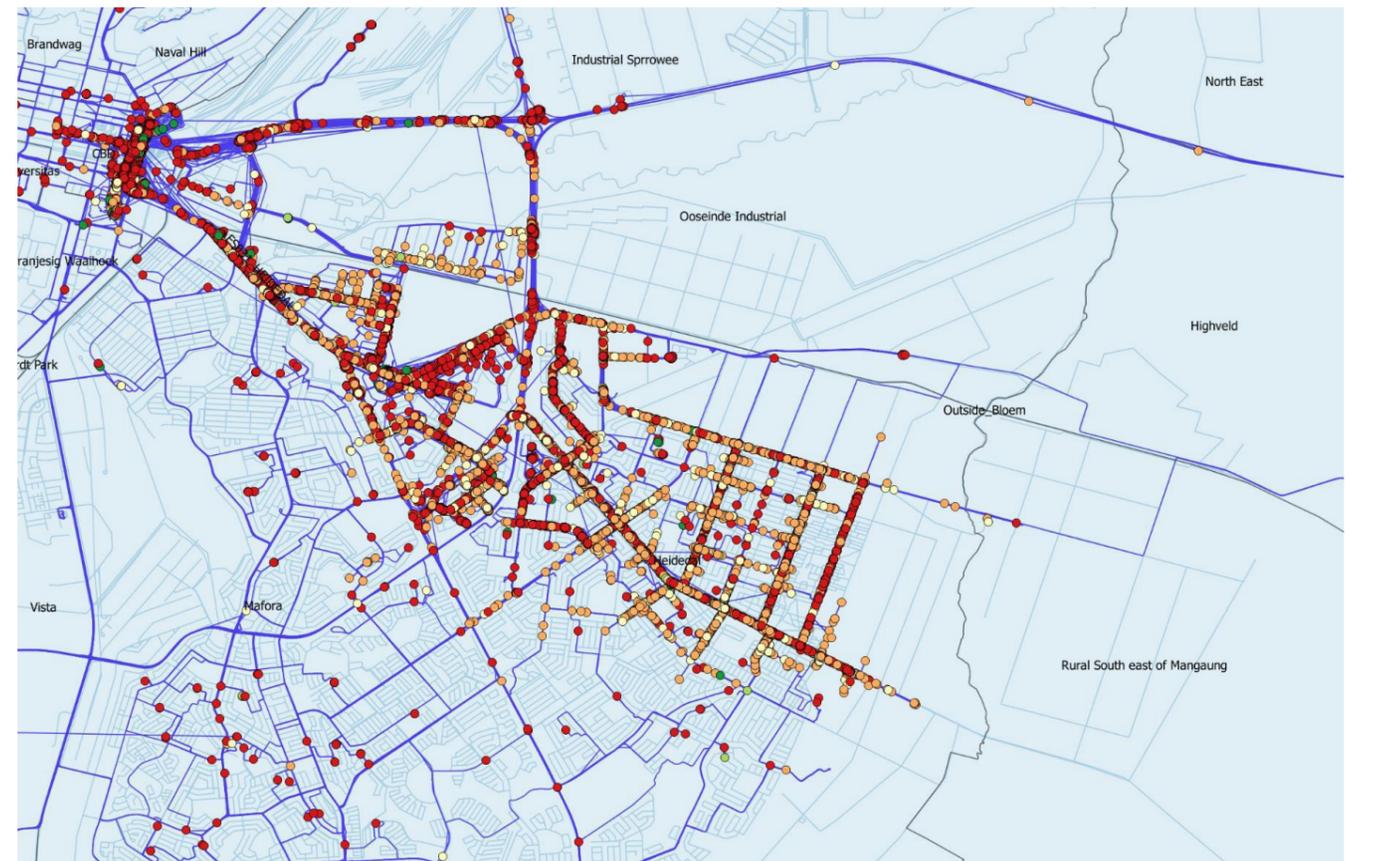


Figure 5-12: Existing Taxi Route Alignment for Heidedal

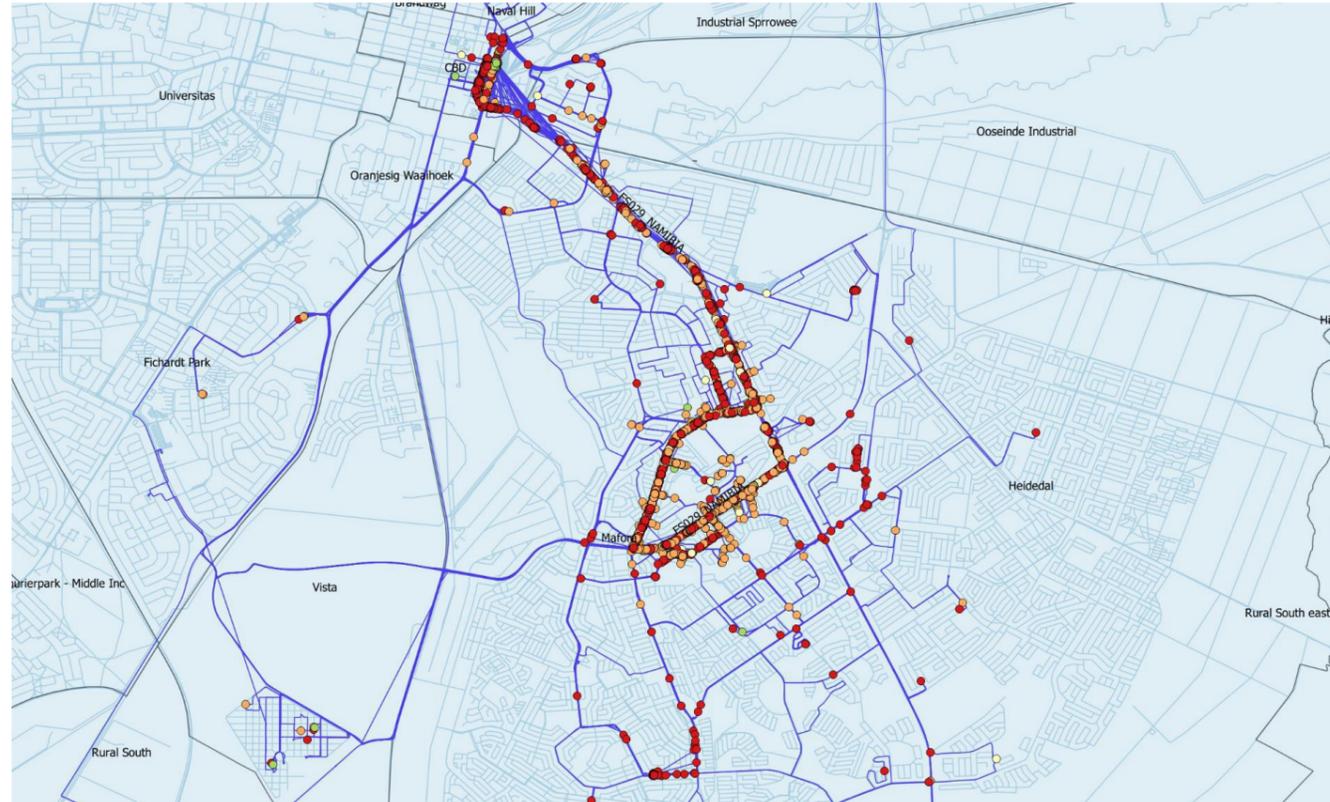


Figure 5-13: Existing Taxi Route Alignment for Namibia

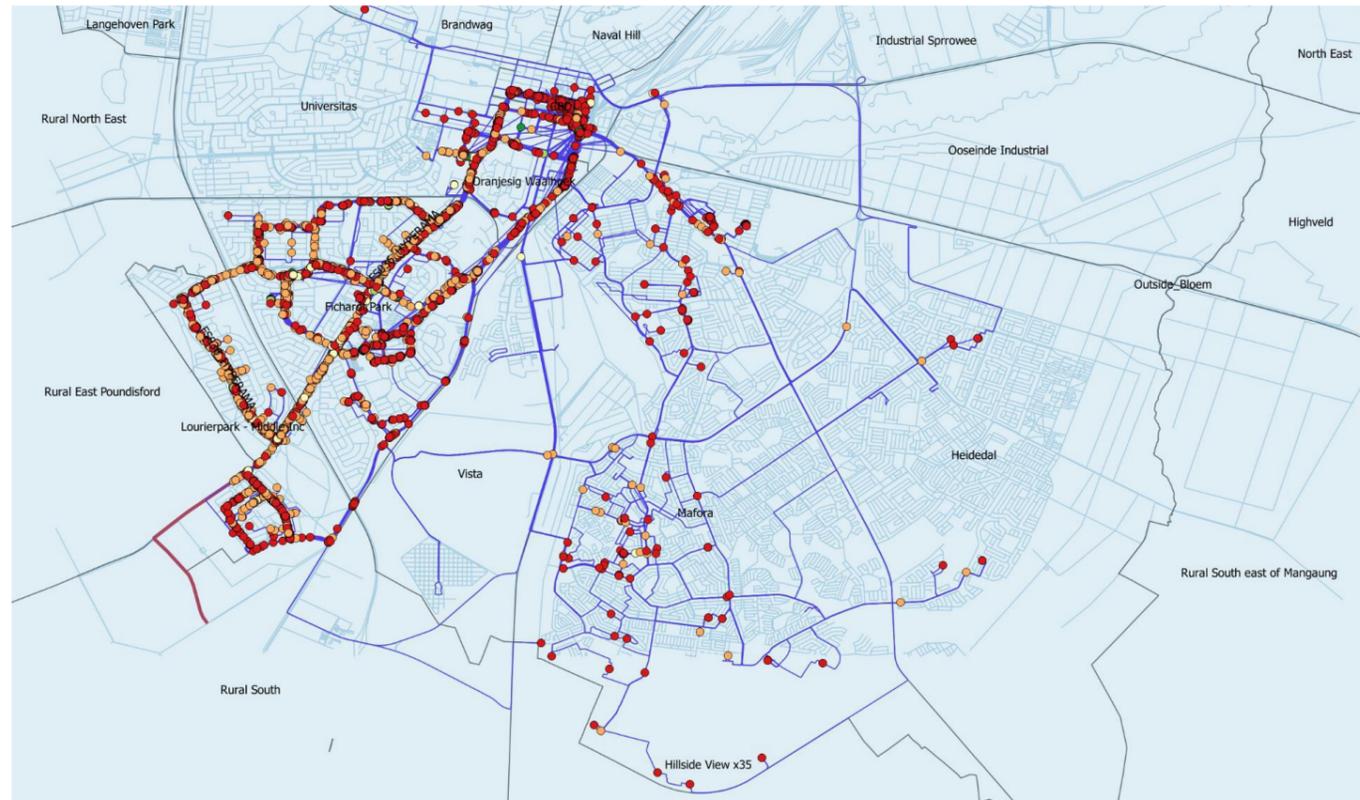


Figure 5-14: Existing Taxi Route Alignment for Hyperama

5.3.2 Thaltsa Taxi Routes

- Mini-Bus Taxi Operators operating along the following routes:

- (FS 003) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Thaba Nchu Sun Hotel and Casino situated at Groothoekdam, Thaba Nchu via Morolong Village and Ratau Village, Thaba Nchu and return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- (FS 004) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Serwalo Village, Thaba Nchu via Paloko Sanatorium, St. Pauls School, Tshipinare School, Child Welfare, Thejane School, Unit Extension, Stadium, Seates Shop, Army Camp, Serwalo Board and return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- (FS 005) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Koppie Village, Thaba Nchu via Moroka Hospital, Moroka High School, Station View, Eskom, Fire Station, Lutheran Church, Anglican Church, Civic Centre, Bus Stop 1,2,3, Thaba Nchu and return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- (FS 008) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Dikolobeng, Thaba Nchu via Pito's Stop, St. Pauls School, Tshipinare School, Child welfare, Thejane School, Baitemin Unit Ext, Ga Rana Bus Stop, Stadium Stop, Jam Alley, Thaba Nchu return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- (FS 070) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Blue Taxi Rank, Reahola Complex, CBD, Botshabelo via Albert Moroka High School situated in road N8, Metro Wholesale, Main Street, Botshabelo and return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- (FS 071) Trips from Taxi Rank, Van Riebeeck Thaba Nchu to Bastion Square Taxi Rank, c/o St. George Street and Power Road, Bloemfontein via Albert Moroka High School situated in road N8, Thaba Nchu and return. (Vehicle to be stationed at Thaba Nchu taxi rank, Van Riebeeck Street, Thaba Nchu and must be operated from there).
- Three (3) long-distance routes operate from the main rank in van Riebeeck Street to Excelsior, Rooifontein, Kommisie Drift.
- Nine (9) cross border routes operate from the rank to Mafikeng, Tweespruit, Hobhouse, Ficksburg, Bethlehem, Phithaditjhaba, Brandfort, Welkom, Kimberly, Rustenburg, Kroonstad
- Existing Taxi Fleet is estimated at approximately 442 vehicles with 229 active operating licenses. This fleet number needs to be validated during detail design and business planning processes.

5.3.3 BATA Taxi Routes

- Mini-Bus Taxi Operators operating along the following routes:
 - Line F/K/J;
 - Line G/H;
 - Line W/U/S/T;
 - Line A/B/C/D;
 - Line M/N/L;
 - Line Thaba Nchu
 - Line Bloemfontein.
- Existing Taxi Fleet is estimated at approximately 186 vehicles. This fleet number needs to be validated during detail design and business planning processes.

5.3.4 Minibus-taxi Passengers, Trips and Service Utilisation

The number of passengers transported on the routes mentioned in the aforementioned section was not available for use in the design of the IPTN as well as to accurately determine compensation models for the taxi industry, in areas where these are affected by the IPTN. For purposes of determining the extent of the taxi industry operations in Mangaung, the passenger volumes transported, operational routes, number of vehicles and locations of drop-off and pick-up points were captured by means of an electronic on-board survey. This on-board taxi survey was conducted during 2017, which assessed taxi operations along the 12 routes highlighted above. The individual routes were surveyed nine (9) consecutive times in order to build a statistical record of operations along these routes.

A representative sample size was determined with input from the taxi industry whereby electronic tracking devices (GPS based) as well as a video monitoring equipment was installed into individual vehicles. The full detail of the survey process, number of taxis, survey dates, etc. can be obtained from the detailed on-board taxi survey report. The results of the surveys were then consolidated, calibrated and used in the modelling process to obtain representative results which were up-scaled from the sample to represent the GBTA taxi operations in Mangaung. A summarised version of this information is reflected in Table 5-5 below.

Table 5-5: Passenger and Taxi Volumes per route

Route	Projected Passenger Volume per Vehicle per Route	Projected Base Year (2017) Taxi Fleet	Projected Base Year (2017) Route Volumes
Mafora Central	85,1	63	5 390
Mafora East	94,3	63	5 908
Mafora West	127,0	91	11 598
Ipopeng,	88,9	17	1 481
Brandwag	142,3	41	5 787
Universitas	119,4	67	8 041
Turflaagte	184,8	146	26 976
Freedom Square	113,6	63	7 116
Heidedal	145,6	114	16 602
Namibia	101,3	25	2 500

The projected vehicle and passenger volumes for the base year (2017) was determined based on the on-board taxi survey process which took place in 2016/17 after a nine (9) cycle survey process was followed. The initial vehicle and passenger volumes obtained were statistically upscaled from a representative sample to the population size reflected in the table above. The calculation performed assumed a vehicle availability factor (VEF) of 100% which was applied to determine the base year (2017) route volumes for each taxi route and association.

Taxi rank surveys were conducted during a five day period whereby the number of vehicles entering and exiting a specific rank were observed and recorded per day and summarised in Table 5-6 below. The survey was generally conducted from 05h00 AM till 16H00 PM on a particular day.

Table 5-6: Passenger and Taxi Volumes per route

Date and Facility Surveyed	Number of Taxis		Grand Total
	In	Out	
Apr 2016	17 758	20 816	38 574
28-Apr 2016	5 200	6 235	11 435
BSQ	611	673	1 284
Sowesto	144		144
Thaba Nchu 4+1 Rank_JB	1 262	1 656	2 918
Thaba Nchu 4+1 Rank_SB	128		128
Botshabelo Blue Rank	1 981	2 946	4 927
Botshabelo Industrial	1 074	960	2 034
29-Apr 2016	6 312	7 188	13 500
BSQ	107	216	323
Mafora Central	108	108	216
Thaba Nchu 4+1 Rank_JB	1 693	2 332	4 025

Thaba Nchu 4+1 Rank_SB	337		337
Twin City Mall	151	167	318
Botshabelo Blue Rank	2 630	2 361	4 991
Botshabelo Industrial	1 286	2 004	3 290
30-Apr 2016	6 246	7 393	13 639
BSQ	613	812	1 425
Sowesto	268	268	536
Thaba Nchu 4+1 Rank_JB	1 508	1 659	3 167
Thaba Nchu 4+1 Rank_SB	128	528	656
Botshabelo Blue Rank	2 716	3 379	6 095
Botshabelo Industrial	1 013	747	1 760
01-May 2016	5 220	5 506	10 726
Sowesto	144		144
Thaba Nchu 4+1 Rank_JB	1 188	2 370	3 558
Thaba Nchu 4+1 Rank_SB	281	215	496
Botshabelo Blue Rank	3 008	2 450	5 458
Botshabelo Industrial	599	471	1 070
03-May 2016	7 238	6 344	13 582
Phahameng	518	75	593
Sowesto	219		219
Thaba Nchu 4+1 Rank_JB	1 413	2 060	3 473
Thaba Nchu 4+1 Rank_SB	392	215	607
Botshabelo Blue Rank	3 522	2 454	5 976
Botshabelo Industrial	1 174	1 540	2 714
Grand Total	30 216	32 666	62 882

The results from the 2016 link counts provided a broad indication of the vehicle volumes and estimated passenger volumes from which the vehicle capacity utilisation was extracted. Table 5-7 provides a summary of the 2016 link counts for PT utilisation rates per direction for the AM peak period. The vehicle types included in the PT component consist of 4+1 taxi's, minibus taxi's, midibus taxi's, standard buses and articulated buses. The AM peak period used in the determination of the utilisation rates consists of the passenger volumes for the periods from 06h00 to 08h00 (3 consecutive hours).

Table 5-7: Public Transport Vehicle Utilisation Rates obtained from the 2016 Link Count Information (AM Peak Period)

Survey Location No.	Vehicle Utilisation Rates (%) – AM Peak Period			
	Southbound	Eastbound	Northbound	Westbound
MLC01	28%		49%	
MLC02	20%		54%	
MLC03	8%		88%	
MLC04	27%		90%	
MLC05	33%		80%	
MLC06	22%		60%	
MLC07_VOC01		15%		40%
MLC08_VOC02	29%		63%	
MLC09_VOC03	11%		80%	
MLC10_VOC04		9%		78%
MLC11_VOC05	26%		63%	
MLC13_VOC07	20%		31%	

Survey Location No.	Vehicle Utilisation Rates (%) – AM Peak Period			
	Southbound	Eastbound	Northbound	Westbound
MLC14_VOC08		16%		64%
MLC15_VOC09		62%		25%
MLC17_VOC11		92%		6%
MLC21_VOC15	9%		76%	
MLC22_VOC16	73%		20%	
MLC26_VOC20	8%			
MLC27_VOC21	73%		20%	
MLC31_VOC25			49%	
VOC_O09				91%
VOC-01	44%		47%	
VOC-02	73%		72%	
VOC-03	73%		36%	
VOC-04	48%		23%	
VOC-05		7%		85%
VOC-06		22%		82%
VOC-07	74%		82%	
VOC-08	42%		60%	
VOC-10		27%		
VOC-12		7%		87%
VOC-13		54%		83%

Some of the vehicle occupancy rates are very low, which might be contributable to the location of the vehicle occupancy count. Where vehicle occupancy counts are very low it can be contributed to the survey location being too close to the start or the end destination, implying that passengers have not embarked yet or have already disembarked along the route. Table 5-8 provides a summary of the 2016 link counts for PT utilisation rates per direction for the PM peak period. The PM peak period used in the determination of the utilisation rates consisting of the vehicle and passenger volumes for the periods from 15h00 to 17h00 (3 consecutive hours).

Table 5-8: Public Transport Vehicle Utilisation Rates obtained from the 2016 Link Count Information (PM Peak Period)

Survey Location No.	Vehicle Utilisation Rates (%) – PM Peak Period			
	Southbound	Eastbound	Northbound	Westbound
MLC01	70%		26%	
MLC02	85%		22%	
MLC03	91%		14%	
MLC04	67%		35%	
MLC05	82%		56%	
MLC06	87%		18%	
MLC07_VOC01		48%		36%
MLC08_VOC02	64%		47%	
MLC09_VOC03	80%		12%	
MLC10_VOC04		64%		12%
MLC11_VOC05	64%		31%	

Survey Location No.	Vehicle Utilisation Rates (%) – PM Peak Period			
	Southbound	Eastbound	Northbound	Westbound
MLC13_VOC07	50%		17%	
MLC14_VOC08		70%		47%
MLC15_VOC09		32%		33%
MLC17_VOC11		18%		95%
MLC21_VOC15	83%		25%	
MLC22_VOC16	40%		79%	
MLC26_VOC20	12%		33%	
MLC27_VOC21	54%		23%	
MLC31_VOC25	40%		79%	
VOC_O09	89%		54%	
VOC-01				33%
VOC-02	94%		60%	
VOC-03	94%		78%	
VOC-04	31%		57%	
VOC-05	45%		74%	
VOC-06		98%		27%
VOC-07		96%		43%
VOC-08	49%		72%	
VOC-10	87%		61%	
VOC-12		50%		
VOC-13		71%		30%

The 12-hour taxi facility survey conducted in 2016 provided information on the vehicle and passenger numbers per destination. Figure 5-15 to Figure 5-49 below provides graphic representations of the IN and OUT taxi movements for the various taxi facilities in Mangaung.

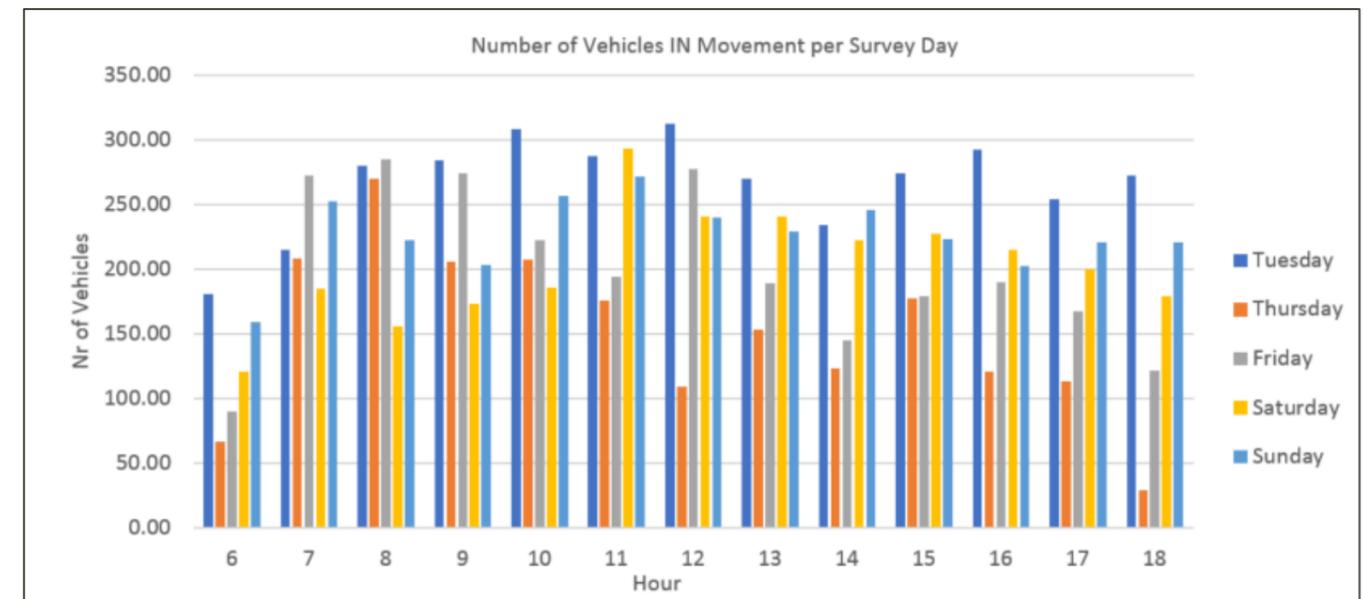


Figure 5-15: Number of Taxi In-Movement at the Botshabelo Blue Rank

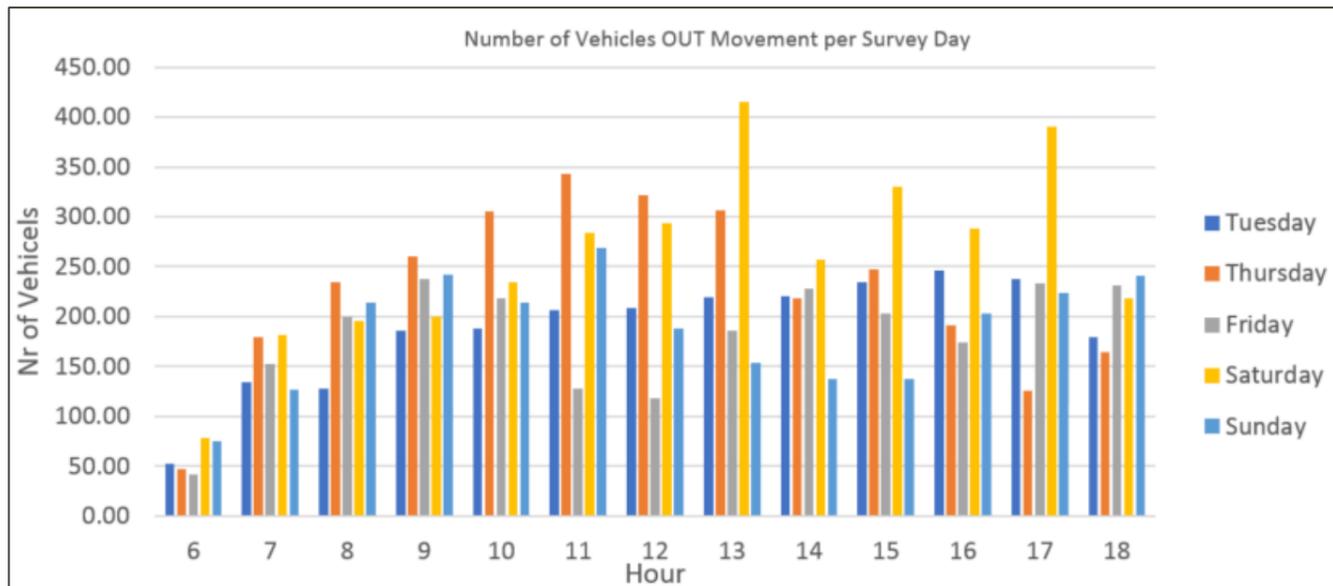


Figure 5-16: Number of Taxi Out-Movement at the Botshabelo Blue Rank

Figure 5-16 above illustrates that the majority of taxi movements take place at the Botshabelo Blue Rank. The information gathered from this 2017 survey was utilised to determine the available taxi seating capacity and to measure this against the occupants observed in the taxi's in order to determine the level of utilisation.

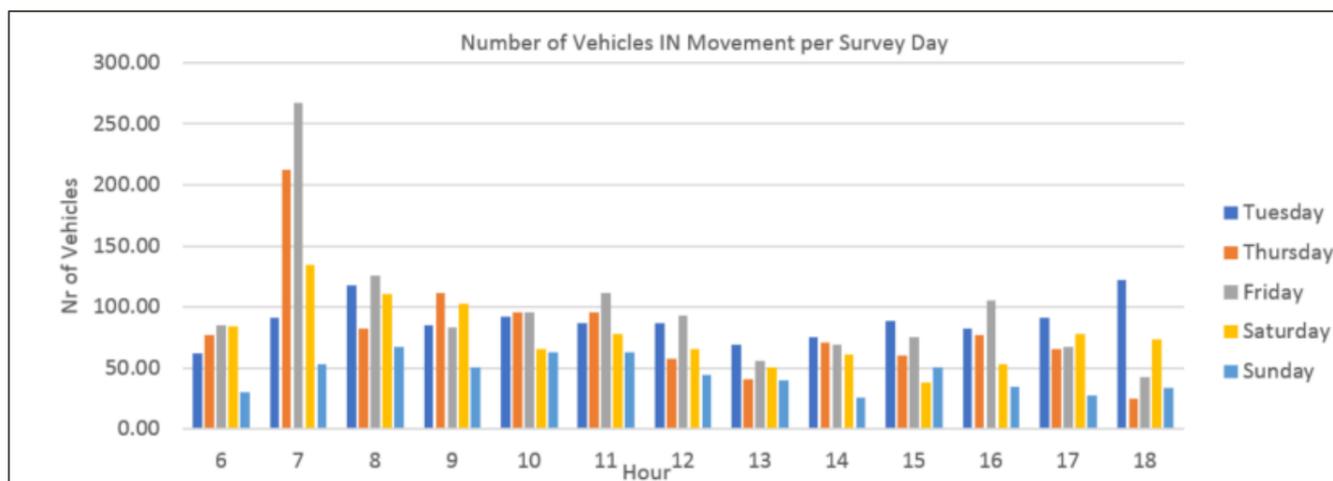


Figure 5-17: Number of Taxi In-Movement at the Industrial Rank

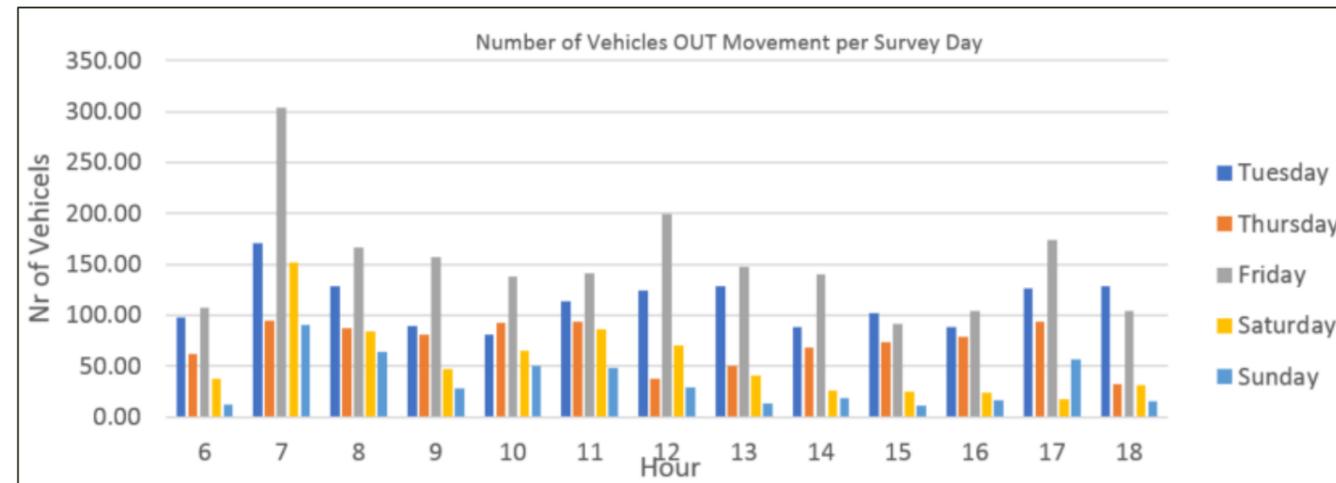


Figure 5-18: Number of Taxi Out-Movement at the Industrial Rank

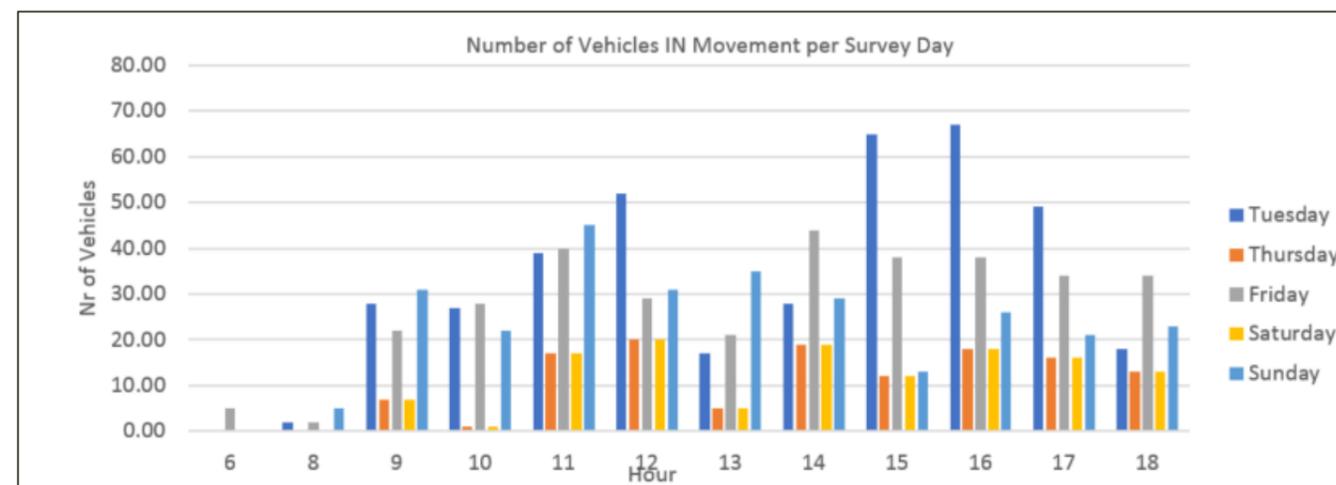


Figure 5-19: Number of Taxi In-Movement at the Thaba Nchu 4+1_SB Rank

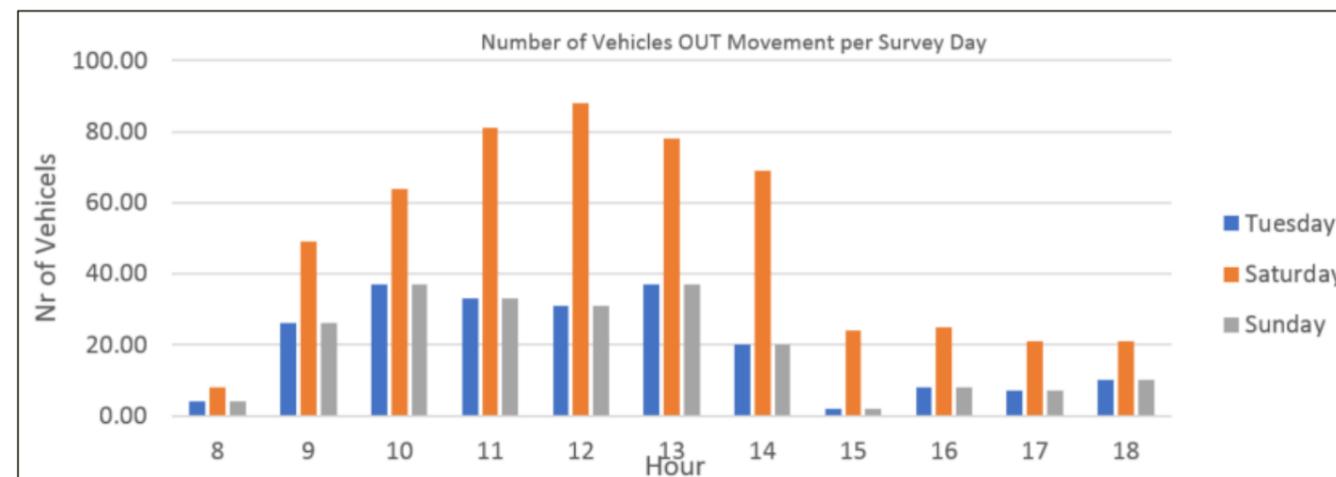


Figure 5-20: Number of Taxi Out-Movement at the Thaba Nchu 4+1_SB Rank

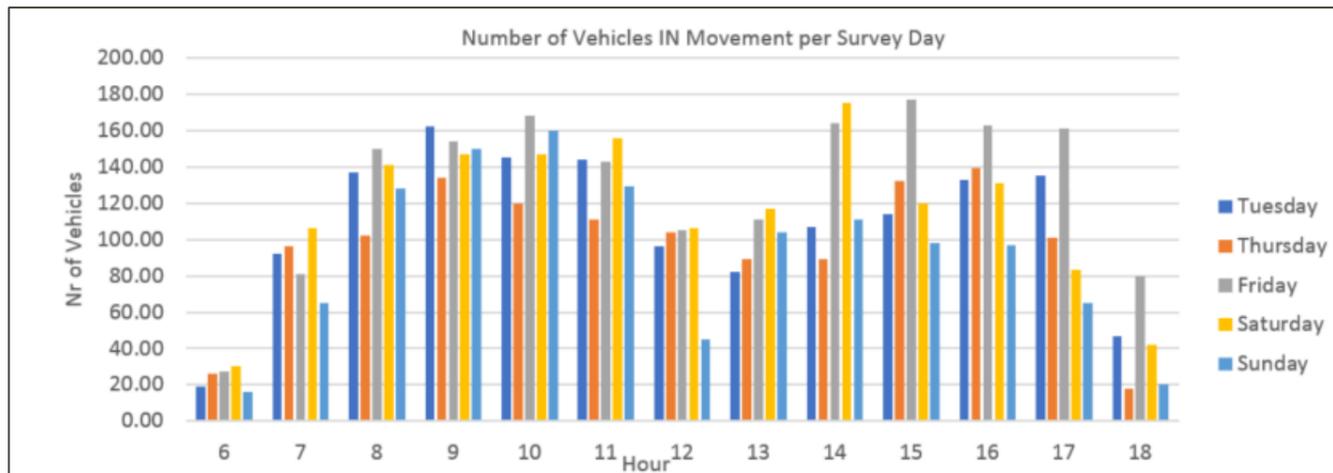


Figure 5-21: Number of Taxi In-Movement at the Thaba Nchu 4+1_JB Rank

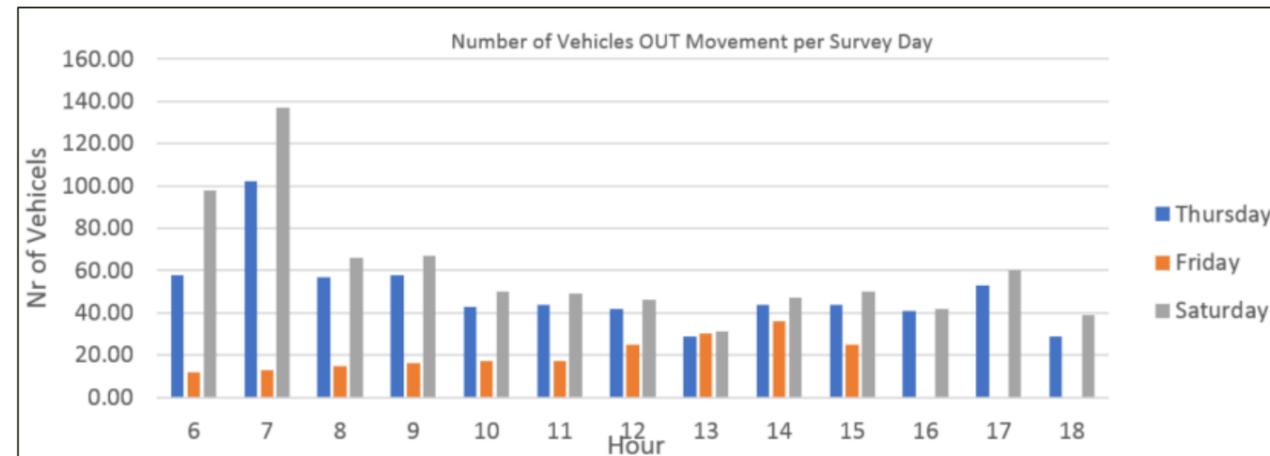


Figure 5-24: Number of Taxi Out-Movement at the BSQ Rank

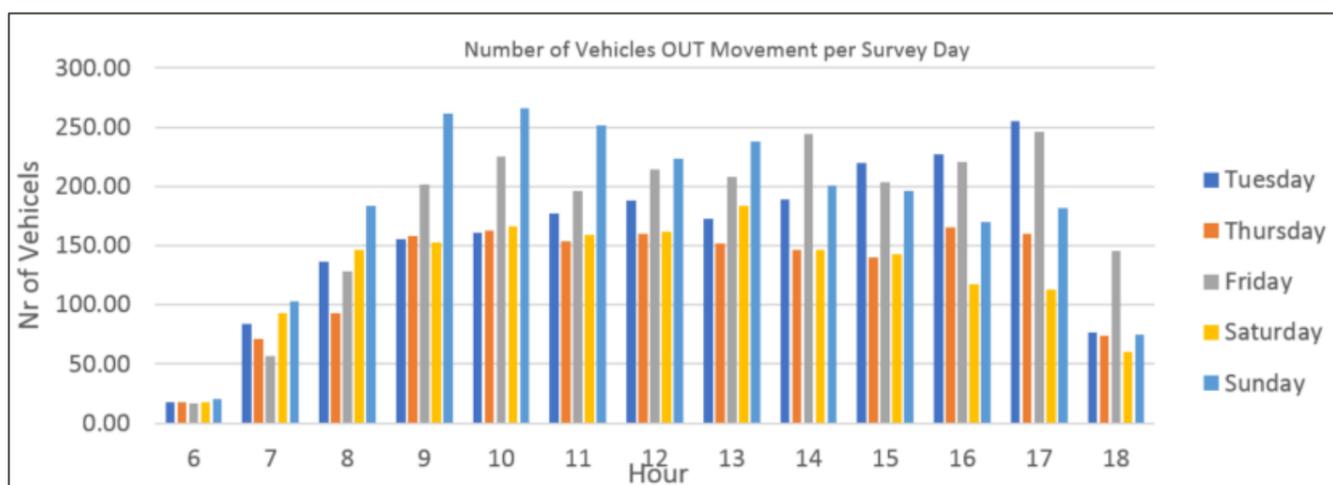


Figure 5-22: Number of Taxi Out-Movement at the Thaba Nchu 4+1_JB Rank

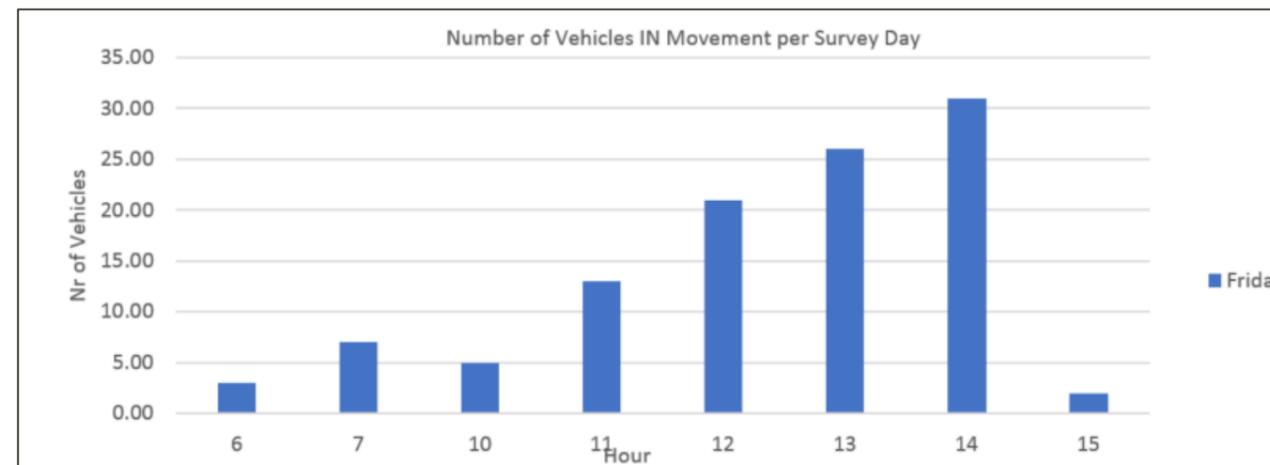


Figure 5-25: Number of Taxi In-Movement at the Mafora Central Rank

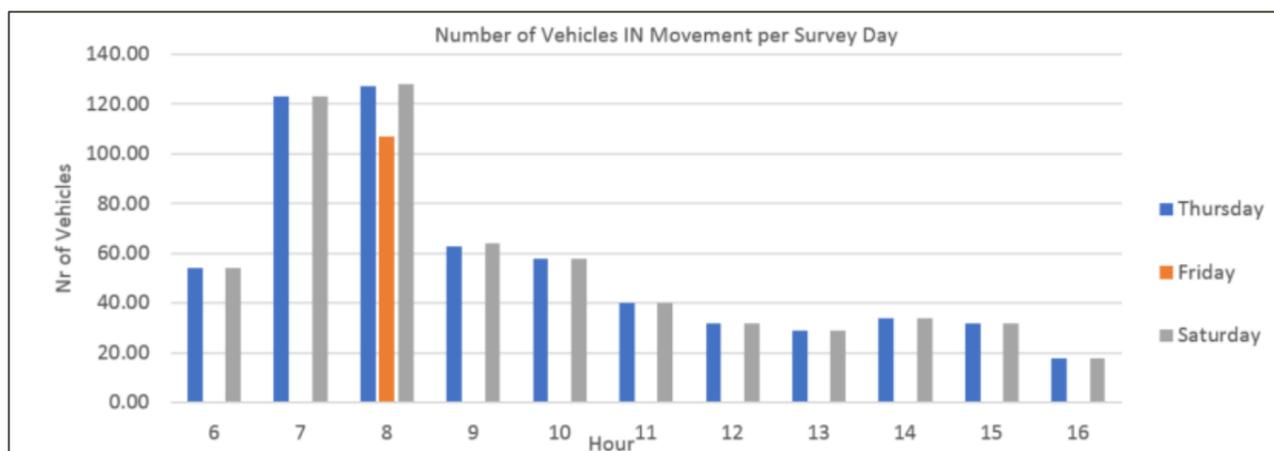


Figure 5-23: Number of Taxi In-Movement at the BSQ Rank

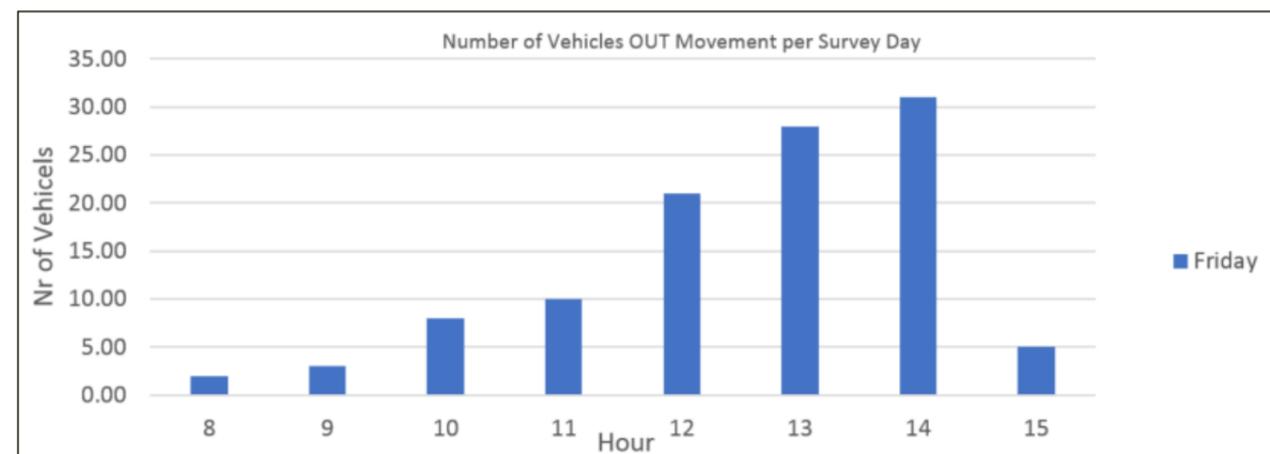


Figure 5-26: Number of Taxi Out-Movement at the Mafora Central Rank

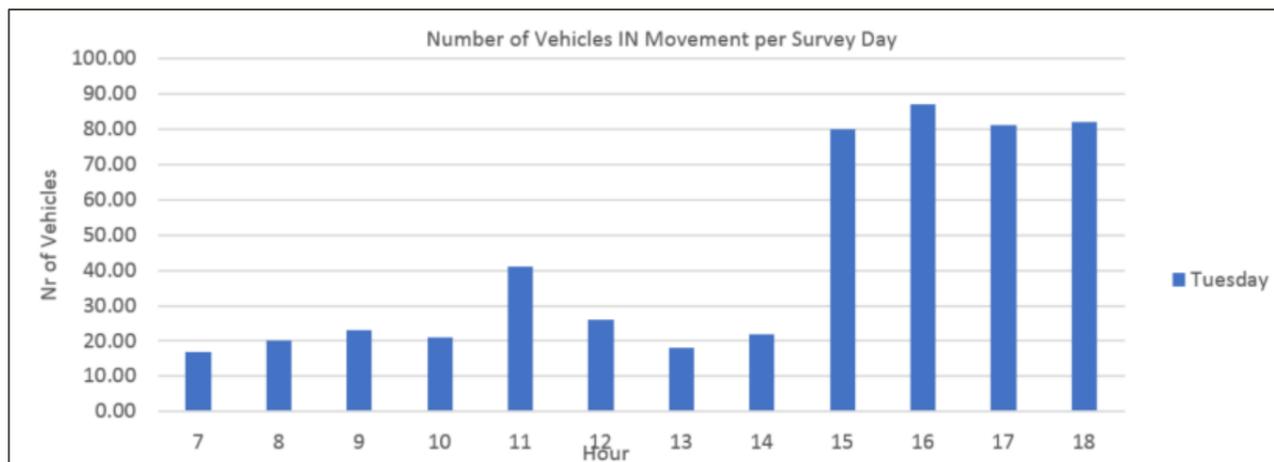


Figure 5-27: Number of Taxi In-Movement at the Phahameng 4+1 Rank

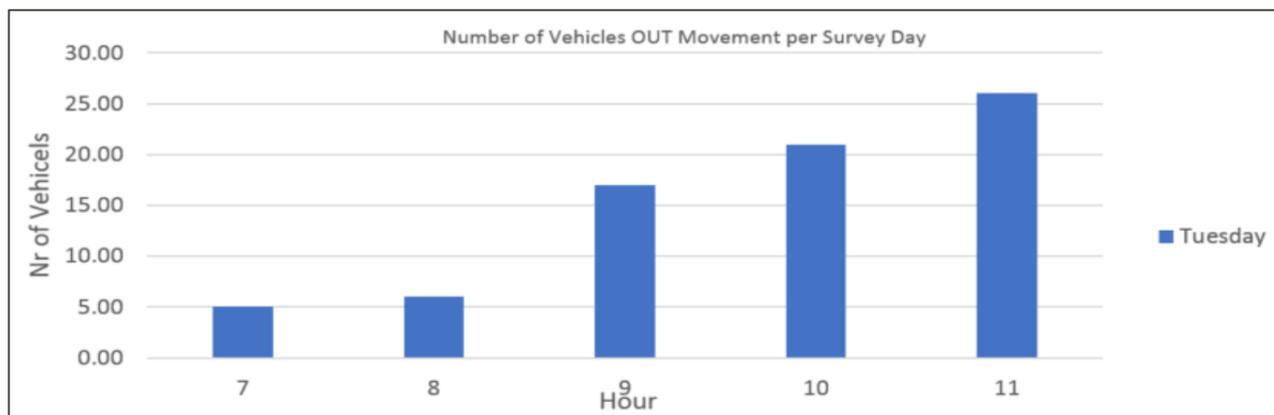


Figure 5-28: Number of Taxi Out-Movement at the Phahameng 4+1 Rank

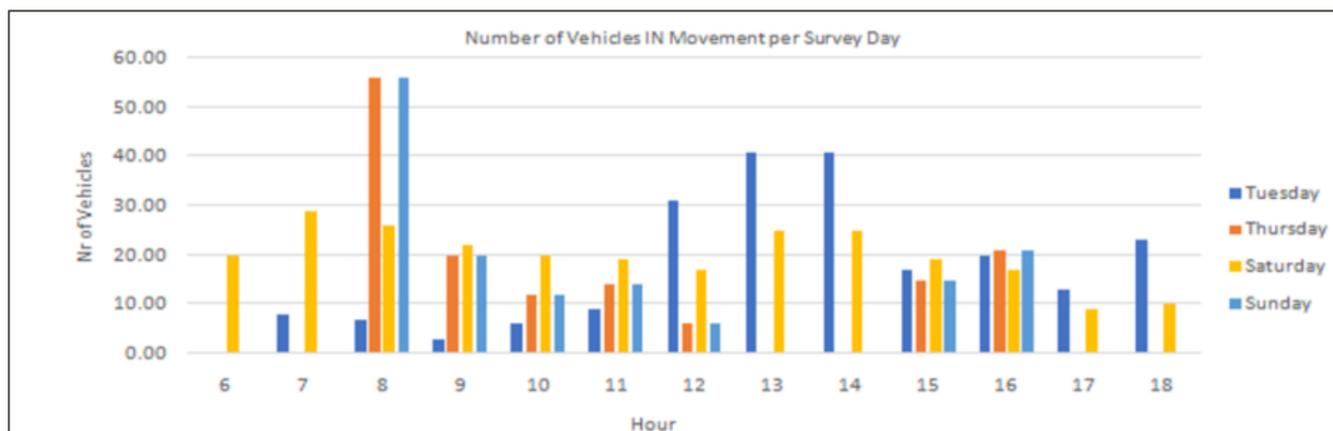


Figure 5-29: Number of Taxi In-Movement at the Sowesto Rank

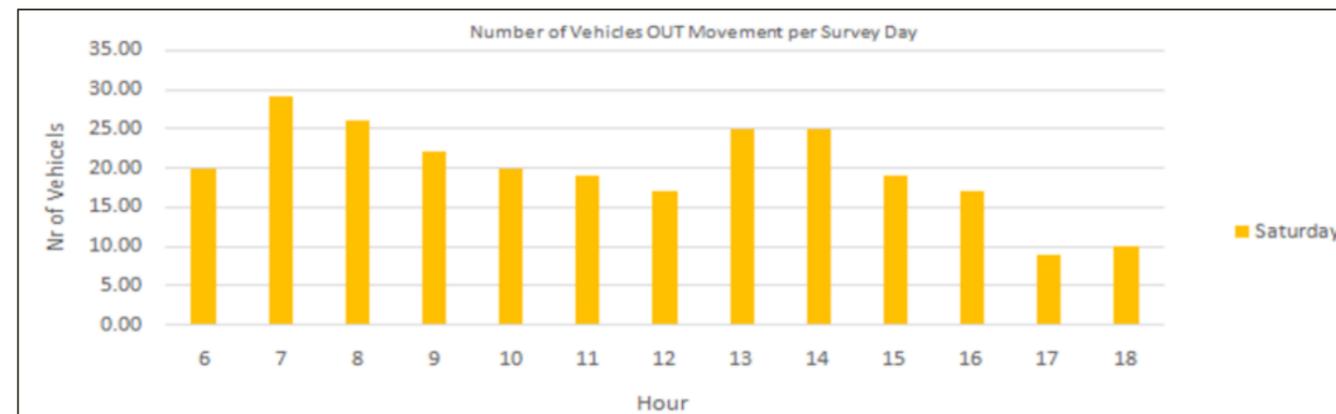


Figure 5-30: Number of Taxi Out-Movement at the Sowesto Rank

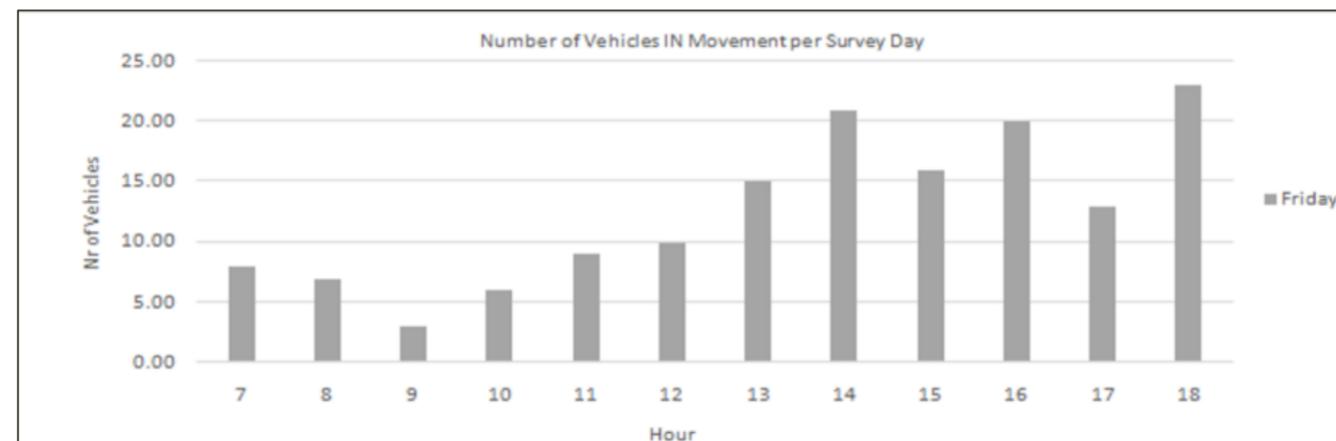


Figure 5-31: Number of Taxi In-Movement at the Twin City Rank

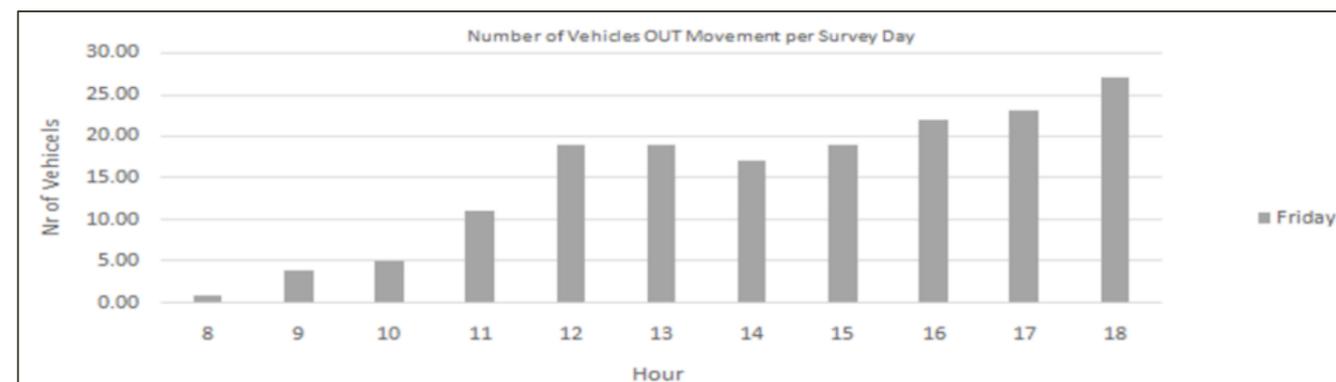


Figure 5-32: Number of Taxi Out-Movement at the Twin City Rank

Table 5-9 to Table 5-11 reflects the available seats utilised by passengers based on an extensive 5-day facility survey conducted at specific ranks during 2016. This information was utilised to determine the demand for seats by passengers and the supply thereof by GBTA, Bata and the Thalsta taxi associations. The utilisation reflected in the tables below represents the percentage of available seats taken up by passengers entering and exiting the respective facilities.

Table 5-9: Daily Vehicle Capacity Utilisation per Destination for BATA Taxi Association

Destination and Origin	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			Average % Seating Capacity Utilisation
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
BATA	11 791	15 311		18 739	22 757		18 435	20 947		14 229	16 460		18 373	22 615		
Blue Rank	8 460	9 313		15 002	16 462		14 351	15 758		10 772	11 834		12 564	13 793		
BOTSHABELO BA	540	600	90%	843	908	93%	873	960	91%	836	930	90%	675	750	90%	91%
BOTSHABELO D	1 187	1 305	91%	1 819	2 010	90%	1 973	2 197	90%	1 559	1 725	90%	1 684	1 860	91%	90%
BOTSHABELO F	815	915	89%	2 400	2 685	89%	524	585	90%	1 029	1 155	89%	681	765	89%	89%
BOTSHABELO G				14	15	93%	39	45	87%				13	15	87%	89%
BOTSHABELO H	568	609	93%	934	989	94%	554	588	94%	648	653	99%	912	963	95%	95%
BOTSHABELO K	540	615	88%	1 375	1 530	90%	1 696	1 879	90%	945	1 050	90%	902	1 005	90%	90%
BOTSHABELO L	592	659	90%	678	750	90%	1 052	1 155	91%	770	846	91%	980	1 072	91%	91%
BOTSHABELO M	543	600	91%	1 186	1 290	92%	1 267	1 387	91%	857	945	91%	1 013	1 102	92%	91%
BOTSHABELO N	765	832	92%	963	1 057	91%	1 219	1 342	91%	921	1 012	91%	1 185	1 297	91%	91%
BOTSHABELO S	1 018	1 140	89%	1 292	1 439	90%	1 467	1 634	90%	1 500	1 678	89%	1 374	1 529	90%	90%
BOTSHABELO T	67	75	89%	26	30	87%				41	45	91%	134	150	89%	89%
BOTSHABELO U	54	60	90%													90%
BOTSHABELO V	509	561	91%	173	195	89%	424	464	91%	149	165	90%	81	90	90%	90%
BOTSHABELO W	107	120	89%	1 047	1 169	90%	1 027	1 147	90%	660	742	89%	659	735	90%	89%
H1	460	460	100%	796	796	100%	484	484	100%	592	603	98%	792	847	94%	98%
Industrial	56	56	100%	56	56	100%	96	96	100%	120	120	100%	132	132	100%	100%
J1	131	150	87%	413	465	89%	437	495	88%	145	165	88%	509	570	89%	88%
THABA NCHU	508	556	91%	983	1 074	92%	1 205	1 285	94%				825	896	92%	92%
Unknown				4	4	100%	14	15	93%				13	15	87%	93%
Hospital	876	3 180		950	3 010		558	1 368		682	1 700		1 524	4 182		
BLUE RANK	734	2 690	27%	766	2 489	31%	441	1 074	41%	473	1 250	38%	1 153	3 110	37%	35%
BOTSHABELO B				15	34	44%										44%
BOTSHABELO BA				2	15	13%	6	30	20%	30	124	24%	40	135	30%	22%
BOTSHABELO C	8	30	27%	3	15	20%	8	30	27%	20	75	27%				25%
BOTSHABELO G	7	15	47%	1	4	25%				21	24	88%	5	8	63%	55%
BOTSHABELO H	4	8	50%	23	73	32%	36	75	48%	81	107	76%	111	186	60%	53%
BOTSHABELO K	2	15	13%							24	37	65%	10	15	67%	48%
BOTSHABELO W	4	15	27%													27%
H1										7	8	88%				88%
Industrial	117	407	29%	139	376	37%	66	155	43%	26	75	35%	205	728	28%	34%
Police Station				1	4	25%	1	4	25%							25%
Industrial	2 455	2 818		2 787	3 285		3 526	3 821		2 775	2 926		4 285	4 640		
BLOEMFONTEIN							2 129	2 246	95%	1 929	2 018	96%	2 072	2 165	96%	95%
BOTSHABELO B	7	4	175%													175%
BOTSHABELO BA	4	4	100%													100%
BOTSHABELO F	1 270	1 410	90%	2 044	2 280	90%	1 397	1 575	89%				2 213	2 475	89%	89%

Destination and Origin	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			Average % Seating Capacity Utilisation
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
BOTSHABELO G	4	4	100%													100%
BOTSHABELO H	19	24	79%	25	50	50%										65%
BOTSHABELO J	186	240	78%	75	120	63%										70%
BOTSHABELO K	41	45	91%													91%
BOTSHABELO S	82	97	85%													85%
BOTSHABELO U	40	45	89%													89%
BOTSHABELO V	63	75	84%													84%
BOTSHABELO W	120	135	89%													89%
Katamelo Primary	104	109	95%	74	90	82%										89%
THABA NCHU										846	908	93%				93%
Unknown	515	626	82%	569	745	76%										79%

Table 5-10: Daily Vehicle Capacity Utilisation per Destination for THALSTA Taxi Association

Destination and Origin	THALSTA Survey Dates															Average % Seating Capacity Utilisation
	2016/04/28			2016/04/29			2016/04/30			2016/05/01			2016/05/03			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
THALSTA	5 176	5 522		8 856	9 401		8 881	9 662		6 520	6 984		9 020	9 664		
4+1 Rank	792	792		1 478	1 499		1 358	1 354		968	968		1 484	1 511		
• Albert Moroka Secondary				4	4	100%										100%
• Makurung	180	180	100%	371	377	98%	420	422	100%	264	264	100%	392	392	100%	100%
• Mothe College				8	8	100%	24	24	100%							100%
• RATAU				4	4	100%										100%
• Sananyoka	144	144	100%	184	184	100%	136	136	100%	84	84	100%	124	124	100%	100%
• SELOSESHA	8	8	100%	4	4	100%										100%
• SEROALO	4	4	100%													100%
• Unknown				12	16	75%										75%
• Zone 1				4	4	100%	4	4	100%	4	4	100%				100%
• Zone 2	112	112	100%	260	260	100%	188	188	100%	168	168	100%	294	306	96%	99%
• Zone 3&4	60	60	100%	77	80	96%	92	92	100%	16	16	100%	68	64	106%	101%
• Zone 5	284	284	100%	550	558	99%	494	488	101%	432	432	100%	606	625	97%	99%
Thaba Nchu LD	517	585		1 078	1 160		1 051	1 121		685	739		882	938		
	517	585	88%	1 078	1 160	93%	1 051	1 121	94%	685	739	93%	882	938	94%	92%
Thaba Nchu TR	3 867	4 145		6 300	6 742		6 472	7 187		4 867	5 277		6 654	7 215		
• BOCHABELA	450	489	92%													92%
• BOTSHABELO B				838	890	94%	1 089	1 127	97%	763	799	95%	783	832	94%	95%
• Excelsior	56	60	93%	175	186	94%	196	231	85%	76	82	93%	154	163	94%	92%
• HobHouse				14	15	93%										93%
• MOTLATLA	218	240	91%	454	536	85%	519	745	70%	369	466	79%	536	647	83%	81%
• RATAU	432	444	97%	655	672	97%	711	740	96%	649	692	94%	749	788	95%	96%
• RATLOU	4	4	100%	32	32	100%	64	64	100%	52	52	100%	52	52	100%	100%
• ROOIFONTEIN	96	104	92%	195	211	92%	181	272	67%	181	228	79%	227	254	89%	84%
• SELOSESHA	1 056	1 068	99%	1 138	1 163	98%	982	992	99%	736	756	97%	1 055	1 076	98%	98%

Destination and Origin	THALSTA Survey Dates															Average % Seating Capacity Utilisation
	2016/04/28			2016/04/29			2016/04/30			2016/05/01			2016/05/03			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
• SELOSESHA X 11	544	544	100%	578	580	100%	438	432	101%	298	300	99%	502	504	100%	100%
• SEROALO	183	192	95%	334	344	97%	256	260	98%	214	216	99%	183	192	95%	97%
• THABA NCHU X 21				4	4	100%				20	24	83%				92%
• Tweespruit	124	156	79%	332	357	93%	299	387	77%	125	134	93%	302	363	83%	85%
• Unknown	4	4	100%	70	87	80%	155	160	97%	144	144	100%	183	184	99%	95%
• Zone 1	700	840	83%	1 481	1 665	89%	1 582	1 777	89%	1 240	1 384	90%	1 928	2 160	89%	88%

Table 5-11: Daily Vehicle Capacity Utilisation per Destination for GBTA Taxi Association

Destination and Origin	GBTA Survey Dates															Average % Seating Capacity Utilisation
	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Sum of Number of Passengers	Sum of Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
GBTA	68,285	91,818	74%	67,260	89,419	75%	70,265	94,189	75%	50,346	63,171	80%	99,070	127,785	78%	76%
Academy													1,121	1,398	80%	80%
BATHO													233	296	79%	79%
BOCHABELA													194	240	81%	81%
CBD													501	599	84%	84%
Maphisa													193	263	73%	73%
Anna Maggerman	1,694	2,010	84%	1,536	1,800	85%	951	1,459	65%	1,384	1,605	86%				80%
CBD	1,694	2,010	84%	1,536	1,800	85%	951	1,459	65%	1,384	1,605	86%				80%
Bainsvlei	303	336	90%	984	1,203	82%	740	773	96%							89%
Bainsvlei				287	314	91%	719	758	95%							93%
BAINSVLEI SETTLEMENT	303	336	90%													90%
CBD				697	889	78%										78%
LANGENHOVENPARK							21	15	140%							140%
Batho Police Station	633	1,279	49%	643	1,014	63%	713	1,378	52%	885	1,696	52%	1,452	2,521	58%	55%
CBD	633	1,279	49%	643	1,014	63%	713	1,378	52%	885	1,696	52%	1,452	2,521	58%	55%
Bloemside_1	530	761	70%	531	761	70%	557	761	73%							71%
BLOMANDA	305	330	92%	305	330	92%	305	110	277%							154%
CBD	225	431	52%	226	431	52%	252	651	39%							48%
Brandwag	7,015	7,648	92%	7,564	8,264	92%	3,425	3,684	93%	4,402	4,753	93%	3,111	3,351	93%	92%
CBD										1,195	1,295	92%				92%
Mimosa	1,576	1,729	91%	604	651	93%				990	1,070	93%	604	658	92%	92%
Tempe	1,396	1,512	92%	276	307	90%				892	958	93%				92%
UFS	1,756	1,907	92%	765	845	91%										91%
Unknown	2,287	2,500	91%	5,919	6,461	92%	3,425	3,684	93%	1,325	1,430	93%	2,507	2,693	93%	92%
BSQ	7,655	9,798	78%	5,132	5,606	92%	7,691	9,828	78%	4,022	4,427	91%	4,022	4,442	91%	86%
Bainsvlei				231	246	94%										94%
BAYSWATER	1,495	1,623	92%	1,793	1,942	92%	1,495	1,623	92%							92%
CBD	898	2,445	37%				903	2,460	37%							37%
HEUWELSIG	203	217	94%				203	217	94%							94%
LANGENHOVENPARK				294	322	91%										91%
Mimosa Mall													627	723	87%	87%
Noordhoek	1,399	1,518	92%	883	968	91%	1,399	1,518	92%							92%
PENTAGONPARK	1,275	1,391	92%	358	389	92%	1,285	1,391	92%							92%
Preller Square Centre	976	1,046	93%	700	756	93%	976	1,046	93%	1,067	1,152	93%	1,067	1,152	93%	93%
Tempe										627	723	87%				87%
UFS				406	430	94%										94%
UNIVERSITAS	1,196	1,319	91%				1,217	1,334	91%	805	881	91%	805	881	91%	91%
Universitas Hospital										951	1,025	93%	951	1,040	91%	92%
Unknown				369	404	91%										91%
WOODLANDS	213	239	89%	98	149	66%	213	239	89%	572	646	89%	572	646	89%	84%

Destination and Origin	GBTA Survey Dates															Average % Seating Capacity Utilisation
	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Sum of Number of Passengers	Sum of Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
Casino				3,389	5,885	58%										58%
CBD				1,797	2,962	61%										61%
Lourie Park				1,400	2,646	53%										53%
PELLISSIER				129	187	69%										69%
Unknown				63	90	70%										70%
Cross Rd	1,407	1,841	76%	1,484	1,931	77%	1,252	1,402	89%	793	846	94%				84%
BLOEMSIDE							544	585	93%							93%
CBD							68	127	54%							54%
Freedom Square	133	476	28%													28%
HEIDEDAL							584	630	93%							93%
NAMIBIA	1,274	1,365	93%	1,351	1,440	94%	56	60	93%	793	846	94%				94%
Unknown				133	491	27%										27%
Devis Street	1,065	1,327	80%	1,159	1,477	78%	964	1,177	82%	947	1,128	84%	1,159	1,477	78%	81%
CBD	1,065	1,327	80%	1,159	1,477	78%	964	1,177	82%	947	1,128	84%	1,159	1,477	78%	81%
Engen	1,711	2,652	65%	1,678	2,704	62%	1,659	2,637	63%	1,611	2,564	63%	2,203	3,727	59%	62%
CBD	1,711	2,652	65%	1,678	2,704	62%	1,659	2,637	63%	1,611	2,564	63%	2,203	3,727	59%	62%
Fauna	288	483	60%	147	278	53%				337	370	91%	320	341	94%	74%
CBD	288	483	60%	147	278	53%				337	370	91%	320	341	94%	74%
Freedom Square	4,893	8,810	56%	1,182	1,327	89%	13,929	19,600	71%				14,158	20,154	70%	71%
BLOEMSIDE				530	570	93%										93%
CBD	4,893	8,810	56%	68	127	54%	13,915	19,585	71%				14,158	20,154	70%	63%
HEIDEDAL				584	630	93%										93%
Unknown							14	15	93%							93%
Grassland Super Market	316	412	77%	321	427	75%	269	365	74%	1,901	2,535	75%	2,274	2,888	79%	76%
CBD	316	412	77%	321	427	75%	269	365	74%	1,901	2,535	75%	2,274	2,888	79%	76%
Heidedal Police Station	1,066	1,779	60%	1,669	2,805	60%	785	1,980	40%				2,714	4,279	63%	56%
CBD	1,066	1,779	60%	1,669	2,805	60%	785	1,980	40%				2,714	4,279	63%	56%
Home Affairs	1,305	1,404	93%	1,697	1,851	92%	1,522	1,634	93%	1,394	1,501	93%	2,107	2,259	93%	93%
Bergman				224	269	83%	140	135	104%							93%
BLOEMSIDE				790	847	93%	727	787	92%							93%
CBD	1,305	1,404	93%							1,394	1,501	93%	2,107	2,259	93%	93%
HEIDEDAL				683	735	93%	655	712	92%							92%
Hostetel1	675	946	71%	707	986	72%	1,657	1,783	93%	679	990	69%	2,153	3,169	68%	75%
Bergman							182	194	94%							94%
BLOEMSIDE							792	854	93%							93%
CBD	675	946	71%	707	986	72%				679	990	69%	2,153	3,169	68%	70%
HEIDEDAL							683	735	93%							93%
Hyperama	1,143	1,210	94%	406	433	94%	777	830	94%	685	739	93%	1,035	1,121	92%	93%
CBD	1,143	1,210	94%	406	433	94%	777	830	94%	685	739	93%	1,035	1,121	92%	93%
Hypermarket	785	1,980	40%	1,070	1,877	57%	1,541	2,134	72%	732	1,744	42%	1,627	1,753	93%	61%
Bergman													140	149	94%	94%
BLOEMSIDE													741	802	92%	92%
CBD	785	1,980	40%	1,070	1,877	57%	753	1,295	58%	732	1,744	42%	63	67	94%	58%
HEIDEDAL													683	735	93%	93%
Hyperrama							788	839	94%							94%
Ipopeng	1,735	1,875	93%	1,545	1,695	91%	750	870	86%	445	495	90%	1,721	1,860	93%	90%
Ipopeng	1,735	1,875	93%	1,545	1,695	91%	750	870	86%	445	495	90%	1,721	1,860	93%	90%
KFC	1,172	1,251	94%	1,697	1,858	91%	588	610	96%	953	946	101%	4,357	5,000	87%	94%
Bergman				224	269	83%										83%
BLOEMSIDE				790	854	93%										93%
CBD	1,172	1,251	94%				588	610	96%	953	946	101%	4,357	5,000	87%	94%
HEIDEDAL				683	735	93%										93%
Langenhoven Park	406	805	50%	717	783	92%	961	1,065	90%							77%
CBD	149	530	28%													28%
LANGENHOVENPARK	257	275	93%	717	783	92%	961	1,065	90%							92%
Lourie Park	175	897	20%	830	873	95%	1,296	3,280	40%	197	979	20%	1,294	2,616	49%	45%
CBD				830	873	95%	867	1,802	48%				1,294	2,616	49%	64%
LOURIERPARK	20	180	11%				429	1,478	29%	20	194	10%				17%
Sowesto	155	717	22%							177	785	23%				22%

Destination and Origin	GBTA Survey Dates															Average % Seating Capacity Utilisation
	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Sum of Number of Passengers	Sum of Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
Mafora Central	2,676	2,895	92%	606	849	71%	1,574	2,235	70%	2,355	2,482	95%	4,224	4,432	95%	85%
BLOMANDA	566	615	92%							566	615	92%	1,187	1,241	96%	93%
CBD				606	849	71%	1,574	2,235	70%							71%
Rocklands	2,110	2,280	93%							1,789	1,867	96%	3,037	3,191	95%	95%
Mafora East	2,621	2,797	94%	1,621	1,725	94%	1,509	1,605	94%	2,266	2,415	94%	2,700	4,264	63%	88%
BLOMANDA	573	615	93%	350	375	93%	336	360	93%	492	525	94%				93%
CBD													2,700	4,264	63%	63%
DINAWENG	915	967	95%	609	645	94%	567	600	95%	813	855	95%				95%
Mafora	820	885	93%	412	435	95%	398	420	95%	751	810	93%				94%
Phase 2	313	330	95%	250	270	93%	208	225	92%	210	225	93%				93%
Mafora West	3,215	3,465	93%	5,174	5,595	92%	4,992	5,385	93%	2,657	2,812	94%	5,258	5,685	92%	93%
BLOMANDA	932	1,005	93%	1,899	2,070	92%	1,829	1,995	92%	588	630	93%	1,953	2,130	92%	92%
DINAWENG	163	180	91%	1,258	1,350	93%	1,216	1,290	94%	928	967	96%	1,274	1,365	93%	93%
Mafora	665	720	92%	784	840	93%	742	795	93%	826	885	93%	768	825	93%	93%
Phase 2	1,455	1,560	93%	1,233	1,335	92%	1,205	1,305	92%	315	330	95%	1,263	1,365	93%	93%
Maitland										1,670	1,800	93%	6,225	6,745	92%	93%
Bergman										1,002	1,080	93%	2,172	2,326	93%	93%
BLOEMSIDE													1,203	1,305	92%	92%
GRASSLANDS										668	720	93%	1,666	1,809	92%	92%
HEIDEDAL													1,184	1,290	92%	92%
Makro				494	1,133	44%	1,878	2,652	71%							57%
CBD				494	1,133	44%	1,878	2,652	71%							57%
Maphisa													1,650	1,823	91%	91%
CBD													270	301	90%	90%
Rocklands													1,380	1,522	91%	91%
Masakhane													1,381	2,213	62%	62%
CBD													1,381	2,213	62%	62%
Meadows	4,688	5,898	79%	9,233	15,871	58%	1,655	1,783	93%	1,621	2,025	80%	2,362	2,891	82%	78%
Bergman							182	194	94%							94%
BLOEMSIDE							790	854	93%							93%
CBD	4,688	5,898	79%	9,233	15,871	58%				1,621	2,025	80%	2,362	2,891	82%	75%
HEIDEDAL							683	735	93%							93%
Mimosa	1,418	1,554	91%	2,128	2,899	73%	1,338	1,452	92%				1,418	1,554	91%	87%
CBD	1,418	1,554	91%	2,128	2,899	73%	1,338	1,452	92%				1,418	1,554	91%	87%
Monape Street													2,374	3,658	65%	65%
CBD													2,374	3,658	65%	65%
National Hospital	1,585	1,781	89%				1,428	1,781	80%	1,428	1,781	80%	1,428	1,781	80%	82%
CBD	1,585	1,781	89%													89%
Unknown							1,428	1,781	80%	1,428	1,781	80%	1,428	1,781	80%	80%
Northridge Mall				618	1,174	53%	623	1,286	48%							51%
CBD				618	1,174	53%										53%
Unknown							623	1,286	48%							48%
Pasteur Hospital							849	1,325	64%							64%
BOTSHABELO H							39	45	87%							87%
CBD							452	711	64%							64%
LOURIERPARK							211	337	63%							63%
PELLISSIER							147	232	63%							63%
Pelenomi Hospital	1,408	2,395	59%	1,408	2,406	59%	1,313	2,180	60%	1,193	2,166	55%	4,434	6,658	67%	60%
CBD	1,408	2,395	59%	1,408	2,406	59%	1,313	2,180	60%	1,193	2,166	55%	4,434	6,658	67%	60%
Phahameng 4+1	554	3,383	16%	1,041	1,350	77%	1,152	1,181	98%	875	914	96%	3,370	3,539	95%	76%
BATHO				250	322	78%							20	20	100%	89%
BOCHABELA				143	184	78%	336	354	95%							86%
Boohebel Primary													392	396	99%	99%
Bothaville													32	32	100%	100%
BOTSHABELO B				4	4	100%										100%
CBD	554	3,383	16%	475	613	77%	4	4	100%				286	313	91%	71%
Mahlohonolo I.School							8	19	42%				16	16	100%	71%
MALELEKA							28	28	100%				108	108	100%	100%
Maphisa				169	227	74%	148	148	100%							87%

Destination and Origin	GBTA Survey Dates															Average % Seating Capacity Utilisation
	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Sum of Number of Passengers	Sum of Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
Maphisa, Batho							4	4	100%				264	264	100%	100%
PARADYS SMALL HOLDINGS													4	4	100%	100%
PHAHAMENG							136	136	100%				200	200	100%	100%
Rocklands							4	4	100%				1,376	1,492	92%	96%
Unknown							484	484	100%	875	914	96%	672	694	97%	98%
Phelindaba										1,314	1,369	96%	540	1,530	35%	66%
Phase 4													540	1,530	35%	35%
Phelindaba										1,314	1,369	96%				96%
Rocklands				2,820	3,490	81%	726	777	93%	3,161	4,006	79%	849	1,010	84%	84%
BLOMANDA				181	195	93%				167	180	93%				93%
CBD				135	194	70%	726	777	93%	604	926	65%	849	1,010	84%	78%
Rocklands				2,504	3,101	81%				2,390	2,900	82%				82%
Rose Park Hospital				167	417	40%	180	708	25%	305	1,039	29%	212	703	30%	31%
CBD				158	350	45%	175	678	26%	281	912	31%	212	703	30%	33%
Hypermarket				4	15	27%										27%
Hyperrama				5	52	10%	5	30	17%	24	127	19%				15%
SA Truck	5,740	6,106	94%	1,620	1,888	86%	1,162	1,245	93%	2,982	3,195	93%	5,712	6,054	94%	92%
CBD				1,620	1,888	86%										86%
Phase 2	5,726	6,091	94%				1,162	1,245	93%	2,982	3,195	93%	5,712	6,054	94%	94%
Unknown	14	15	93%													93%
Shoprite	720	760	95%	508	548	93%	338	376	90%	1,140	1,234	92%	720	760	95%	93%
BLOMANDA	198	208	95%	142	152	93%	78	88	89%	270	288	94%	208	220	95%	93%
BOCHABELA	4	4	100%	4	4	100%							4	4	100%	100%
Bophelong	26	28	93%	22	24	92%	12	12	100%	32	32	100%	26	28	93%	95%
Bothaville	12	12	100%	12	12	100%	12	12	100%	24	24	100%	12	12	100%	100%
CBD	2	4	50%	2	4	50%							8	12	67%	56%
CHRIS HANI	4	4	100%										4	4	100%	100%
DINAWENG	4	4	100%	8	8	100%	4	4	100%	16	16	100%	8	8	100%	100%
Freedom	8	8	100%	4	4	100%	2	4	50%	10	12	83%	4	4	100%	87%
Ikaelelo I.School							2	4	50%	2	4	50%				50%
Ipopeng	4	4	100%	4	4	100%	14	16	88%	68	72	94%	12	12	100%	96%
Mafora	64	68	94%	44	48	92%	52	56	93%	184	203	91%	66	68	97%	93%
NAMIBIA	20	20	100%	12	12	100%				8	8	100%	16	16	100%	100%
PHAHAMENG	10	12	83%	8	8	100%	12	12	100%	24	24	100%	10	12	83%	93%
Phase 2	100	100	100%	64	64	100%	22	24	92%	106	108	98%	84	84	100%	98%
Phase 4										4	4	100%				100%
Phelindaba	84	88	95%	56	60	93%	42	44	95%	94	96	98%	86	88	98%	96%
Rocklands	124	132	94%	86	96	90%	56	60	93%	160	184	87%	130	140	93%	91%
SEJAKE	34	40	85%	22	28	79%	6	8	75%	14	16	88%	24	28	86%	82%
Spar	4	4	100%	4	4	100%	4	4	100%	4	4	100%	4	4	100%	100%
Unknown	18	20	90%	14	16	88%	20	28	71%	120	139	86%	14	16	88%	85%
Sowetso	2,740	2,944	93%				3,624	3,827	95%	2,449	2,637	93%	3,516	3,696	95%	94%
Bloemfontein - South High School	28	30	93%							28	30	93%				93%
Fauna	110	120	92%							96	105	91%	192	202	95%	93%
FICHARDTPARK	767	829	93%							659	702	94%	237	246	96%	94%
Hypermarket	122	127	96%				527	561	94%	98	105	93%	349	367	95%	95%
Hyperrama	602	650	93%				1,061	1,128	94%	529	575	92%	1,398	1,454	96%	94%
LANGENHOVENPARK							1,283	1,356	95%				499	531	94%	94%
Lourie Park							146	149	98%							98%
LOURIERPARK	415	449	92%				175	187	94%	361	389	93%				93%
National Museum	502	537	93%				63	67	94%	502	537	93%	519	552	94%	94%
PELLISSIER	64	67	96%				301	304	99%	62	67	93%	252	269	94%	95%
Rosepark Hospital	130	135	96%				68	75	91%	114	127	90%	70	75	93%	93%
Tempe	546	599	91%	462	487	95%	131	375	35%	691	763	91%	174	427	41%	70%
CBD	546	599	91%	462	487	95%	131	375	35%	691	763	91%	174	427	41%	70%
Turfkaagte	1,131	1,305	87%	347	375	93%	962	1,110	87%	1,079	1,245	87%	1,157	1,335	87%	88%
Khayalisha				13	15	87%										87%
Phase 4	325	375	87%				156	180	87%	325	375	87%	325	375	87%	87%
Turfagte Cross	806	930	87%				806	930	87%	754	870	87%	832	960	87%	87%

Destination and Origin	GBTA Survey Dates															Average % Seating Capacity Utilisation
	28/04/2016			29/04/2016			30/04/2016			01/05/2016			03/05/2016			
	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Sum of Number of Passengers	Sum of Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	Number of Passengers	Number of Seats	Available Seating Utilised (%)	
Unknown				334	360	93%										93%
Twin City Mall	464	736	63%	1,045	1,230	85%	255	725	35%	370	711	52%				59%
BLOEMSIDE				507	600	85%										85%
CBD	464	736	63%							370	711	52%				58%
GRASSLANDS				538	630	85%										85%
Taxi Rank							255	725	35%							35%
UFS	595	2,359	25%	462	494	94%	583	2,359	25%	583	2,359	25%	583	2,359	25%	39%
CBD				462	494	94%										94%
Unknown	595	2,359	25%				583	2,359	25%	583	2,359	25%	583	2,359	25%	25%
Universitas Hospital				200	345	58%										58%
Unknown				200	345	58%										58%
Vista Park	2,212	3,337	66%	1,218	1,305	93%	1,966	2,572	76%	840	900	93%	1,955	2,312	85%	83%
CBD	2,212	3,337	66%	1,218	1,305	93%	1,966	2,572	76%	840	900	93%	1,955	2,312	85%	83%

5.3.5 Minibus-taxi Passenger Waiting Times and Level of Service

A 12-hour, seven-day taxi facility survey was conducted at various taxi ranks throughout the Mangaung area. The purpose of this survey was to measure the average waiting times for potential passengers to board a taxi and leave the rank. This waiting time was gathered in the isles which represented different destinations. The outcome of this survey provided some clarity on passenger and vehicle waiting times in order to try and achieve reduced waiting times and by doing so, to improve the level of service offered to commuters. Figure 5-33 to Figure 5-45 only provides a high-level summary of the average total waiting times gathered at the Botshabelo Blue

Included in the average total waiting times is the waiting time to be able to board a taxi and secondly, the average in vehicle waiting time prior to the vehicle exiting the rank. It is also important to note that the in-vehicle waiting times are the longest from 06h00 onwards over the weekends. This was specifically applicable on Friday's and Saturday's, when surveys were conducted. The longest average in vehicle waiting time recorded (waiting for vehicle to be fully loaded) was 55 minutes which was subsequently recorded on a Friday morning at the Industrial rank in Botshabelo. These longer than normal in facility waiting times, further exacerbate the long travel times which commuters experience when making use of taxis on a daily basis.

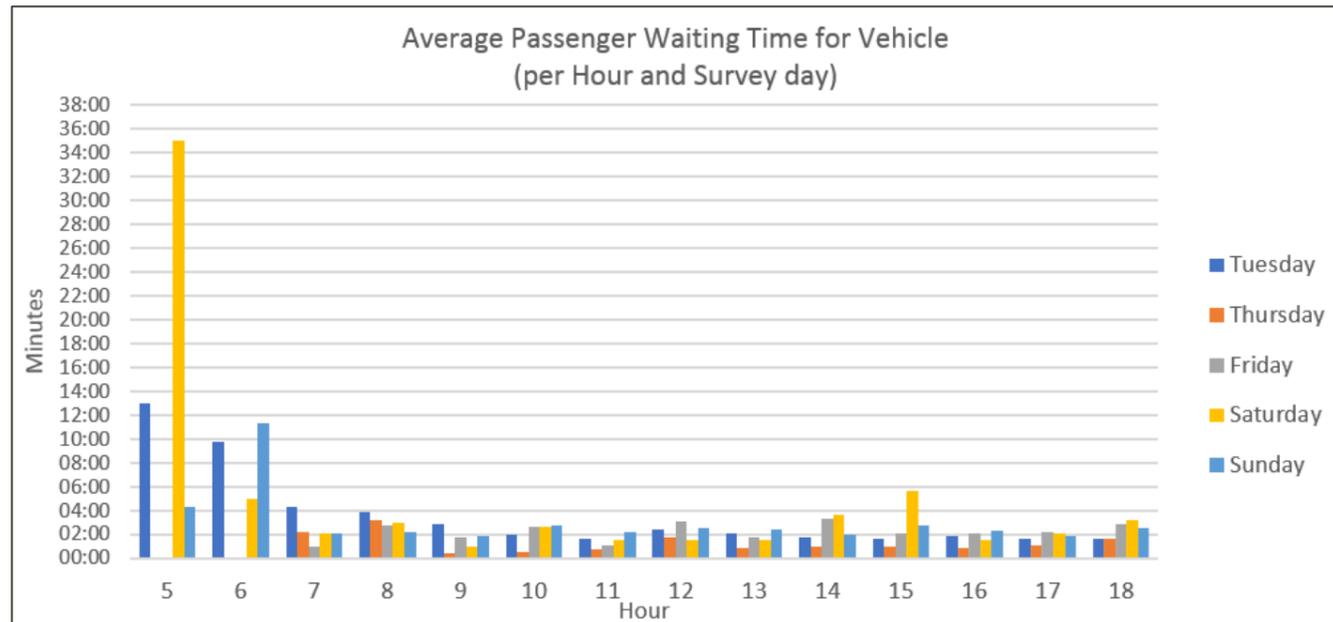


Figure 5-33: Average Passenger Waiting Time for a Vehicle at the Botshabelo Blue Rank

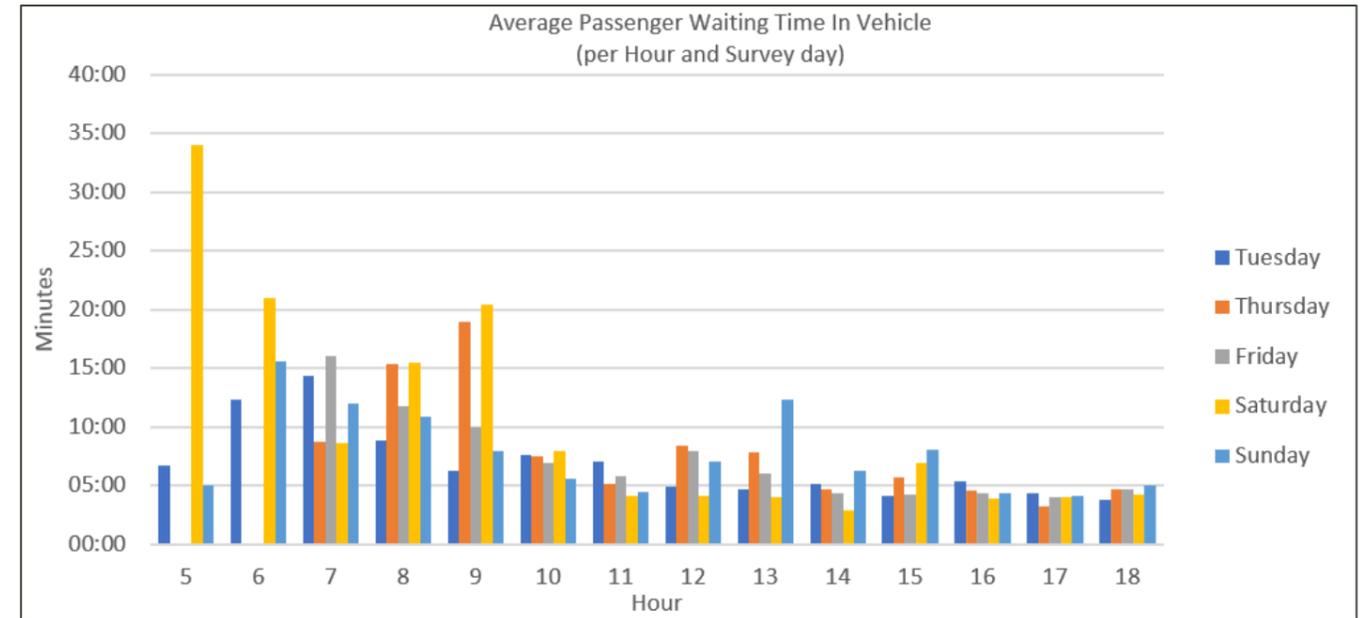


Figure 5-34: Average Passenger In-Vehicle Waiting Time at the Botshabelo Blue Rank

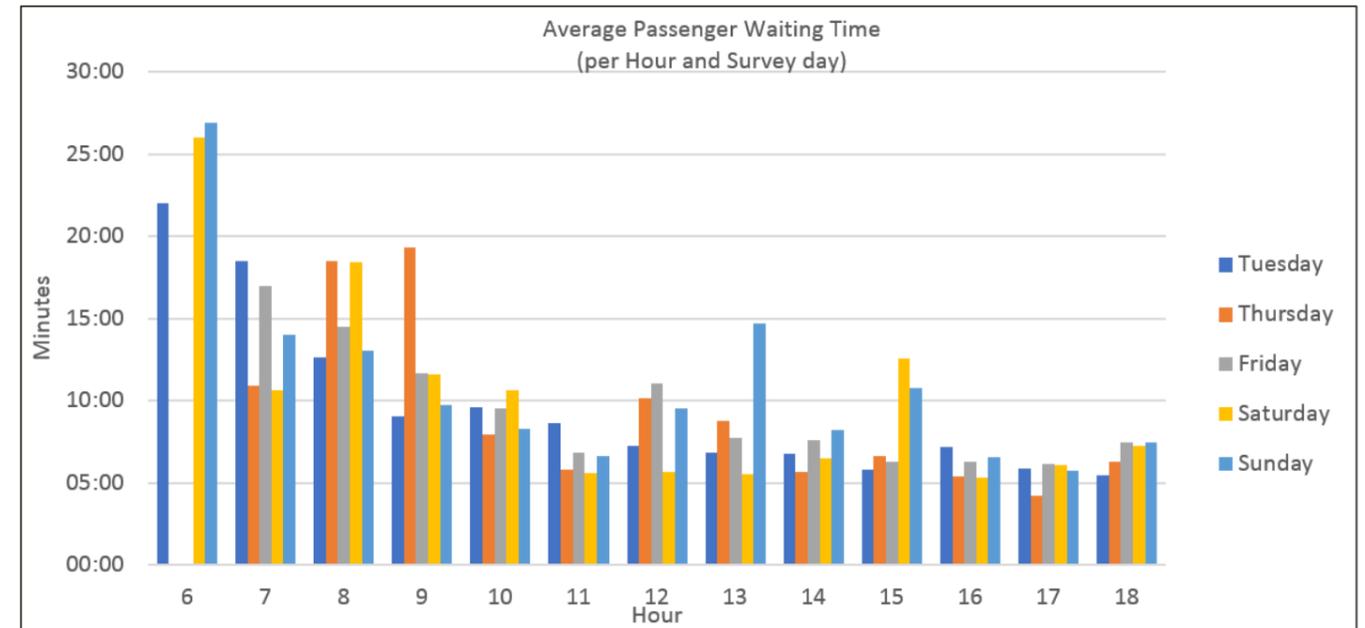


Figure 5-35: Average Passenger Waiting Time at the Botshabelo Blue Rank

Figure 5-33 and Figure 5-34 above indicate that at 05h00 on a Saturday and Sunday morning the average passenger waiting time at the Botshabelo Blue rank is approximately 34 minutes. This waiting time is very long and the reason for it being so long should be investigated and solutions should be found to reduce the time which passengers have to wait for a vehicle as well as the in-vehicle waiting time to the minimum. Figure 5-36 to Figure 5-38 provides a summary of the average waiting times gathered at the Industrial Rank in Botshabelo.

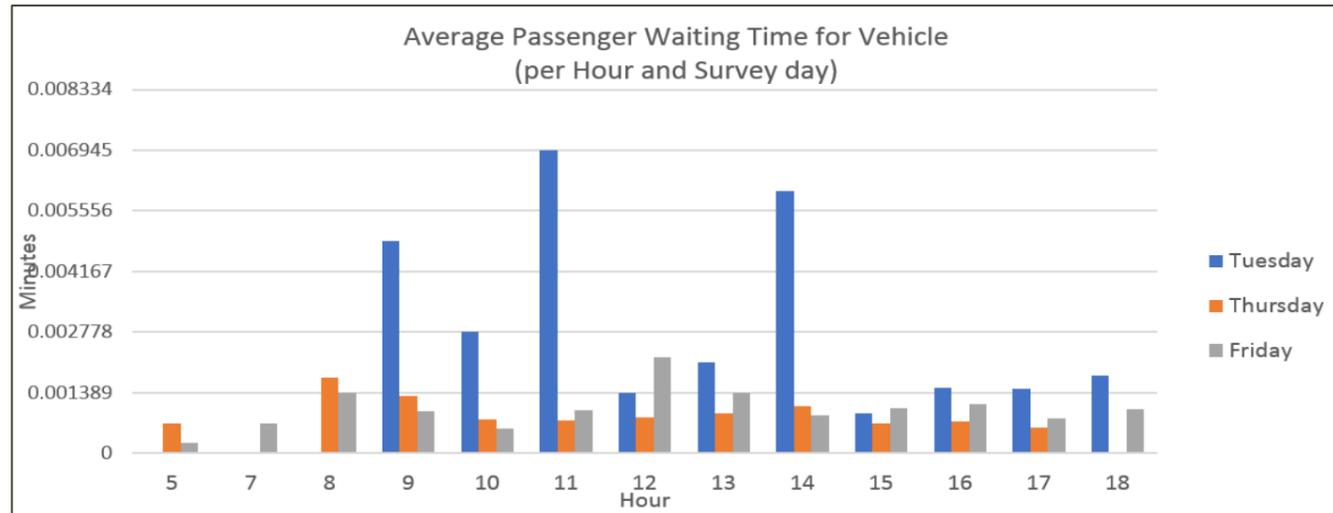


Figure 5-36: Average Passenger Waiting Time for a Vehicle at the Industrial Rank

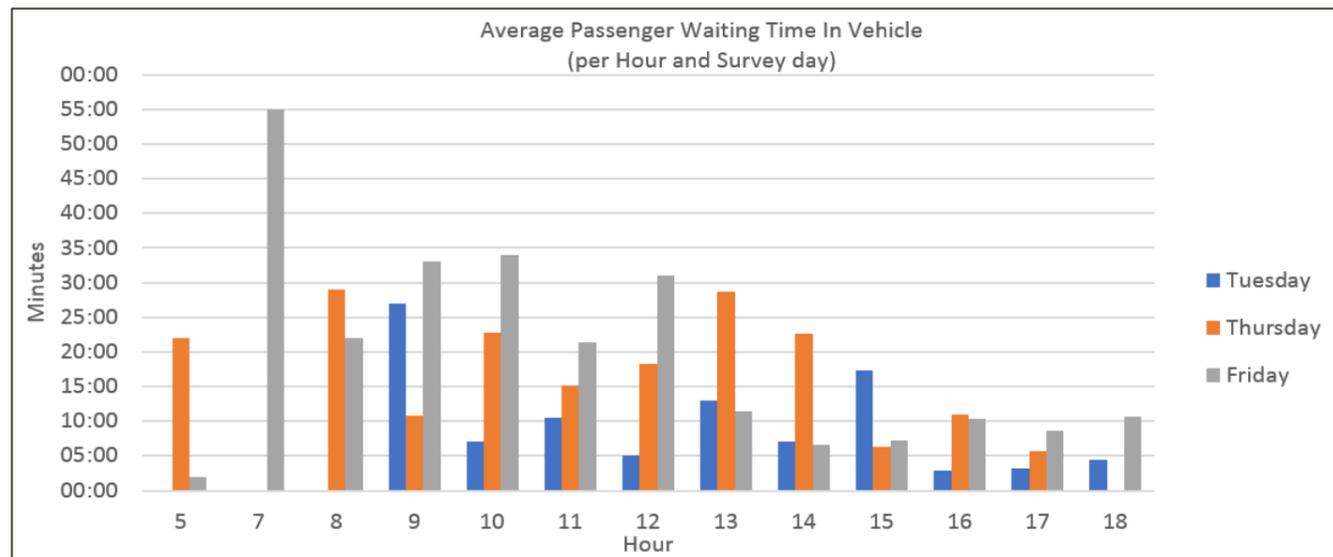


Figure 5-37: Average Passenger In-Vehicle Waiting Time at the Industrial Rank

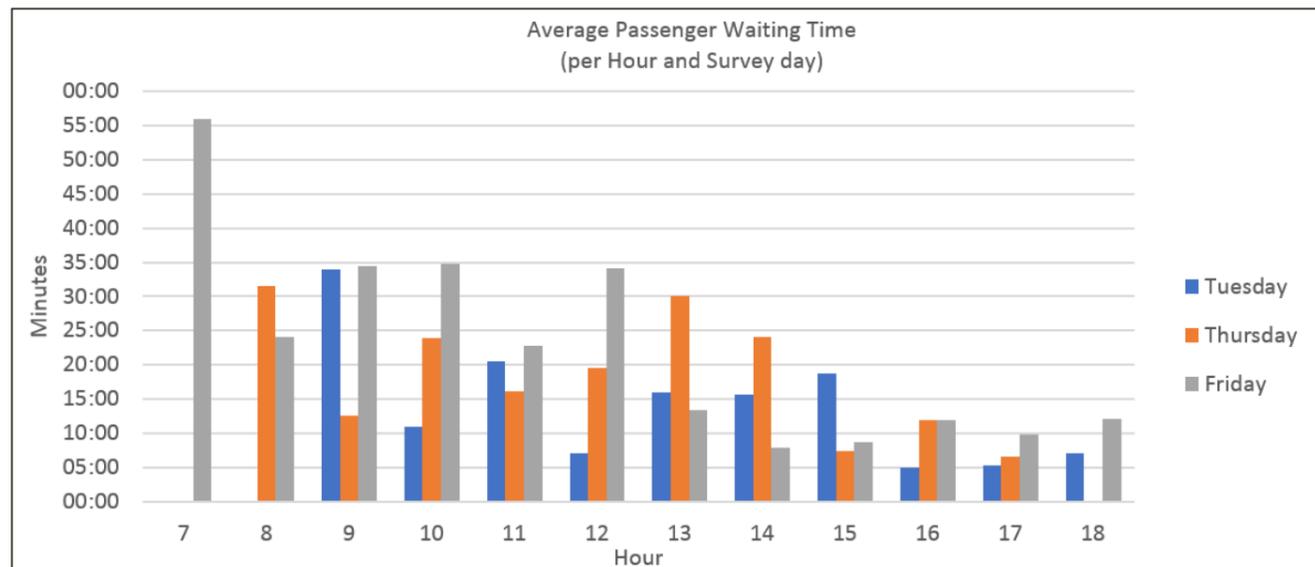


Figure 5-38: Average Passenger Waiting Time at the Industrial Rank

Figure 5-37 and Figure 5-38 above indicate that at 07h00 on a Friday morning the average passenger waiting time at the Industrial rank is approximately 56 minutes. This waiting time is very long and the reason for it being so long should be investigated and solutions found to reduce the time which passengers have to wait for a taxi as well as the in-vehicle waiting time, to the minimum. Figure 5-39 to Figure 5-41 provide a graphical representation of the average passenger waiting times at the Thaba Nchu 4+1_SB rank.

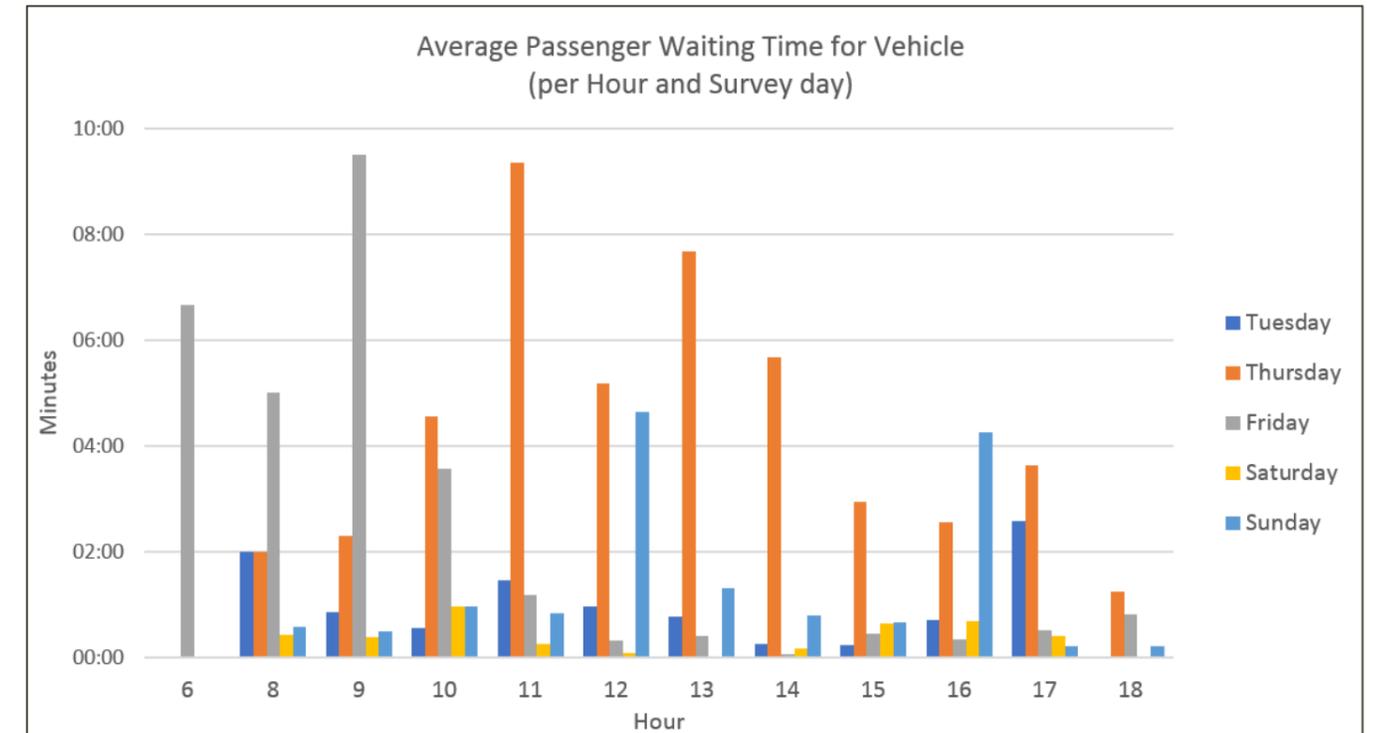


Figure 5-39: Average Passenger Waiting Time for a Vehicle at the Thaba Nchu 4+1_SB Rank

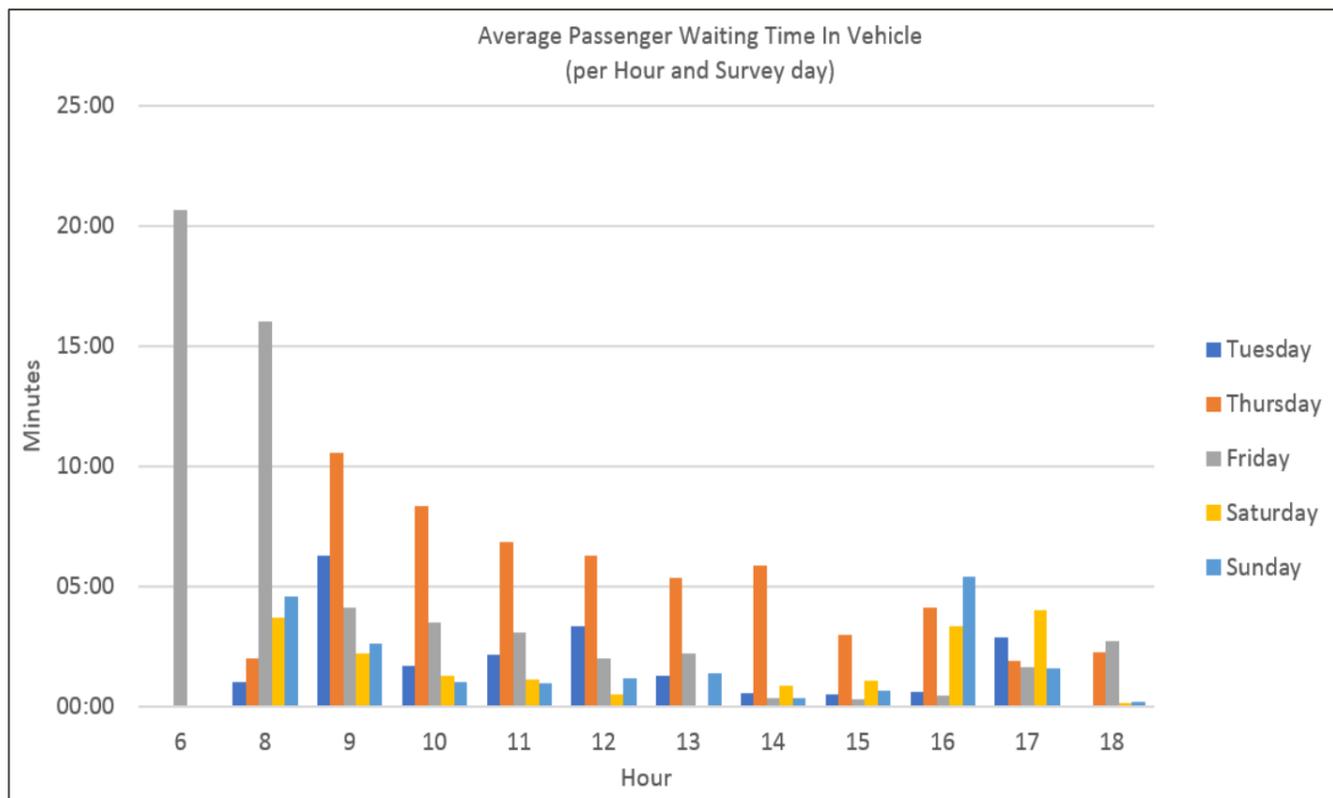


Figure 5-40: Average Passenger In-Vehicle Waiting Time at the Thaba Nchu 4+1_SB Rank

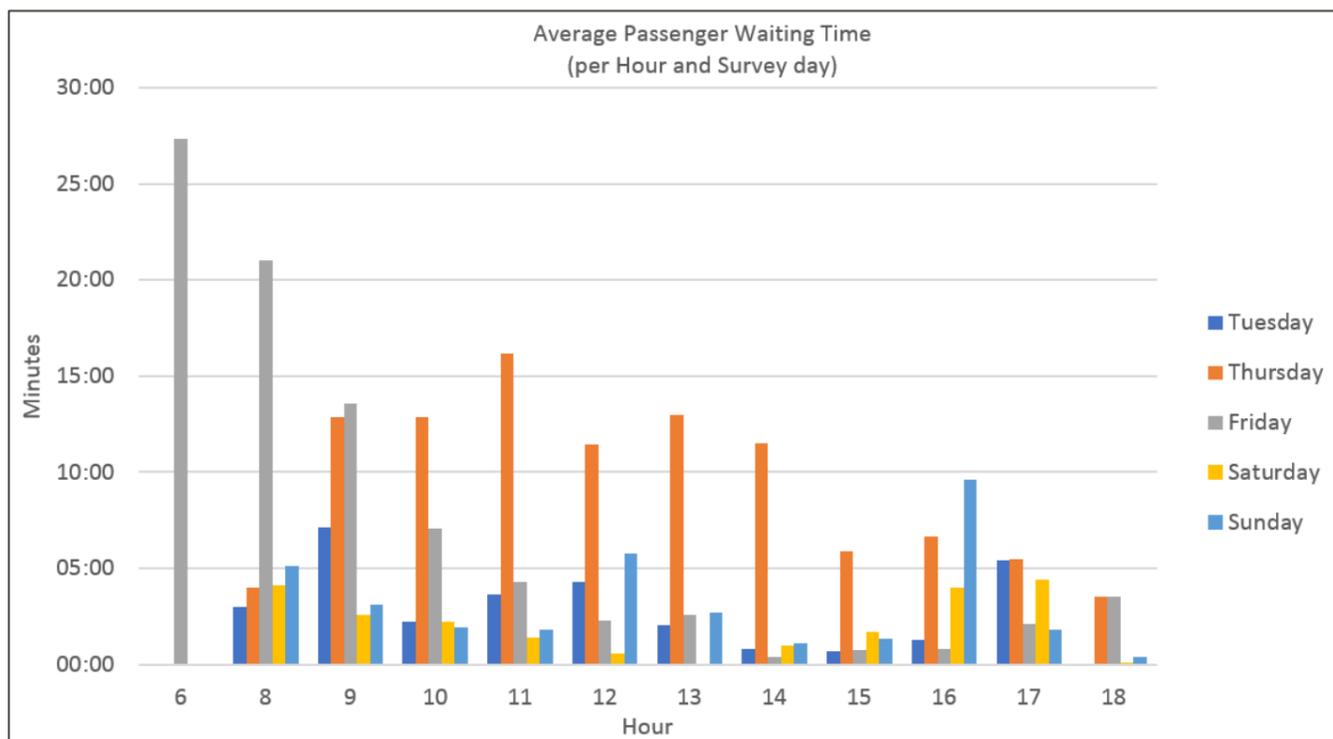


Figure 5-41: Average Passenger Waiting Time at the Thaba Nchu 4+1_SB Rank

Figure 5-39 to Figure 5-41 above indicate that the average passenger waiting time on a Friday morning at 06h00 at the Thaba Nchu 4+1_SB rank is approximately 27 minutes. The average passenger waiting time fortunately decreases later in the day to between 5 and 10 minutes. The early morning waiting times are very long and the reason for it being so long should be investigated and solutions

found to reduce the waiting times similar to that of the afternoon. Figure 5-39 to Figure 5-41 provide a graphical representation of the average passenger waiting times at the Thaba Nchu 4+1_SB rank.

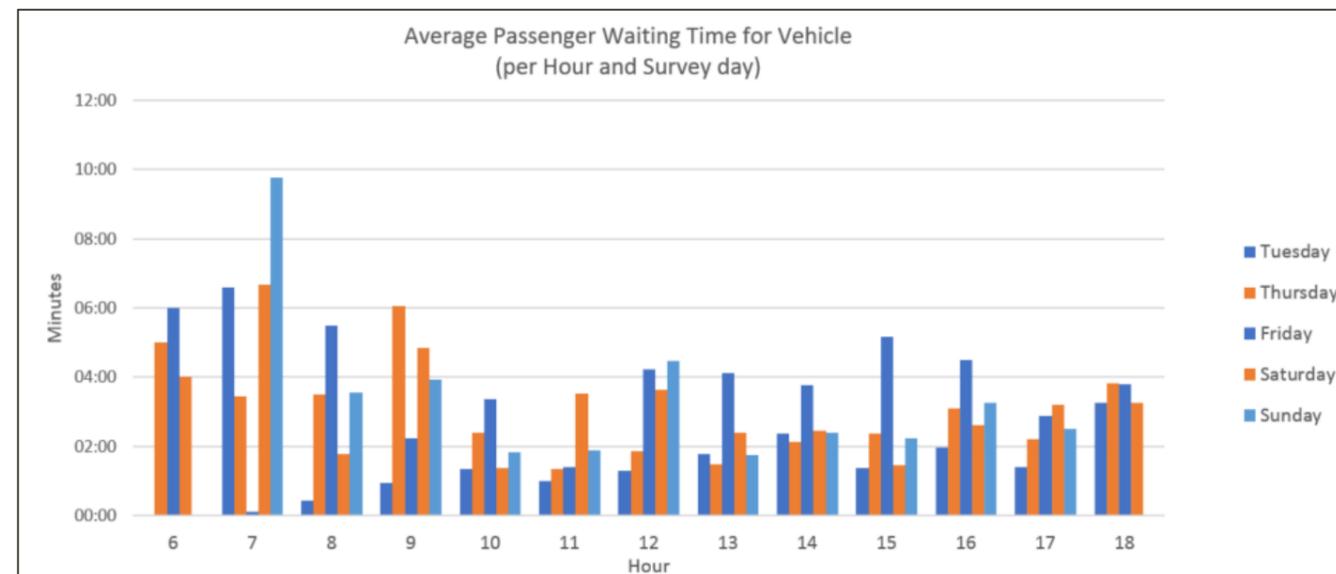


Figure 5-42: Average Passenger Waiting Time for a Vehicle at the Thaba Nchu 4+1_JB Rank

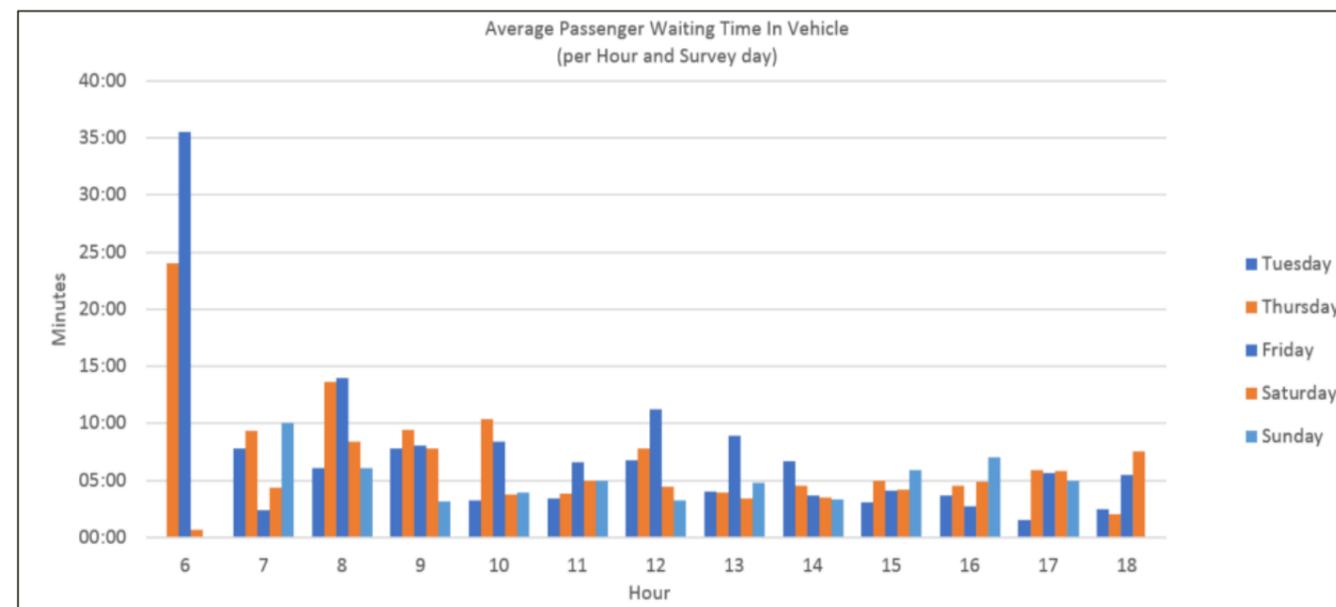


Figure 5-43: Average Passenger In-Vehicle Waiting Time at the Thaba Nchu 4+1_JB Rank

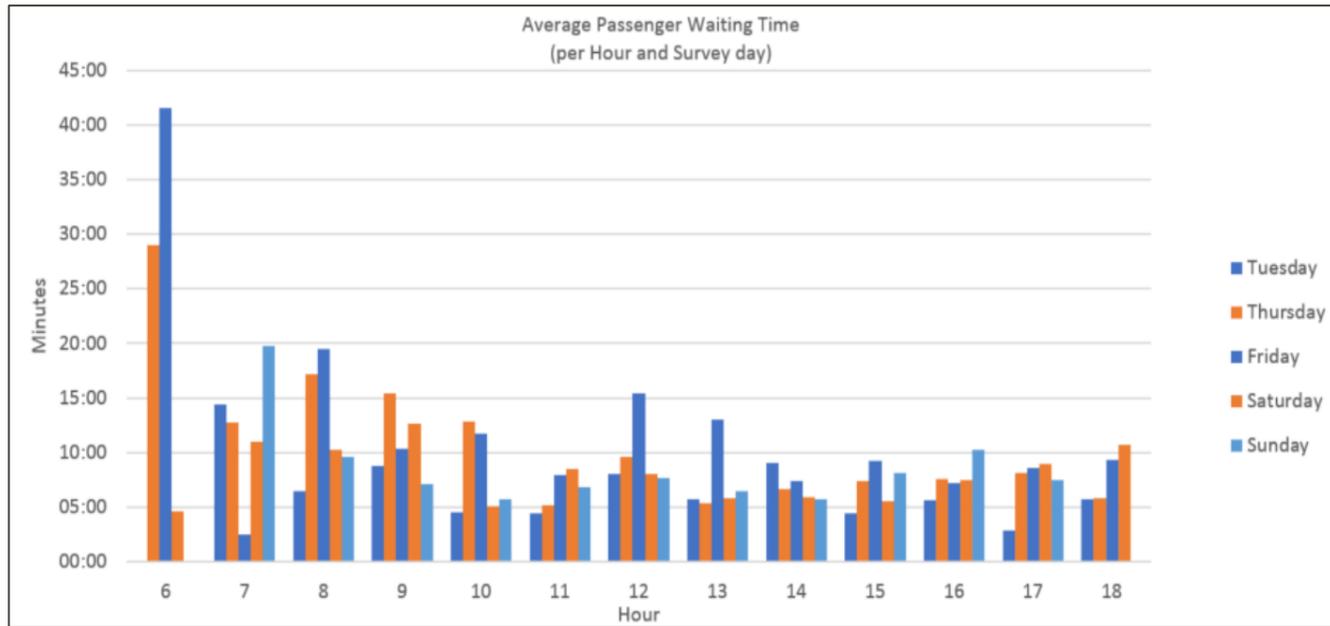


Figure 5-44: Average Passenger Waiting Time at the Thaba Nchu 4+1_JB Rank

Figure 5-45, Figure 5-46 and Figure 5-47 present the average passenger waiting times for the BSQ rank. It is high (22 minutes) on Friday mornings around 09h00.

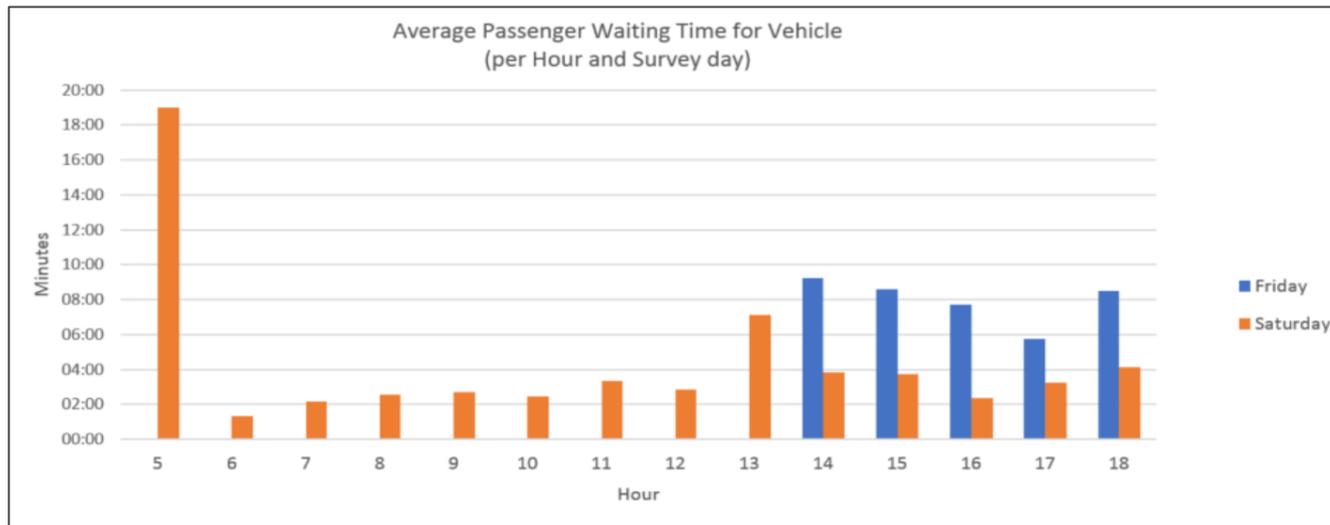


Figure 5-45: Average Passenger Waiting Time for a Vehicle at the BSQ Rank

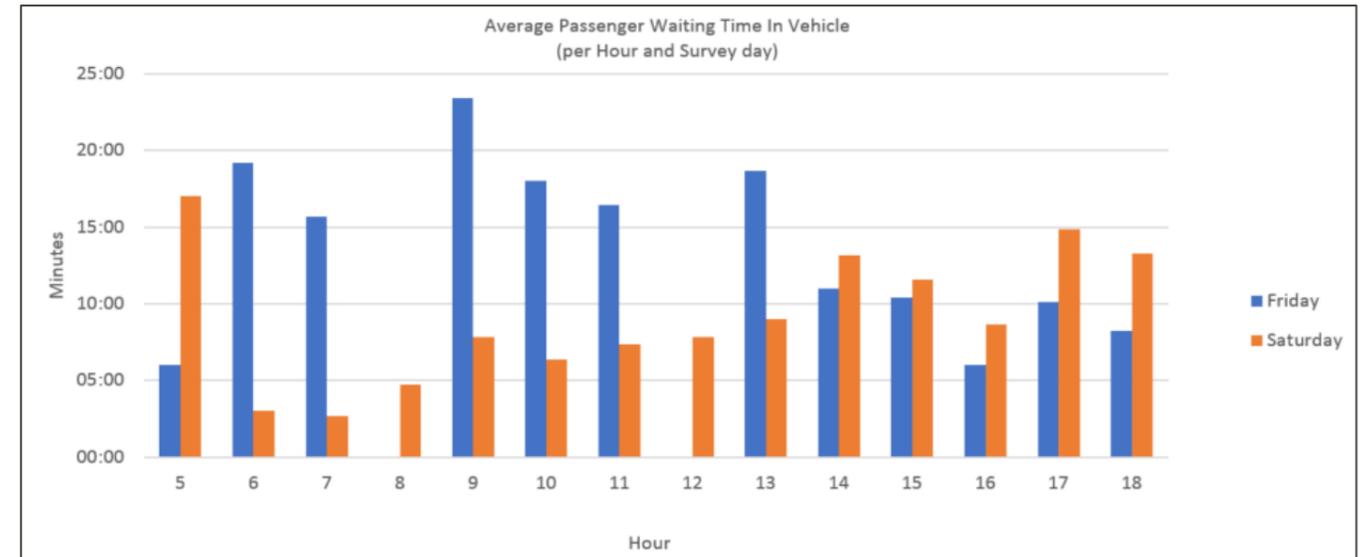


Figure 5-46: Average Passenger In-Vehicle Waiting Time at the BSQ Rank

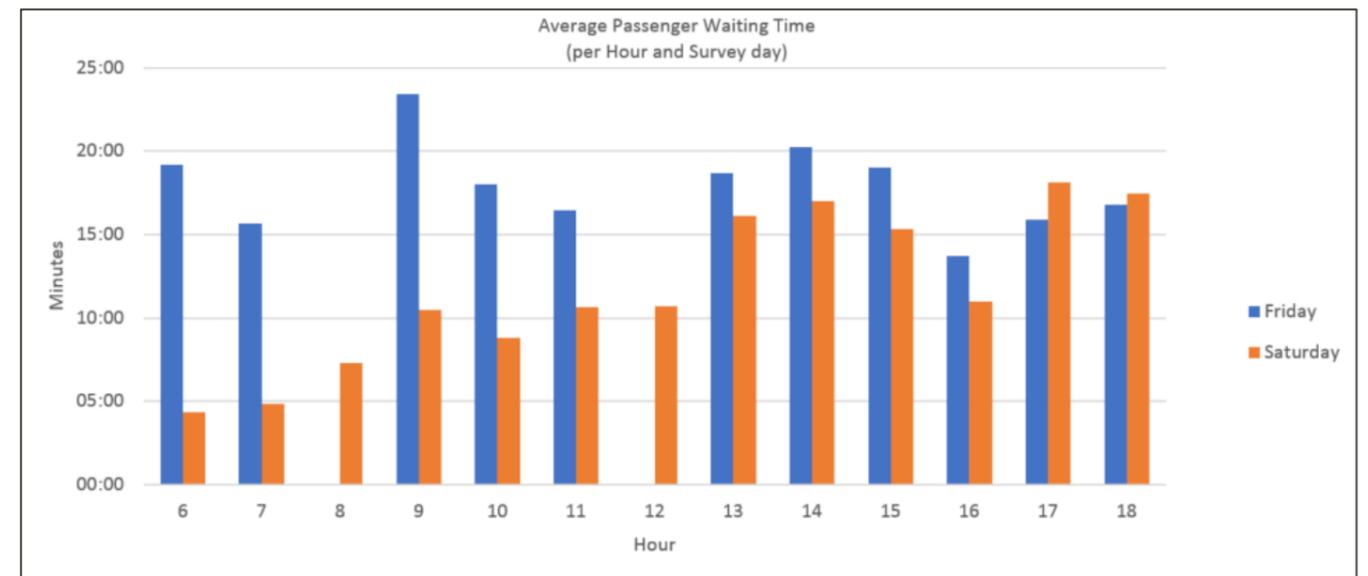


Figure 5-47: Average Passenger Waiting Time at the BSQ Rank

Figure 5-48 and Figure 5-49 represents the average passenger waiting times for the Mafora Central rank with acceptable waiting times in the order of 12 minutes.

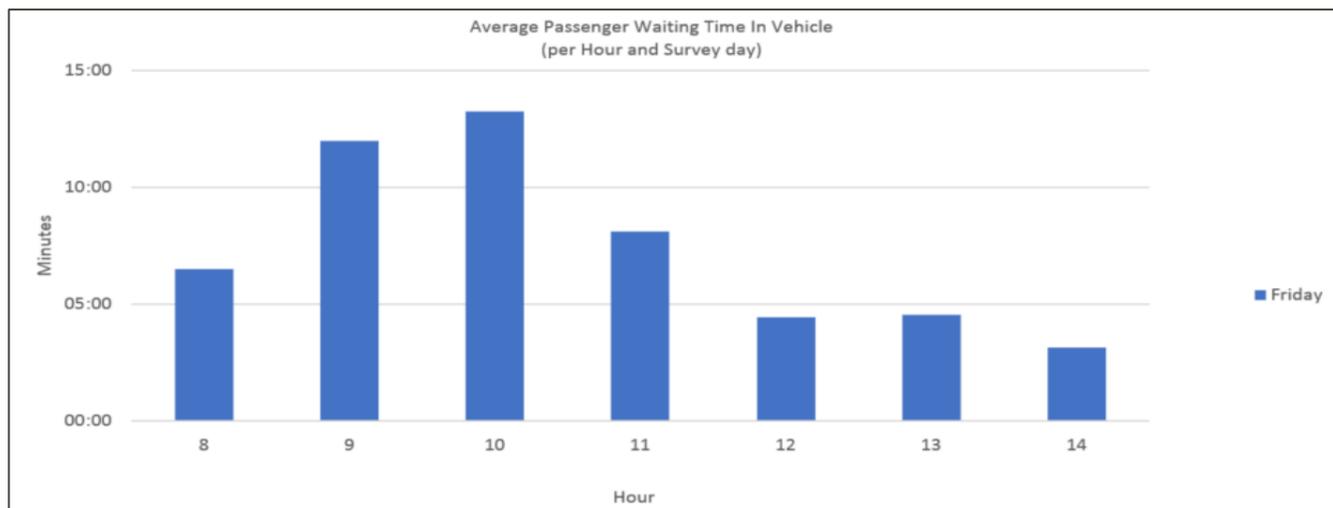


Figure 5-48: Average Passenger In-Vehicle Waiting Time at the Mafora Central Rank

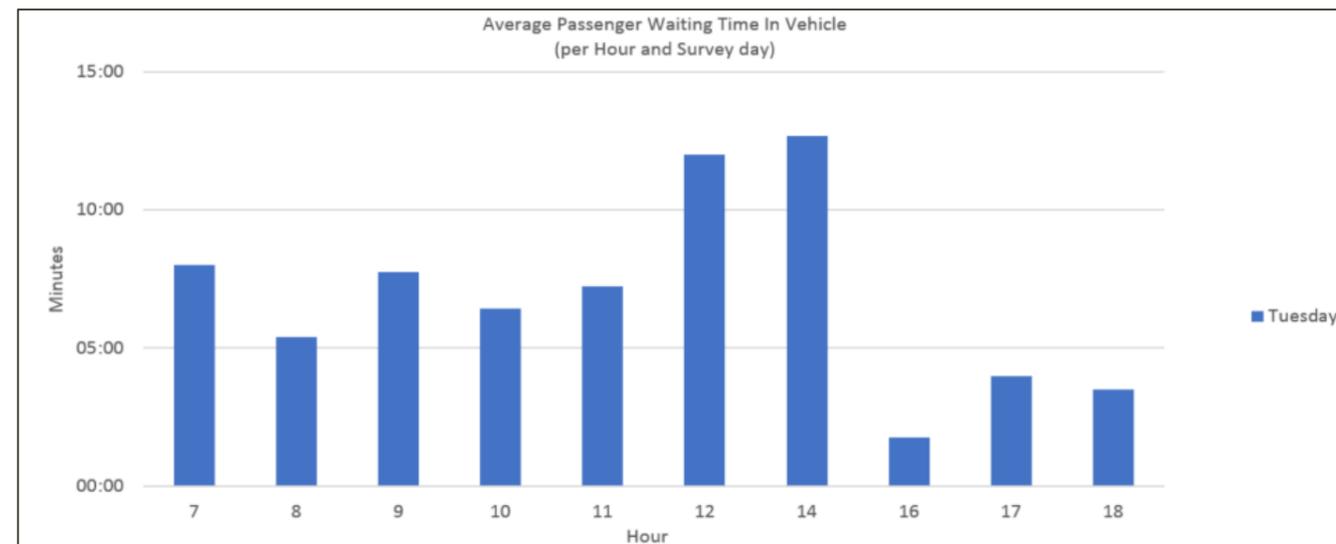


Figure 5-51: Average Passenger In-Vehicle Waiting Time at the Phahameng 4+1 Rank

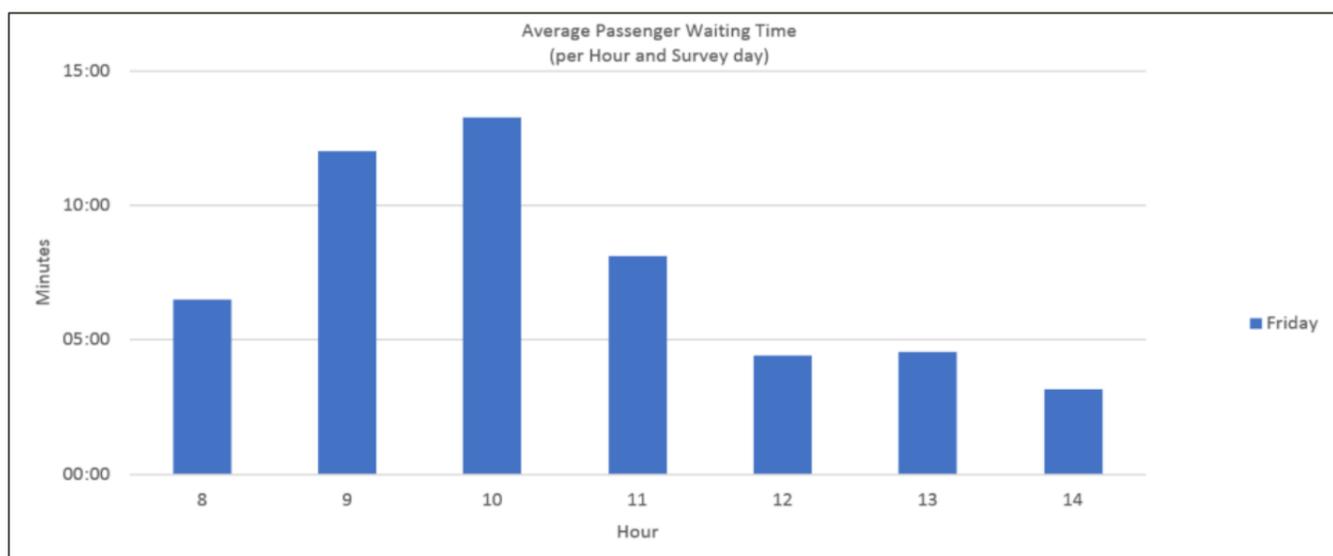


Figure 5-49: Average Passenger Waiting Time at the Mafora Central Rank

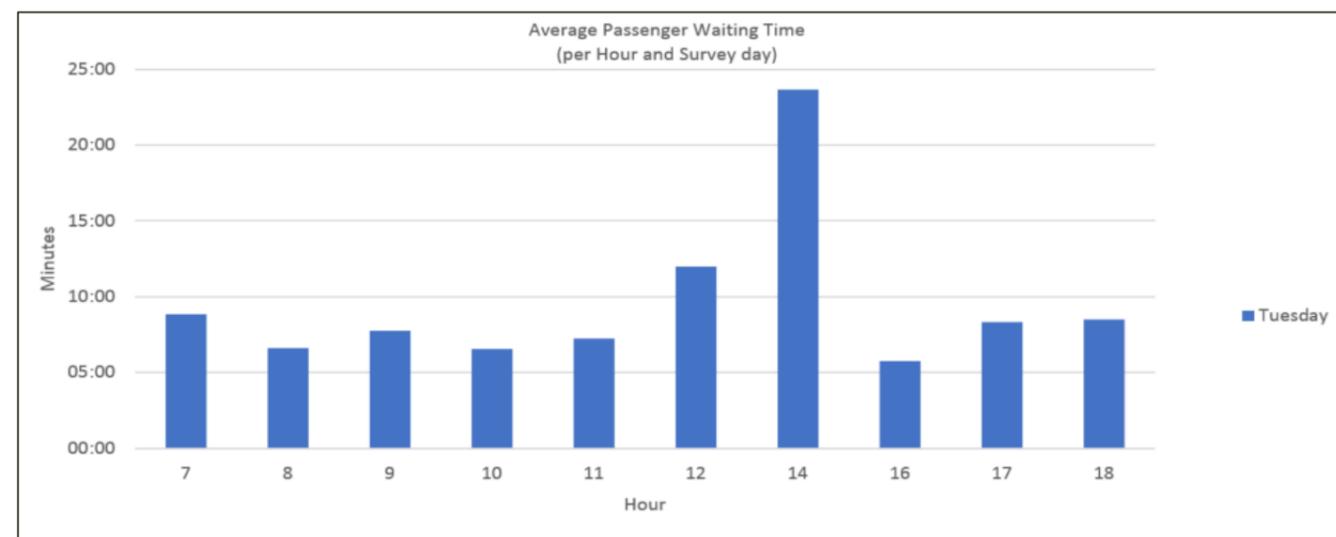


Figure 5-52: Average Passenger Waiting Time at the Phahameng 4+1 Rank

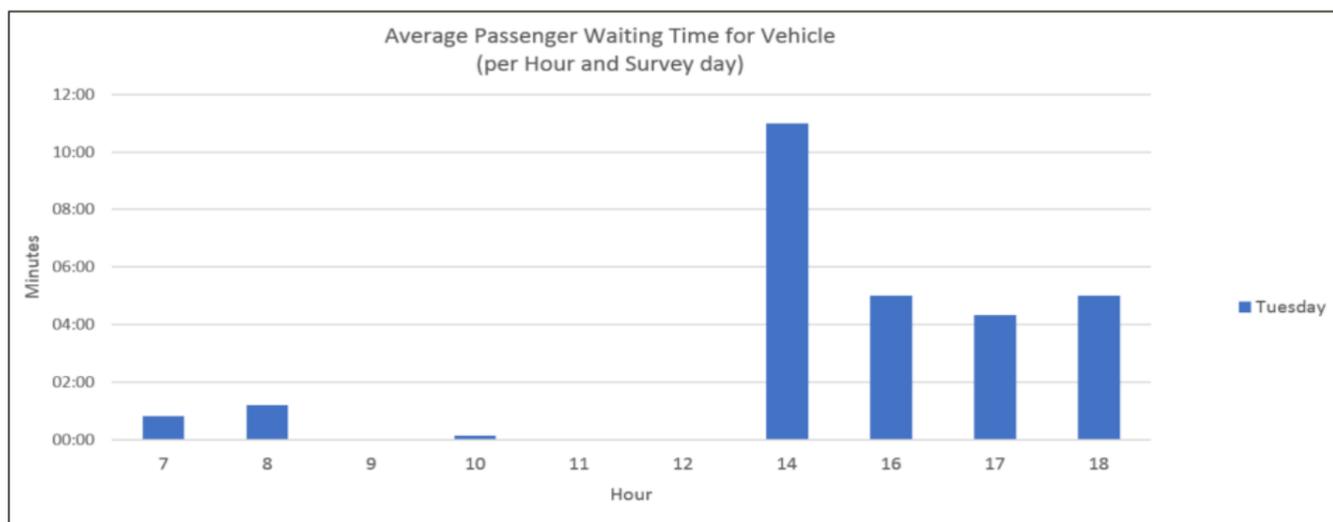


Figure 5-50: Average Passenger Waiting Time for a Vehicle at the Phahameng 4+1 Rank

Figure 5-50 to Figure 5-52 presents the average passenger waiting times for the Phahameng 4+1 Rank with high waiting times around 14:00 on Tuesday, for the remainder of the day acceptable total waiting time was recorded.

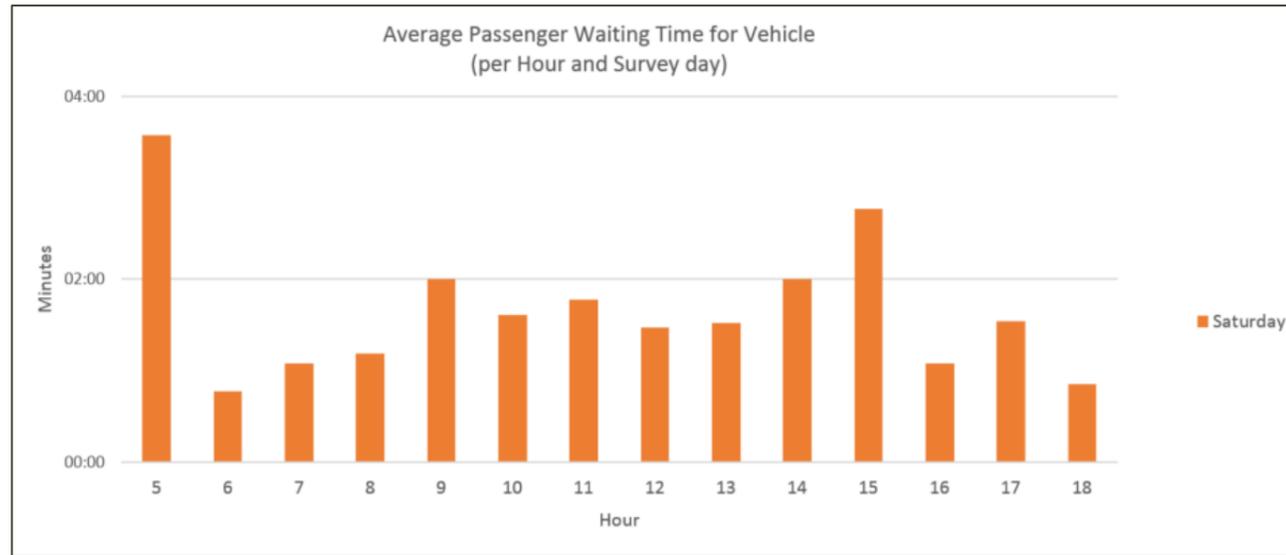


Figure 5-53: Average Passenger Waiting Time for a Vehicle at the Sowesto Rank

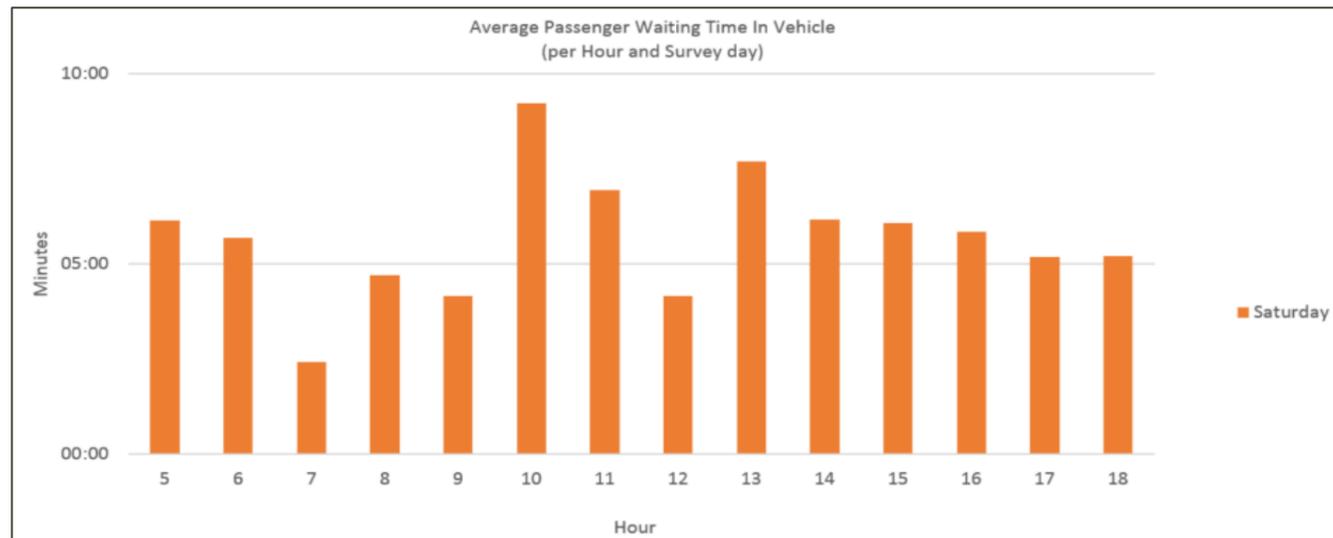


Figure 5-54: Average Passenger In-Vehicle Waiting Time at the Sowesto Rank

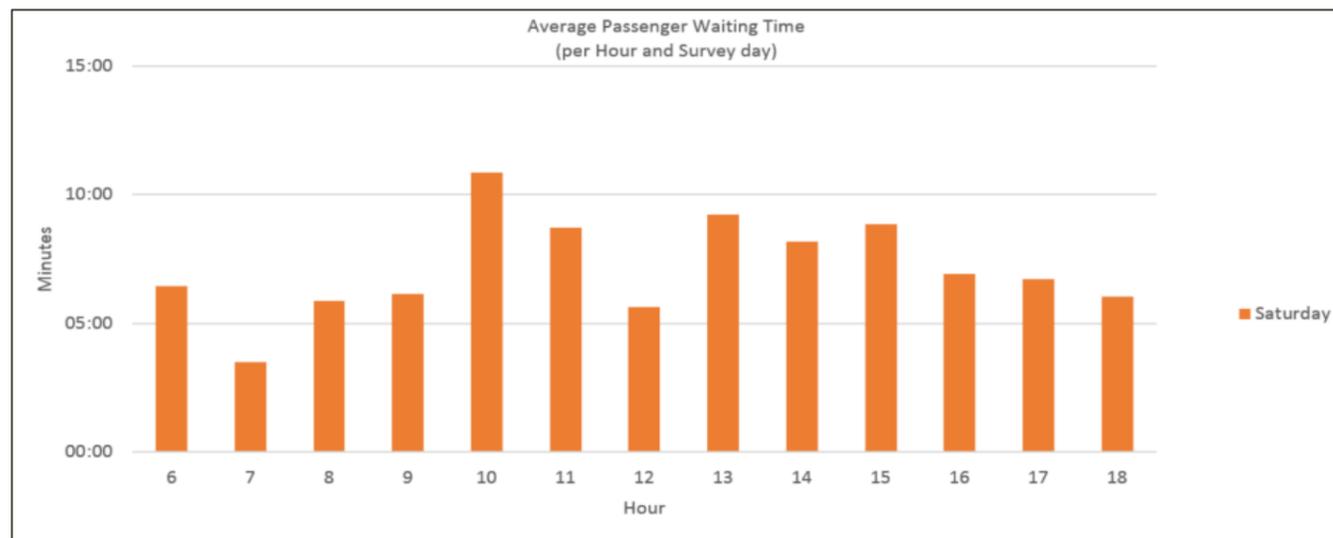


Figure 5-55: Average Passenger Waiting Time at the Sowesto Rank

Figure 5-53 to Figure 5-55 presents the average waiting times for passenger for a Saturday for the Sowesto Rank with acceptable waiting times.

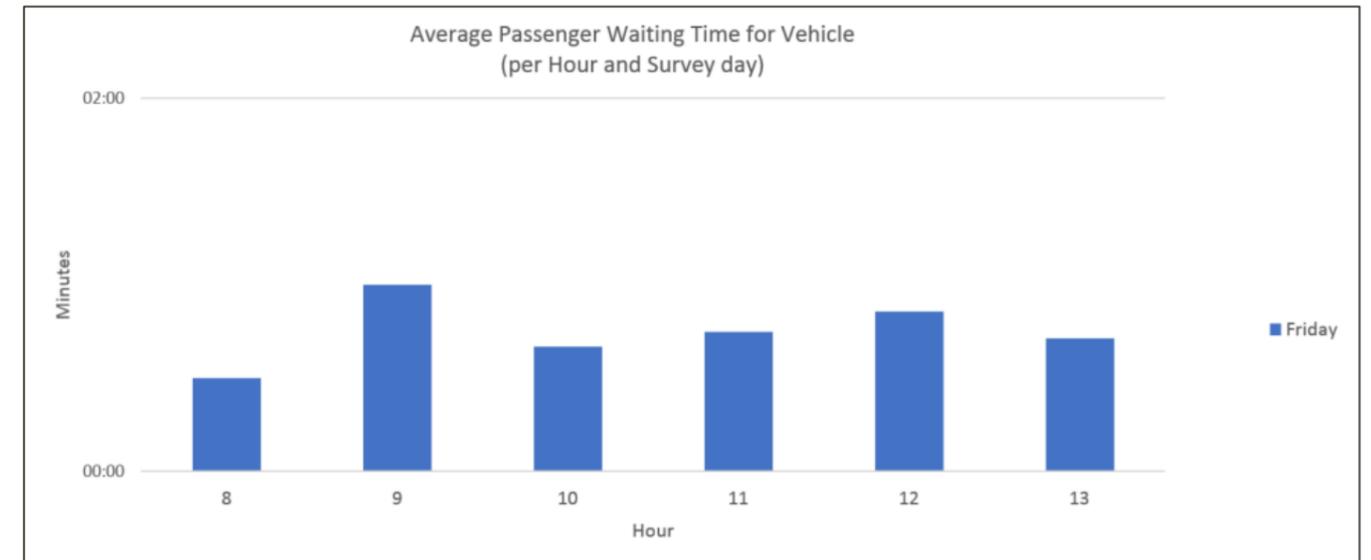


Figure 5-56: Average Passenger Waiting Time for a Vehicle at the Twin City Rank

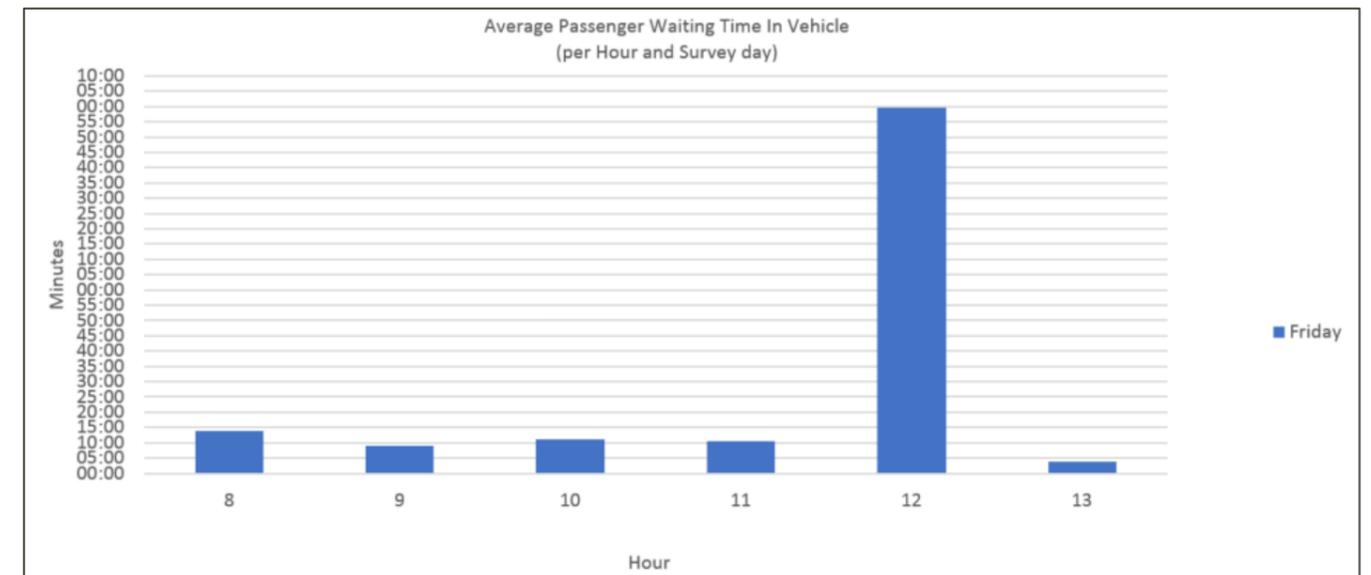


Figure 5-57: Average Passenger In-Vehicle Waiting Time at the Twin City Rank

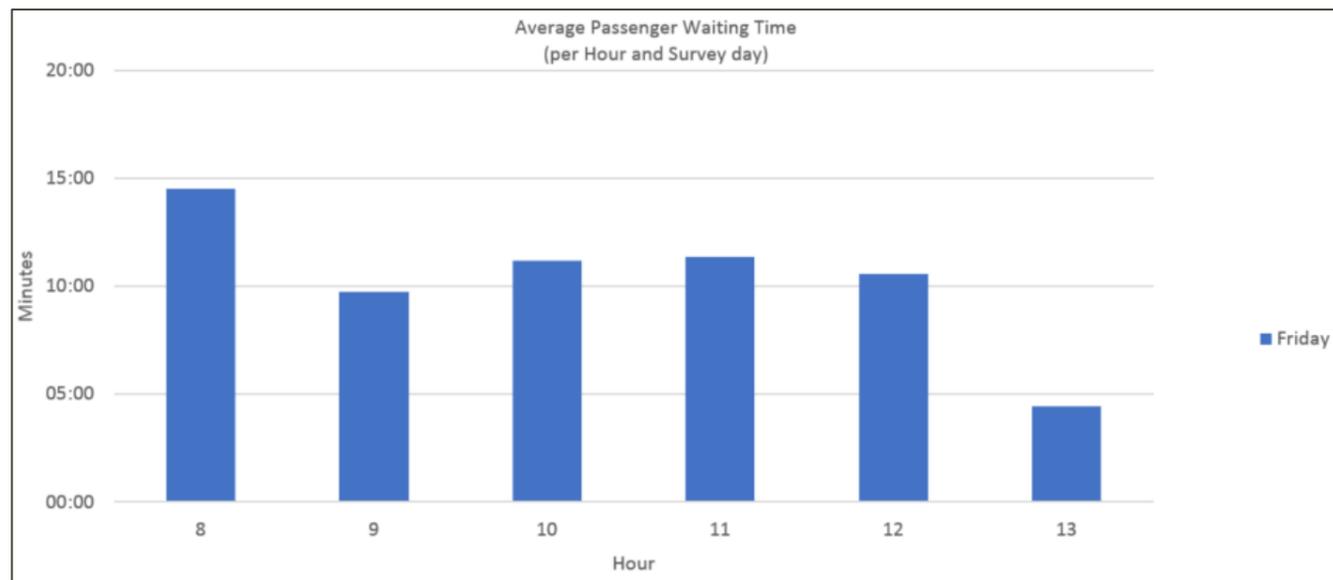


Figure 5-58: Average Passenger Waiting Time at the Twin City Rank

Figure 5-56 to Figure 5-58 presents the average waiting times for passenger for a Friday for the Twin City Rank with acceptable waiting times.

5.3.6 Conclusion

From the above figures it is clear that specific facilities recorded long average passenger waiting times during Friday and Saturday mornings. These ranks and the average passenger waiting times are as follows:

- Botshabelo Blue rank – 34 minutes,
- Industrial rank – 55 minutes (,
- Thaba Nchu 4+1_SB rank – 27 minutes,
- Thaba Nchu 4+1_JB rank – 42 minutes, and
- BSQ rank – 23 minutes.

The reasons for the abovementioned longer than average passenger waiting times should be investigated and rectified in order to reduce the total passenger travel times. It might even be possible that passengers in some instances have to wait longer to board a taxi or be in the vehicle than their journey time to their final destination.

5.3.7 Minibus-Taxi User Cost

The taxi user cost was also gathered during the on-board survey process (9 cycles) in order to determine the current base cost for commuters to travel from one destination to another. The ticket costs per route was determined from the taxi industry whereby it will form the base case for the development of the IP|TN compensation model. The price per trip paid by commuters are currently used to cover the direct operational costs (profit included) incurred by the taxi industry. The taxi industry in Mangaung do not receive any form of operational subsidy from Government at present. It should however also be noted that the taxi user costs for Mangaung is a based on a flat fare for specific routes or destinations. The fare is not distance based and as such some cross subsidisation might take place by shorter distance commuters to those commuters that travel the longer distances.

The trip costs paid by commuters recorded during September 2017 are presented in Table 5-12.

Table 5-12: Minibus Taxi user Costs

From (Origin)	To (Destination)	% Daily Kilometres Travelled	Cost per Single Trip	% Daily Passengers (Market Share)	% Contribution to Total Fare Income
Bloemfontein CBD (Intermodal Facility)	Mafora Central	7.4%	R10.00	5.66%	
	Mafora East	8.7%	R10.00	6.17%	
	Mafora West	9.5%	R10.00	8.40%	
	Ipopeng	8.0%	R10.00	5.87%	
	Brandwag	4.7%	R10.00	9.27%	
	Universitas	8.4%	R12.00	8.57%	
	Langenhoven Park	8.6%	R12.00	7.74%	
	Turflaagte	13.7%	R10.00	12.06%	
	Freedom Square	7.2%	R10.00	7.44%	
	Heidedal	9.4%	R10.00	9.55%	
	Namibia	6.2%	R10.00	6.68%	
	Hyperama	8.3%	R10.00	12.58%	

It should however be noted that no monthly ticket discount for frequent users are reflected in the user costs mentioned in the table above.

5.3.8 Minibus-Taxi Stops

The electronic on-board taxi survey captured all stop locations made by the taxis belonging to the GBTA. The results of the survey show the following number of Taxi stops for the GBTA Association, namely:

- GBTA (Network 1) – 12 stops,
- GBTA (Network 2) – 18 stops, and
- GBTA (Network 3) – 17 stops.

The locations of these stops are listed in Table 5-13.

Table 5-13: Taxi Stops on GBTA Routes

Network	Stations/Stops	X - Coord	Y - Coord
GBTA - Network 1	Batho Police Station Pick Up Point	-29.1345	26.2267
	Bloemside 1	-29.1514	26.2612
	Devis St	-29.1344	26.2398
	Engen	-29.1322	26.2378
	Grassland Super Market	-29.1185	26.2253
	Heidedal Police Station	-29.1184	26.2252
	Hostel 1	-29.1339	26.2386
	Maitland	-29.1182	26.225
	Masakhane	-29.1445	26.2489
	Meadows	-29.1653	26.2831
	Phelindaba	-29.1211	26.2249
	Shoprite	-29.1824	26.2346
	Twin City Mall	-29.1423	26.2522

Network	Stations/Stops	X - Coord	Y - Coord
GBTA - Network 2	Academy	-29.1272	26.2328
	Anna Maggerman	-29.1492	26.2514
	Cross Rd (Namibia & Freedom)	-29.1191	26.2259
	Freedom Square	-29.1696	26.2608
	Home Affairs	-29.1701	26.2355
	Ipopeng	-29.1208	26.225
	KFC	29.1700	26.2360
	Mafora Central	-29.1181	26.225
	Mafora East	-29.1211	26.2248
	Mafora West	-29.1203	26.2225
	Maphisa	-29.1656	26.2369
	Monape Street	-29.1554	26.2538
	Pelonomi Hospital	-29.1436	26.248
	Phahameng 4+1	-29.1615	26.239
	Rocklands	-29.1746	26.2344
	SA Truck	-29.1726	26.2213
Turflagte Cross	-29.2028	26.2725	
Vista Park	-29.184	26.2171	
GBTA - Network 3	Bainsvlei	-29.0768	26.1509
	Brandwag	-29.1185	26.226
	BSQ (Long-distance)	-29.1227	26.2261
	Casino	-29.1728	26.1768
	Fauna	-29.1648	26.1894
	Hypermarket	-29.145	26.1808
	Hyperama	-29.1565	26.1914
	Langenhoven Park	-29.0666	26.1361
	Lourier Park	-29.1795	26.1779
	Makro	-29.1272	26.1562
	Mimosa	-29.1075	26.2002
	Northridge Mall	-29.0715	26.2353
	Rose Park Hospital	-29.1494	26.1794
	Sowesto	-29.1228	26.2243
	Tempe	-29.0979	26.1888
	UFS	-29.1078	26.187
	Universitas Hospital	-29.1181	26.1851

It is further important to note that these taxi stops were individually assessed to determine the status from an infrastructure perspective, its functionality and the area covered and potential number of taxis which could make use of the facility in a fully developed state. A scoring system was developed to identify the status of existing stops or facilities and its functionality. The criteria and the scoring are presented in Table 5-14.

Table 5-14: Evaluation Criteria

Scores	Status of Facility Criteria	Scores	Functionality of Facility Criteria
1	Formal – infrastructure present, watertight surfacing and fenced-off.	1	Ranking Facility
2	Semi-formal - no-Infra, dedicated unsurfaced area and not fenced	2	Holding (overflow) area

3	Informal - No-infrastructure exists, no dedicated area, no fencing.	3	Load & Drop-off point
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In order to determine the usable area of facilities it was assumed that between 60 and 70% of the area remains available after provision for turning movements, walkways and passing lanes are provided in a taxi facility design The available area was then divided by the area taken up by a standard parking bay (7m *2,5m = 15m²) in order the obtain an estimated number of taxi vehicles which the facility would be able to accommodate. The above-mentioned criteria were applied and the following results were obtained (see Table 5-15).

Table 5-15: Taxi Stop information along GBTA Routes

Network	Stations/Stops	Status of Facility	Functionality of Facility	Scaled Facility Area (m ²)	Estimated Vehicle Capacity	
GBTA - Network 1	Batho Police Station Pick Up Point	4	3	-	0	
	Bloemside 1	4	3	140	9	
	Devis St	3&4	3	2 441	163	
	Engen	1	3	71	5	
	Grassland Super Market	4	2	155	10	
	Heidedal Police Station	4	2	155	10	
	Hostel 1	3	3	384	26	
	Maitland	4	2	73	5	
	Masakhane	4	3	176	12	
	Meadows	4	3	-	0	
	Phelindaba	4	2	217	14	
	Shoprite	4	3	-	0	
	Twin City Mall	1	1	901	60	
	GBTA - Network 2	Academy	4	3	175	12
		Anna Maggerman	4	3	-	0
		Cross Rd (Namibia & Freedom)	4	2	313	21
Freedom Square		4	3	383	26	
Home Affairs		4	3	-	0	
Ipopeng		4	2	324	22	
KFC		4	3	205	14	
Mafora Central		4	2	73	5	
Mafora East		4	2	315	21	
Mafora West		4	2	575	38	
Maphisa		4	3	-	0	
Monape Street		4	3	139	9	
Pelonomi Hospital		1	3	233	16	
Phahameng 4+1		4	3	-	0	
Rocklands		4	3	252	17	
SA Truck		4	3	186	12	
Turflagte Cross		4	3	-	0	
Vista Park		4	3	-	0	
GBTA - Network 3	Bainsvlei	4	3	-	0	
	Brandwag	4	2	584	39	
	BSQ (Long-distance)	1	1	7 218	481	
	Casino	4	3	-	0	
	Fauna	2	3	3 051	203	
	Hypermarket	4	3	32	2	
	Hyperama	4	3	424	28	
	Langenhoven Park	3	3	-	0	
Lourier Park	2	3	545	36		

Network	Stations/Stops	Status of Facility	Functionality of Facility	Scaled Facility Area (m²)	Estimated Vehicle Capacity
	Makro	4	3	-	0
	Mimosa	4	3	74	5
	Northridge Mall	4	3	138	9
	Rose Park Hospital	4	3	-	0
	Sowesto	2	1	1 298	87
	Tempe	2	2	3 832	255
	UFS	1	2	2 234	149
	Universitas Hospital	1	3	-	0

Note: These values are only estimates and proper designs should be conducted to determine the actual number of vehicles which each facility could accommodate.

Further to the aspects mentioned above, it should be noted that some of these facilities are situated on either private property or within existing road reserves. Proper assessments will have to be conducted to determine whether a taxi stop can remain or whether it should be relocated. The stops within road reserves create dangerous situations where vehicles and passengers alike have to enter or exit stops to board or alight vehicles.

During the assessment of the stops it was also observed that inadequate pedestrian safety measures exist around locations of moderate to high vehicle movement. These areas are at lodges, the casino, shopping centres, schools and major road crossings. The possibility to create bus/taxi laybys should also be investigated as a limited number of these laybys were observed.

5.4 Bus Operations

A substantial component of the public transport system is currently rendered by buses belonging to Itumeleng Bus Services (t/a Interstate Bus Lines - IBL). These bus operated services are contracted to IBL which predominantly focuses on the long-distance transport of commuters from areas such as Botshabelo, Thaba Nchu and Soutpan areas. These contracted services were extensively surveyed and recorded by the Mangaung Metropolitan Municipality during 2016 in order to understand the full extent of the bus service, the number of passengers transported on a daily basis as well as the cost implications (subsidies included) to commuters and government alike. The detailed bus investigation formed part of the Mangaung IPTN investigation and therefore the report known as “*The Collection of Operational Information on Subsidised Bus Services dated 25 October 2016*” should be read in conjunction with this section of this report. This report thus only highlights specific status quo information relevant to this report.

5.4.1 Bus routes

Itumeleng Bus Service (IBL) are currently contracted by the Provincial Government to operate, on a contract bases, a subsidised public passenger transport service between Bloemfontein and Thaba Nchu, Botshabelo, Mangaung and Soutpan as well as distribution services from Central Park Terminus to Bloemfontein’s residential areas. These services rendered by IBL are generally performed by both standard/rigid buses and train/articulated buses.

The operations of the 5 tendered contracts are funded through the Public Transport Operational Grant (PTOG) by means of allocations made by National Treasury in terms of the Division of Revenue Act (DORA). These contracts with IBL to provide public transport services between Bloemfontein and Botshabelo, Thaba Nchu and Mangaung were entered into in 1998 and the services operating between Bloemfontein and Soutpan was entered into in January 2015. The particular contract numbers and fleet configurations are as follows:

- VT20282/98 (standard rigid buses and train buses),

- VT20283/98 (standard rigid buses and train buses),
- VT20284/98 (standard rigid buses),
- VT20285/98 (standard rigid buses),
- VT20286/98 (standard rigid buses).

According to the abovementioned contracts, these contract services are performed by 214 buses (203 peak and 11 spare buses). The split per contract and vehicle type are reflected in Table 5-16 below.

Table 5-16: Vehicle Type and Number per Subsidised Contract (2015/16)

Contracts	Standard Buses			Train Buses		
	Buses operating subsidised services		Buses operating unsubsidised services	Buses operating subsidised services		Buses operating unsubsidised services
	Peak No. Buses	Spare No. Buses		Peak No. Buses	Spare No. Buses	
VT20282S	57	3	3			
VT20282T				11	1	1
VT20283S	58	3	5			
VT20283T				58	2	5
VT20284S	6	0	1			
VT20285S	11	1	1			
VT20286S	2	1	0			
Sub - Totals	134	8	10	69	3	6
Totals	142			72		

Source: Mangaung IPTN - Report on the Collection of Operational Information on Subsidised Bus Services (2016)

The bus fleet reflected in the table above provides subsidised public transport services along specific routes. The operational network coverage of IBL is reflected in Figure 5-59 below.

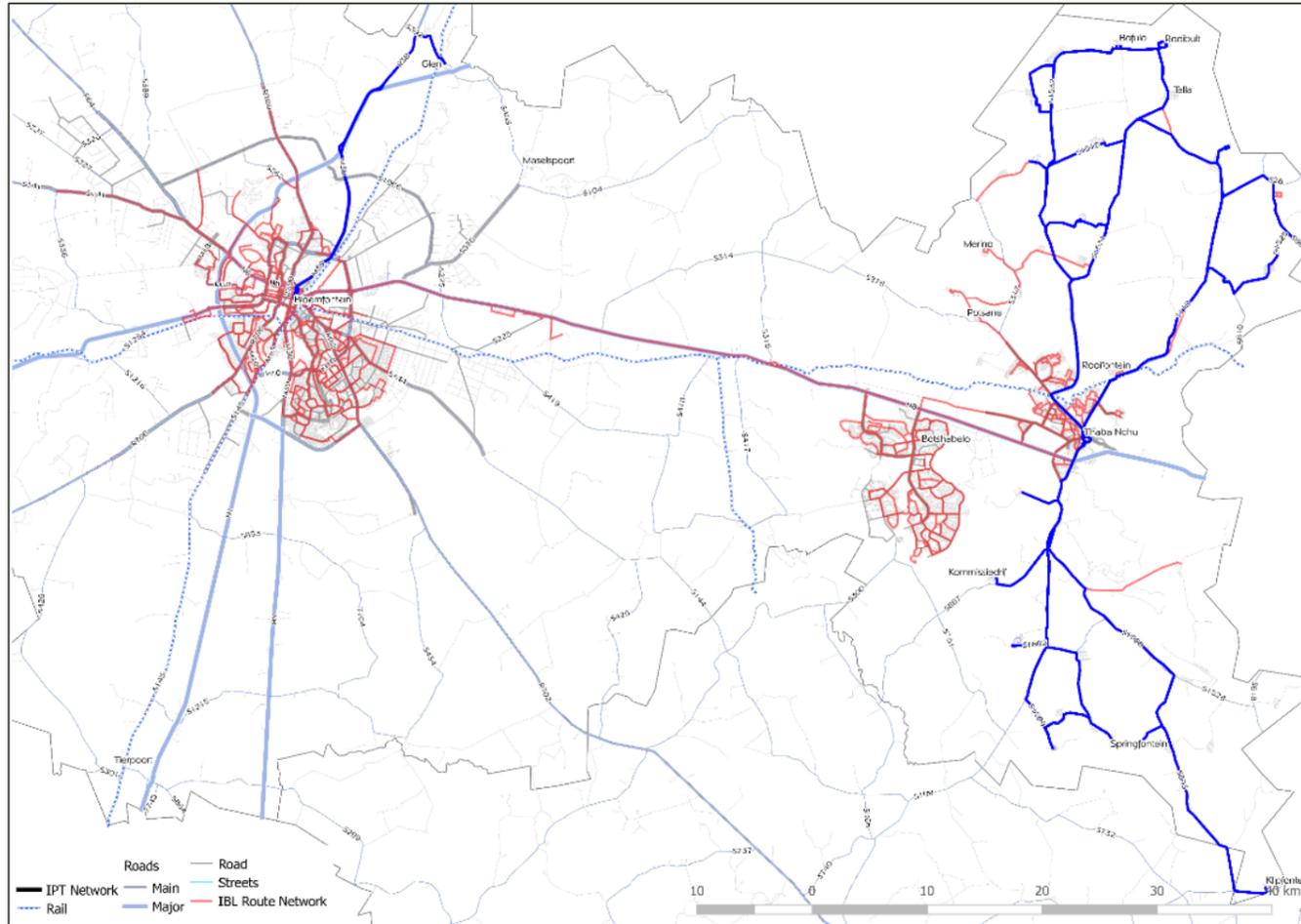


Figure 5-59: Subsidised bus routes for Bloemfontein, Botshabelo and Thaba Nchu.

The section below provides operational details of the IBL services provided per contract as well as details on the routes and their distances.

5.4.2 Bus Routes - Contract No. VT20282/98

This contract has two separate components namely one for standard buses and the other for train buses. The routes covered by these two service types are reflected in Table 5-24 and Table 5-18 below.

- VT20282/98 (standard rigid buses and train buses), the route origins, destinations and route length are provided in Table 5-17 and Table 5-18 respectively;
- VT20283/98 (standard rigid buses and train buses), the route origins, destinations and route length are provided in Table 5-19 and Table 5-20 respectively;
- VT20284/98 (standard rigid buses), the route origins, destinations and route length are provided in Table 5-21;
- VT20285/98 (standard rigid buses), the route origins, destinations and route length are provided in Table 5-22’;
- According to contract VT20285 provision is made for public passenger transport services from various origins in areas north of Thaba Nchu to destinations in Thaba Nchu and Bloemfontein). A number of 31 individual routes are operated under this contract. These routes (both directions) and their specific details are listed in Table 5-22 below.

- VT20286/98 (standard rigid buses), the route origins, destinations and route length are provided in Table 5-23.

Table 5-17: Bus Route Numbers, Description and Length for Contract VT20282S (2015/16)

Route No	From	To	Route Length (km)
093A	ZONE 1	CENTRAL PARK	79,0
093B	CENTRAL PARK	ZONE 1	83,0
093B	ZONE 1	CENTRAL PARK	83,0
093C	CENTRAL PARK	ZONE 1	78,0
093D	CR SWART	ZONE 1	89,0
093D	ZONE 1	PELONOMI	89,0
094A	CENTRAL PARK	UNIT 1	70,0
094A	UNIT 1	CENTRAL PARK	70,0
094B	CENTRAL PARK	ZONE 5	75,0
094B	ZONE 5	CENTRAL PARK	75,0
094C	SAKANYOKA	CENTRAL PARK	75,0
094D	CENTRAL PARK	MAKURUNG	75,6
094D	MAKURUNG	CENTRAL PARK	75,6
097A	MOKWENA	CENTRAL PARK	81,0
097A	MOROKA	CENTRAL PARK	69,0
097B	CENTRAL PARK	MOKOENA	81,0
098A	AIR FORCE BASE	ZONE1	81,0
098B	TEMPE	THABA NCHU	75,0
098B	THABA NCHU	TEMPE	75,0
098C	ZONE1	TEMPE	87,0
098D	ZONE1	AIR FORCE BASE	81,0
128A	PHELINDABA	UNIVERSITAS HOSP	22,0
129A	BLOEMANDA	UOVS	20,0

Table 5-18: Bus Route Numbers, Description and Length for Contract VT20282T (2015/16)

Route No	From	To	Route Length (km)
0064	ROCKLANDS	CENTRAL PARK	11,0
0093	ZONE 1	CENTRAL PARK	74,0
0094	ZONE 2	CENTRAL PARK	77,0
0095	CENTRAL PARK	ZONE 3 & 4	76,0
0095	ZONE 3 & 4	CENTRAL PARK	76,0
0098	SELOSESHA	CENTRAL PARK	75,0
0142	MAFORA	CENTRAL PARK	11,0
093A	CENTRAL PARK	ZONE 1	79,0
093A	ZONE 1	CENTRAL PARK	79,0
093B	CENTRAL PARK	ZONE 1	79,0
093B	CENTRAL PARK	ZONE 1	83,0
093B	ZONE 1	CENTRAL PARK	83,0
093C	CENTRAL PARK	ZONE 1	78,0
097A	MOROKA	CENTRAL PARK	69,0

Table 5-19: Bus Route Numbers, Description and Length for Contract VT20283S/98 (2015/16)

Route No	From	To	Route Length (km)
0001	A1	CENTRAL PARK	60,0
0001	CENTRAL PARK	A1	60,0
0002	A4	CENTRAL PARK	61,0
0002	CENTRAL PARK	A4	61,0
0003	C2	CENTRAL PARK	57,0
0003	CENTRAL PARK	C2	57,0
0004	CENTRAL PARK	D1	62,0
0004	D1	CENTRAL PARK	62,0
0005	CENTRAL PARK	J1	52,0
0005	J1	CENTRAL PARK	52,0
0006	CENTRAL PARK	J3	52,0

Route No	From	To	Route Length (km)
0006	J3	CENTRAL PARK	52,0
0007	CENTRAL PARK	K6	51,0
0007	K6	CENTRAL PARK	51,0
0008	CENTRAL PARK	M1	65,0
0008	M1	CENTRAL PARK	65,0
0009	CENTRAL PARK	N1	61,0
0009	N1	CENTRAL PARK	61,0
0010	CENTRAL PARK	S1	60,0
0010	S1	CENTRAL PARK	60,0
0011	CENTRAL PARK	T1	58,0
0011	T1	CENTRAL PARK	58,0
0012	CENTRAL PARK	U7	61,0
0012	U7	CENTRAL PARK	61,0
0013	CENTRAL PARK	W4	59,0
0013	W4	CENTRAL PARK	59,0
0016	BLOEMDUSTRIA	N1	60,0
0026	CENTRAL PARK	FAIRWAYS	53,0
0028	CENTRAL PARK	N6	63,0
0028	N6	CENTRAL PARK	63,0
0029	CENTRAL PARK	H2	55,0
0029	H2	CENTRAL PARK	55,0
0030	FAIRWAYS	CENTRAL PARK	53,0
0031	KORTPAD	CR SWART	59,0
0033	K6	TRANSWERKE	67,0
0033	TRANSWERKE	K6	67,0
0034	C1	CENTRAL PARK	61,0
0036	E3	CENTRAL PARK	60,0
0039	F3	CENTRAL PARK	63,0
0040	BAINSVLEI	CENTRAL PARK	15,0
0040	CENTRAL PARK	BAINSVLEI	15,0
0041	BAYSWATER	CENTRAL PARK	8,0
0041	CENTRAL PARK	BAYSWATER	8,0
0042	BRANDWAG	CENTRAL PARK	6,0
0042	CENTRAL PARK	BRANDWAG	6,0
0044	CENTRAL PARK	DAN PIENAAR	8,0
0044	DAN PIENAAR	CENTRAL PARK	8,0
0046	CENTRAL PARK	FAUNA	11,0
0046	FAUNA	CENTRAL PARK	11,0
0047	CENTRAL PARK	FICHARDT PARK	10,0
0047	FICHARDT PARK	CENTRAL PARK	10,0
0051	CENTRAL PARK	HAMILTON	4,0
0052	CENTRAL PARK	HEUWELSIG	9,0
0052	HEUWELSIG	CENTRAL PARK	9,0
0053	CENTRAL PARK	HOSPITAALPARK	6,0
0053	HOSPITAALPARK	CENTRAL PARK	6,0
0054	CENTRAL PARK	LANGENHOVENPARK	13,0
0054	LANGENHOVENPARK	CENTRAL PARK	13,0
0056	CENTRAL PARK	PARKERAAD	3,0
0056	PARKERAAD	CENTRAL PARK	3,0
0058	CENTRAL PARK	NOORDHOEK	8,0
0058	NOORDHOEK	CENTRAL PARK	8,0
0059	CENTRAL PARK	OOSEINDE	6,0
0059	OOSEINDE	CENTRAL PARK	6,0
0062	CENTRAL PARK	PELLISSIER	10,0
0062	PELLISSIER	CENTRAL PARK	10,0
0067	CENTRAL PARK	UNIVERSITAS	9,0
0067	UNIVERSITAS	CENTRAL PARK	9,0
0068	CENTRAL PARK	UNIVERSITAS WEST	9,0

Route No	From	To	Route Length (km)
0068	UNIVERSITAS WEST	CENTRAL PARK	9,0
0069	CENTRAL PARK	VOGUE	8,0
0069	VOGUE	CENTRAL PARK	8,0
0070	CENTRAL PARK	WILGEHOF	8,0
0070	WILGEHOF	CENTRAL PARK	8,0
0071	CENTRAL PARK	UOVS	6,0
0071	UOVS	CENTRAL PARK	6,0
0099	BRANDFORT	CENTRAL PARK	60,0
0099	CENTRAL PARK	BRANDFORT	60,0
0151	CENTRAL PARK	BOTS HOSPITAL	58,0
001A	A1	CENTRAL PARK	67,0
001A	CENTRAL PARK	A1	67,0
001B	CENTRAL PARK	A1	67,0
004A	CENTRAL PARK	D1	66,0
005A	CENTRAL PARK	J1	63,0
005A	J1	CENTRAL PARK	63,0
005B	CENTRAL PARK	G2	63,0
008A	CENTRAL PARK	M4	62,0
008A	M4	CENTRAL PARK	62,0
009B	N1	CENTRAL PARK	64,0
012A	CENTRAL PARK	U7	67,0
031A	CR SWART	N4	84,0
046A	CENTRAL PARK	DE WET PARK	8,0
046A	DE WET PARK	CENTRAL PARK	8,0
046B	FAUNA MUN	CENTRAL PARK	8,0
046C	CENTRAL PARK	FAUNA	12,0
046C	FAUNA	CENTRAL PARK	12,0
051A	CENTRAL PARK	HAMILTON	4,0
051A	Hamilton	CENTRAL PARK	4,0
051B	CENTRAL PARK	HAMILTON	4,0
051B	HAMILTON PAO	CENTRAL PARK	4,0
35A4	BLOCK W4	TEMPE	73,0
35A7	A5	TEMPE	73,0
35D1	BLOCK D1	TEMPE	73,0
35D1	TEMPE	BLOCK M4	73,0
35G1	BLOCK G2	TEMPE	73,0
35G1	TEMPE	BLOCK N1	73,0
35K6	BLOCK K6	TEMPE	73,0
35K6	TEMPE	BLOCK K6	73,0

Table 5-20: Bus Route Numbers, Description and Length for Contract VT20283T/98 (2015/16)

Route No	From	To	Route Length (km)
0001	A1	CENTRAL PARK	60,0
0001	CENTRAL PARK	A1	60,0
0002	A4	CENTRAL PARK	61,0
0002	CENTRAL PARK	A4	61,0
0003	C2	CENTRAL PARK	57,0
0003	CENTRAL PARK	C2	57,0
0004	CENTRAL PARK	D1	62,0
0004	D1	CENTRAL PARK	62,0
0005	CENTRAL PARK	J1	52,0
0005	J1	CENTRAL PARK	52,0
0007	CENTRAL PARK	K6	51,0
0007	K6	CENTRAL PARK	51,0
0009	CENTRAL PARK	N1	61,0
0009	N1	CENTRAL PARK	61,0
0012	CENTRAL PARK	U7	61,0
0012	U7	CENTRAL PARK	61,0

Route No	From	To	Route Length (km)
0013	CENTRAL PARK	W4	59,0
0013	W4	CENTRAL PARK	59,0
001A	A1	CENTRAL PARK	67,0
001A	CENTRAL PARK	A1	67,0
0026	CENTRAL PARK	FAIRWAYS	53,0
0026	CENTRAL PARK	KORTPAD	53,0
0029	CENTRAL PARK	H2	55,0
0029	H2	CENTRAL PARK	55,0
0030	FAIRWAYS	CENTRAL PARK	53,0
0036	E3	CENTRAL PARK	60,0
0041	BAYSWATER	CENTRAL PARK	8,0
0041	CENTRAL PARK	BAYSWATER	8,0
0042	BRANDWAG	CENTRAL PARK	6,0
0044	CENTRAL PARK	DAN PIENAAR	8,0
0044	DAN PIENAAR	CENTRAL PARK	8,0
0047	CENTRAL PARK	FICHARDT PARK	10,0
0047	FICHARDT PARK	CENTRAL PARK	10,0
004A	CENTRAL PARK	D1	66,0
004A	D1	CENTRAL PARK	66,0
0051	CENTRAL PARK	HAMILTON	4,0
0051	HAMILTON	CENTRAL PARK	4,0
0052	CENTRAL PARK	HEUWELSIG	9,0
0052	HEUWELSIG	CENTRAL PARK	9,0
0054	CENTRAL PARK	LANGENHOVENPA	13,0
0054	LANGENHOVEN	CENTRAL PARK	13,0
0058	CENTRAL PARK	NOORDHOEK	8,0
0058	NOORDHOEK	CENTRAL PARK	8,0
0059	CENTRAL PARK	OOSEINDE	6,0
0059	OOSEINDE	CENTRAL PARK	6,0
005A	CENTRAL PARK	J1	63,0
005B	CENTRAL PARK	G2	63,0
005B	G2	CENTRAL PARK	63,0
0062	CENTRAL PARK	PELLISSIER	10,0
0062	PELLISSIER	CENTRAL PARK	10,0
0067	CENTRAL PARK	UNIVERSITAS	9,0
0067	UNIVERSITAS	CENTRAL PARK	9,0
0070	CENTRAL PARK	KWAGGAFONTEIN	10,0
0070	CENTRAL PARK	MAKRO	10,0
0070	CENTRAL PARK	WILGEHOF	8,0
0070	KWAGGAFONTEIN	CENTRAL PARK	10,0
0070	WILGEHOF	CENTRAL PARK	8,0
0081	CENTRAL PARK	KWAGGAFONTEIN	10,0
0099	CENTRAL PARK	BRANDFORT	60,0
0099	BRANDFORT	CENTRAL PARK	60,0
008A	CENTRAL PARK	M4	62,0
009A	N1	CENTRAL PARK	79,0
009B	N1	CENTRAL PARK	64,0
012A	CENTRAL PARK	U7	67,0
012A	U7	CENTRAL PARK	67,0
0146	CENTRAL PARK	WOODLAND HILLS	9,0
0146	WOODLANDS	CENTRAL PARK	9,0
051A	HAMILTON	CENTRAL PARK	4,0
051A	HAMILTON NAMPAK	CENTRAL PARK	4,0

Table 5-21: Bus Route Numbers, Description and Length for Contract VT20284S/98 (2015/16)

Route No	From	To	Route Length (km)
0106	KOMMISSIEDRIFT	THABA NCHU	33,0
0106	THABA NCHU	KOMMISSIEDRIFT	33,0

Route No	From	To	Route Length (km)
0110	KLIPFONTEIN	THABA NCHU	60,0
0110	SPRINGFONTEIN	THABA NCHU	60,0
0110	THABA NCHU	SPRINGFONTEIN	60,0
0111	THABA NCHU	WOODBIDGE	41,0
0111	WOODBIDGE	ESSO	41,0
0111	WOODBIDGE	THABA NCHU	41,0
0117	THABA NCHU SUN	ZONE 1	35,0
0117	ZONE 1	THABA NCHU SUN	35,0
106A	THABA NCHU	KOMMISSIEDRIFT	35,0
110A	SPRINGFONTEIN	THABA NCHU	90,0
110A	THABA NCHU	SPRINGFONTEIN	90,0
111A	THABA NCHU	WOODBIDGE	47,0
111A	WOODBIDGE	THABA NCHU	47,0
111B	WOODBIDGE	THABA NCHU	57,0
111C	ESSO	CENTRAL PARK	66,0

Table 5-22: Bus Route Numbers, Description and Length for Contract VT20285S/98 (2015/16)

Route No	From	To	Route Length (km)
0103	CENTRAL PARK	TALLA	94,0
0105	BOFULO	THABA NCHU	47,0
0105	THABA NCHU	BOFULO	47,0
0107	MARIASDAL	THABA NCHU	67,0
0107	THABA NCHU	MARIASDAL	67,0
0108	MERINO	THABA NCHU	29,0
0108	THABA NCHU	MERINO	29,0
0109	THABA NCHU	ROOIFONTEIN	11,0
0115	SPITSKOP	THABA NCHU	41,0
0115	THABA NCHU	SPITSKOP	41,0
0119	SEDIBA	THABA NCHU	67,0
0119	THABA NCHU	SEDIBA	67,0
0120	ROOIBULT	THABA NCHU	44,0
0120	THABA NCHU	ROOIBULT	44,0
0122	FELOANE	THABA NCHU	22,0
0122	THABA NCHU	FELOANE	22,0
0123	MORAGO	THABA NCHU	41,0
0123	THABA NCHU	MORAGO	41,0
0124	THABA NCHU	SEDITI	37,8
100A	CENTRAL PARK	MOROTO	102,0
100A	MOROTO	CENTRAL PARK	102,0
100B	CENTRAL PARK	MARIASDAL	110,0
100B	MARIASDAL	CENTRAL PARK	110,0
103A	CENTRAL PARK	TALLA	99,0
103A	TALLA	CENTRAL PARK	99,0
103B	HOUTNEK	TALLA	26,0
105A	TALLA	THABA NCHU	52,0
105A	THABA NCHU	TALLA	52,0
107A	THABA NCHU	MARIASDAL	41,0
107A	THABA NCHU	MARIASDAL	67,0
107B	MARIASDAL	THABA NCHU	90,0
107B	THABA NCHU	MARIASDAL	90,0
107C	MARIASDAL	THABA NCHU	60,0
107C	THABA NCHU	MARIASDAL	60,0
107D	MARIASDAL	THABA NCHU	63,0
107E	THABA NCHU	TALLA	60,0
107F	SEDITI	THABA NCHU	41,0
108A	MERINO	THABA NCHU	22,0
108A	THABA NCHU	MERINO	22,0

Route No	From	To	Route Length (km)
108B	TIGER RIVER	THABA NCHU	32.0
109A	ROOIFONTEIN	THABA NCHU	20.0
115A	SPITSKOP	THABA NCHU	36.0
115A	THABA NCHU	SPITSKOP	36.0
115B	SPITSKOP	THABA NCHU	29.0
115B	THABA NCHU	SPITSKOP	29.0
119A	SEDIBA	THABA NCHU	52.0
119A	THABA NCHU	SEDIBA	52.0
119B	SEDIBA	THABA NCHU	42.0
119B	THABA NCHU	SEDIBA	42.0
123B	MORAGO	THABA NCHU	36.0
124B	MORAGO	THABA NCHU	45.0
124B	THABA NCHU	MORAGO	45.0
108A	MERINO	THABA NCHU	22.0
108A	THABA NCHU	MERINO	22.0
108B	TIGER RIVER	THABA NCHU	32.0
109A	ROOIFONTEIN	THABA NCHU	20.0
115A	SPITSKOP	THABA NCHU	36.0
115A	THABA NCHU	SPITSKOP	36.0
115B	SPITSKOP	THABA NCHU	29.0
115B	THABA NCHU	SPITSKOP	29.0
119A	SEDIBA	THABA NCHU	52.0
119A	THABA NCHU	SEDIBA	52.0
119B	SEDIBA	THABA NCHU	42.0
119B	THABA NCHU	SEDIBA	42.0
123B	MORAGO	THABA NCHU	36.0
124B	MORAGO	THABA NCHU	45.0
124B	THABA NCHU	MORAGO	45.0

Table 5-23: Bus Route Numbers, Description and Length for Contract VT20286S/98 (2015/16)

Route No	From	To	Route Length (km)
1	Soutpan	Central Park	47.9
2	Central Park	Soutpan	47.6

5.4.3 Passenger Trips

Table 5-24 provides a summary of the actual number of trips surveyed per weekday as well as the number of passengers transport during these periods.

Table 5-24: Trip numbers and Passenger Numbers for all routes

Day of the week	Units	Before 14:00	After 14:00	Daily Total
Weekday(Wed)	Passengers	44 357	39 244	83 601
Friday	Pax	43 335	36 154	79 489
Mon-Fri	Trips	788	838	1626
Saturday	Pax	11 957	8 562	20 519
	Trips	323	230	553

The annual operational statistics for the subsidised and unsubsidised services operated on all existing IBL contracts for the period March '15 to February '16 are summarised in Table 5-25 below.

Table 5-25: Annual Operational Statistics per Bus Contract (2015/16)

Annual Trip Data	VT20282S	VT20282T	VT20283S	VT20283T	VT20284	VT20285	VT20286
Trips Scheduled:	52 020	10 993	70 301	70 830	5 762	12 478	1 234
Trips Operated:	51 882	10 927	69 975	70 414	5 746	12 442	1 230
Kilometres Scheduled:	2 617 597	831 449	2 771 488	2 839 293	289 747	650 657	58 924
Kilometres Operated:	2 613 470	826 602	2 757 866	2 825 194	288 949	648 454	58 733
Standing Kilometres:	-	-	-	-	-	-	-
Cash Passengers:	318 695	111 739	262 104	472 181	44 806	81 420	18 260
MJT (Season) Passengers:	2 435 257	888 413	3 880 605	5 807 728	167 971	373 223	53 811
Total Passengers:	2 753 952	1 000 152	4 142 709	6 279 909	212 777	454 643	72 071
Average Passengers/trip:	53	92	59	89	37	37	59

5.4.4 Service Utilisation

According to the IBL service information the following service utilisation figures per route number were determined and are reflected in Table 5-26 below.

Table 5-26: Service Utilisation per Bus Contract (2015/16)

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
282S	Forward	48	FREEDOM SQUARE	CENTRAL PARK	10	753	51880	81,06%
282S	Forward	61	PHASE 2	CENTRAL PARK	13	788	28409	42,41%
282S	Forward	63	PHELINDABA	CENTRAL PARK	9	993	52420	62,11%
282S	Forward	64	ROCKLANDS	CENTRAL PARK	11	275	18641	79,75%
282S	Forward	65	PHASE 4	CENTRAL PARK	11	751	49574	77,66%
282S	Forward	66	TURFLAAGTE	CENTRAL PARK	11	1226	61104	58,64%
282S	Forward	72	PETER SWART	CENTRAL PARK	8	503	27537	64,41%
282S	Forward	73	PHELINDABA	FICHARDT PARK	20	242	15556	75,62%
282S	Forward	74	PHELINDABA	DAN PIENAAR	15	243	13024	63,05%
282S	Forward	75	PHELINDABA	LANGENHOVENPARK	22	243	13825	66,93%
282S	Forward	76	PHELINDABA	PELLISSIER	19	243	8883	43,01%
282S	Forward	77	PHELINDABA	UNIVERSITAS	18	243	10352	50,12%
282S	Forward	79	PHELINDABA	WILGEHOF	17	242	8271	40,21%
282S	Forward	84	PHELINDABA	BAYSWATER	19	242	9795	47,62%
282S	Forward	85	PHASE 6	CENTRAL PARK	15	752	41166	64,40%
282S	Return	86	BLOEMDUSTRIA	ZONE 1	58	233	8163	41,22%
282S	Return	90	TRANSWERKE	ZONE1	81	243	11734	56,81%
282S	Forward	91	MOKWENA	TRANSWERKE	80	243	10504	50,85%
282S	Forward	93	ZONE 1	CENTRAL PARK	74	1784	97466	64,27%
282S	Forward	94	ZONE 2	CENTRAL PARK	77	761	56749	87,73%
282S	Forward	95	ZONE 4	CENTRAL PARK	75,6	234	11535	57,99%
282S	Forward	95	ZONE 3	CENTRAL PARK	76	1012	68866	80,06%
282S	Forward	96	GARAPULANA	CENTRAL PARK	72	251	15776	73,94%
282S	Forward	97	MOKOENA	CENTRAL PARK	71	1282	74556	68,42%
282S	Forward	98	SELOSESHA	CENTRAL PARK	75	1261	69365	64,72%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
282S	Forward	101	PARADYS	CENTRAL PARK	113	251	9650	45,23%
282S	Forward	102	ROOIFONTEIN	CENTRAL PARK	76	234	11474	57,69%
282S	Forward	127	PHELINDABA	UNIVERSITAS HOSP	22	259	11584	52,62%
282S	Forward	128	PHELINDABA	UNIVERSITAS HOSP	25	251	10716	50,23%
282S	Forward	130	PELONOMI	UNIVERSITAS HOSP	17	250	10342	48,67%
282S	Forward	131	PHELINDABA	NATIONAL HOSP	15	251	9083	42,57%
282S	Return	132	NATIONAL HOSP	PHELINDABA	15	251	8843	41,45%
282S	Return	134	UOVS	PHELINDABA	28	232	8286	42,02%
282S	Return	135	UOVS	PHASE 2	19	249	8818	41,66%
282S	Return	136	UOVS	PHELINDABA	22	8	236	34,71%
282S	Forward	137	PHASE 2	UNIVERSITAS HOSP	27	34	1772	61,31%
282S	Forward	137	PHELINDABA	UNIVERSITAS HOSP	27	93	4252	53,79%
282S	Forward	138	PHASE 3	CENTRAL PARK	8	20	739	43,47%
282S	Forward	141	IPOPENG	CENTRAL PARK	11	297	16165	64,03%
282S	Forward	142	MAFORA	CENTRAL PARK	11	17	799	55,29%
282S	Forward	143	PHASE 7	CENTRAL PARK	25	257	14747	67,51%
282S	Forward	144	IPOPENG	CENTRAL PARK	11	8	535	78,68%
282S	Return	093A	CENTRAL PARK	ZONE 1	79	630	36485	68,13%
282S	Forward	093A	ZONE 1	CENTRAL PARK	79	664	47310	83,82%
282S	Return	093B	CENTRAL PARK	ZONE 1	83	3534	191469	63,74%
282S	Forward	093B	ZONE 1	CENTRAL PARK	83	3288	201477	72,09%
282S	Return	093C	CENTRAL PARK	ZONE 1	78	952	67879	83,88%
282S	Return	093D	CR SWART	ZONE 1	89	250	10433	49,10%
282S	Forward	093D	ZONE 1	PELONOMI	89	251	14346	67,24%
282S	Return	094A	CENTRAL PARK	UNIT 1	70	54	4103	89,39%
282S	Forward	094A	UNIT 1	CENTRAL PARK	70	734	46211	74,07%
282S	Return	094B	CENTRAL PARK	ZONE 5	75	249	14486	68,44%
282S	Forward	094B	ZONE 5	CENTRAL PARK	75	493	32118	76,64%
282S	Forward	094C	SAKANYOKA	CENTRAL PARK	75	234	11859	59,62%
282S	Return	094D	CENTRAL PARK	MAKURUNG	75,6	234	13627	68,51%
282S	Forward	094D	MAKURUNG	CENTRAL PARK	75,6	234	15752	79,20%
282S	Return	097A	CENTRAL PARK	MOKWENA	81	204	8434	48,64%
282S	Forward	097A	MOKWENA	CENTRAL PARK	81	222	9281	49,18%
282S	Forward	097A	MOROKA	CENTRAL PARK	69	295	15997	63,80%
282S	Return	097B	CENTRAL PARK	MOKOENA	81	242	8940	43,46%
282S	Return	098A	AIR FORCE BASE	ZONE1	81	234	9021	45,35%
282S	Forward	098A	SELOSESHA	TEMPE	81	189	6699	41,70%
282S	Return	098B	TEMPE	THABA NCHU	75	234	8593	43,20%
282S	Forward	098B	THABA NCHU	TEMPE	75	242	9199	44,72%
282S	Return	098C	TEMPE	ZONE1	87	189	6643	41,35%
282S	Forward	098C	ZONE1	TEMPE	87	234	12864	64,68%
282S	Forward	098D	ZONE1	AIR FORCE BASE	81	243	11118	53,83%
282S	Forward	128A	PHELINDABA	UNIVERSITAS HOSP	22	243	9773	47,32%
282S	Forward	129A	BLOEMANDA	UOVS	20	251	11641	54,56%
282T	Forward	0064	ROCKLANDS	CENTRAL PARK	11	234	20472	59,92%
282T	Forward	0093	ZONE 1	CENTRAL PARK	74	535	49914	63,90%
282T	Forward	0094	ZONE 2	CENTRAL PARK	77	710	67729	65,34%
282T	Return	0095	CENTRAL PARK	ZONE 3 & 4	76	1939	166788	58,92%
282T	Forward	0095	ZONE 3 & 4	CENTRAL PARK	76	751	67760	61,80%
282T	Forward	0098	SELOSESHA	CENTRAL PARK	75	231	22175	65,75%
282T	Forward	0142	MAFORA	CENTRAL PARK	11	230	21701,1	64,63%
282T	Return	093A	CENTRAL PARK	ZONE 1	79	449	44347	67,65%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
282T	Forward	093A	ZONE 1	CENTRAL PARK	79	68	6578	66,26%
282T	Return	093B	CENTRAL PARK	ZONE 1	79	8	890	76,20%
282T	Return	093B	CENTRAL PARK	ZONE 1	83	1894	177128	64,06%
282T	Forward	093B	ZONE 1	CENTRAL PARK	83	1721	149575	59,53%
282T	Return	093C	CENTRAL PARK	ZONE 1	78	1680	159332	64,96%
282T	Forward	097A	MOROKA	CENTRAL PARK	69	477	45763	65,71%
283S	Forward	1	A1	CENTRAL PARK	60	468	34991	87,96%
283S	Forward	2	A4	CENTRAL PARK	61	261	18161	81,86%
283S	Forward	3	C2	CENTRAL PARK	57	753	51946	81,16%
283S	Return	3	CENTRAL PARK	C2	57	994	60729	71,88%
283S	Return	4	CENTRAL PARK	D1	62	1008	59394	69,32%
283S	Forward	4	D1	CENTRAL PARK	62	512	38161	87,69%
283S	Return	5	CENTRAL PARK	J1	52	771	52883	80,69%
283S	Forward	5	J1	CENTRAL PARK	52	502	35443	83,06%
283S	Return	6	CENTRAL PARK	J3	52	1980	134967	80,19%
283S	Forward	6	J3	CENTRAL PARK	52	2215	164961	87,62%
283S	Return	7	CENTRAL PARK	K6	51	1159	85913	87,21%
283S	Forward	7	K6	CENTRAL PARK	51	727	36039	58,32%
283S	Return	8	CENTRAL PARK	M1	65	3244	199832	72,47%
283S	Forward	8	M1	CENTRAL PARK	65	2823	205201	85,52%
283S	Return	9	CENTRAL PARK	N1	61	1758	120872	80,89%
283S	Forward	9	N1	CENTRAL PARK	61	1479	74593	59,34%
283S	Return	10	CENTRAL PARK	S1	60	493	24334	58,07%
283S	Forward	10	S1	CENTRAL PARK	60	503	33910	79,31%
283S	Return	11	CENTRAL PARK	T1	58	1716	105694	72,46%
283S	Forward	11	T1	CENTRAL PARK	58	1230	84255	80,59%
283S	Return	12	CENTRAL PARK	U7	61	1171	101413	101,89%
283S	Forward	12	U7	CENTRAL PARK	61	971	71401	86,51%
283S	Return	13	CENTRAL PARK	W4	59	1234	80809	77,04%
283S	Forward	13	W4	CENTRAL PARK	59	992	60603	71,87%
283S	Return	16	BLOEMDUSTRIA	N1	60	251	8568	40,16%
283S	Return	26	CENTRAL PARK	FAIRWAYS	53	719	43387	70,99%
283S	Return	28	CENTRAL PARK	N6	63	1206	73358	71,56%
283S	Forward	28	N6	CENTRAL PARK	63	996	35545	41,99%
283S	Return	29	CENTRAL PARK	H2	55	251	17747	83,18%
283S	Forward	29	H2	CENTRAL PARK	55	502	35788	83,87%
283S	Forward	30	FAIRWAYS	CENTRAL PARK	53	1295	71504	64,96%
283S	Forward	31	KORTPAD	CR SWART	59	251	8911	41,77%
283S	Forward	33	K6	TRANSWERKE	67	251	8987	42,12%
283S	Return	33	TRANSWERKE	K6	67	242	9341	45,41%
283S	Forward	34	C1	CENTRAL PARK	61	486	31037	75,13%
283S	Forward	36	E3	CENTRAL PARK	60	243	17644	85,42%
283S	Forward	39	F3	CENTRAL PARK	63	124	6700	63,57%
283S	Forward	40	BAINSVLEI	CENTRAL PARK	15	258	18429	84,04%
283S	Forward	40	CENTRAL PARK	BAINSVLEI	15	501	20267	47,59%
283S	Return	41	BAYSWATER	CENTRAL PARK	8	509	37992	87,81%
283S	Forward	41	CENTRAL PARK	BAYSWATER	8	2102	88804	49,70%
283S	Forward	42	BRANDWAG	CENTRAL PARK	6	997	60353	71,22%
283S	Forward	42	CENTRAL PARK	BRANDWAG	6	1295	84460	76,73%
283S	Forward	44	CENTRAL PARK	DAN PIENAAR	8	543	31523	68,30%
283S	Return	44	DAN PIENAAR	CENTRAL PARK	8	1003	71633	84,02%
283S	Forward	46	CENTRAL PARK	FAUNA	11	992	69018	81,85%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
283S	Return	46	FAUNA	CENTRAL PARK	11	761	40345	62,37%
283S	Forward	47	CENTRAL PARK	FICHARDT PARK	10	1097	62131	66,63%
283S	Return	47	FICHARDT PARK	CENTRAL PARK	10	402	23300	68,19%
283S	Forward	51	CENTRAL PARK	HAMILTON	4	262	19292	86,63%
283S	Forward	52	CENTRAL PARK	HEUWELSIG	9	264	19855	88,48%
283S	Return	52	HEUWELSIG	CENTRAL PARK	9	1235	70781	67,43%
283S	Forward	53	CENTRAL PARK	HOSPITAALPARK	6	1053	41711	46,60%
283S	Return	53	HOSPITAALPARK	CENTRAL PARK	6	1001	65315	76,76%
283S	Forward	54	CENTRAL PARK	LANGENHOVENPARK	13	838	35945	50,46%
283S	Return	54	LANGENHOVENPARK	CENTRAL PARK	13	451	18656	48,67%
283S	Forward	56	CENTRAL PARK	PARKERAAD	3	22	712	38,07%
283S	Return	56	PARKERAAD	CENTRAL PARK	3	234	14439	72,59%
283S	Forward	58	CENTRAL PARK	NOORDHOEK	8	326	21303	76,88%
283S	Return	58	NOORDHOEK	CENTRAL PARK	8	1012	56065	65,18%
283S	Forward	59	CENTRAL PARK	OOSEINDE	6	313	18075	67,94%
283S	Return	59	OOSEINDE	CENTRAL PARK	6	689	35538	60,68%
283S	Forward	62	CENTRAL PARK	PELLISSIER	10	31	1688	64,06%
283S	Return	62	PELLISSIER	CENTRAL PARK	10	636	44556	82,42%
283S	Forward	67	CENTRAL PARK	UNIVERSITAS	9	584	21143	42,59%
283S	Return	67	UNIVERSITAS	CENTRAL PARK	9	87	5523	74,69%
283S	Forward	68	CENTRAL PARK	UNIVERSITAS WEST	9	760	53282	82,48%
283S	Return	68	UNIVERSITAS WEST	CENTRAL PARK	9	760	42219	65,35%
283S	Forward	69	CENTRAL PARK	VOGUE	8	243	14663	70,99%
283S	Return	69	VOGUE	CENTRAL PARK	8	251	14677	68,79%
283S	Forward	70	CENTRAL PARK	WILGEHOF	8	1055	45447	50,68%
283S	Return	70	WILGEHOF	CENTRAL PARK	8	793	31589	46,86%
283S	Forward	71	CENTRAL PARK	UOVS	6	251	16858	79,02%
283S	Return	71	UOVS	CENTRAL PARK	6	250	9072	42,69%
283S	Forward	99	BRANDFORT	CENTRAL PARK	60	282	17250	71,96%
283S	Return	99	CENTRAL PARK	BRANDFORT	60	281	12556	52,57%
283S	Return	151	CENTRAL PARK	BOTS HOSPITAL	58	211	10022	55,88%
283S	Forward	69	CENTRAL PARK	VOGUE	8	243	14663	70,99%
283S	Return	69	VOGUE	CENTRAL PARK	8	251	14677	68,79%
283S	Forward	70	CENTRAL PARK	WILGEHOF	8	1055	45447	50,68%
283S	Return	70	WILGEHOF	CENTRAL PARK	8	793	31589	46,86%
283S	Forward	71	CENTRAL PARK	UOVS	6	251	16858	79,02%
283S	Return	71	UOVS	CENTRAL PARK	6	250	9072	42,69%
283S	Forward	99	BRANDFORT	CENTRAL PARK	60	282	17250	71,96%
283S	Return	99	CENTRAL PARK	BRANDFORT	60	281	12556	52,57%
283S	Return	151	CENTRAL PARK	BOTS HOSPITAL	58	211	10022	55,88%
283S	Forward	001A	A1	CENTRAL PARK	67	75	4035	63,29%
283S	Return	001A	CENTRAL PARK	A1	67	29	1355	54,97%
283S	Return	001B	CENTRAL PARK	A1	67	39	2422	73,06%
283S	Return	004A	CENTRAL PARK	D1	66	152	10396	80,46%
283S	Return	005A	CENTRAL PARK	J1	63	252	15027	70,15%
283S	Forward	005A	J1	CENTRAL PARK	63	304	18817	72,82%
283S	Return	005B	CENTRAL PARK	G2	63	56	4177	87,75%
283S	Return	008A	CENTRAL PARK	M4	62	257	10193	46,66%
283S	Forward	008A	M4	CENTRAL PARK	62	223	13727	72,42%
283S	Forward	009B	N1	CENTRAL PARK	64	50	2393	56,31%
283S	Return	012A	CENTRAL PARK	U7	67	25	1365	64,24%
283S	Return	031A	CR SWART	N4	84	251	10859	50,90%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
283S	Forward	046A	CENTRAL PARK	DE WET PARK	8	751	51749	81,07%
283S	Return	046A	DE WET PARK	CENTRAL PARK	8	1479	66064	52,55%
283S	Return	046B	FAUNA MUN	CENTRAL PARK	8	188	6451	40,37%
283S	Forward	046C	CENTRAL PARK	FAUNA	12	62	3629	68,86%
283S	Return	046C	FAUNA	CENTRAL PARK	12	737	28924	46,17%
283S	Forward	051A	CENTRAL PARK	HAMILTON	4	243	13938	67,48%
283S	Return	051A	HAMILTON	CENTRAL PARK	4	8	578	85,00%
283S	Forward	051B	CENTRAL PARK	HAMILTON	4	242	12085	58,75%
283S	Return	051B	HAMILTON PAO	CENTRAL PARK	4	243	9301	45,03%
283S	Forward	35A4	BLOCK W4	TEMPE	73	251	15789	74,01%
283S	Forward	35A7	A5	TEMPE	73	251	17745	83,17%
283S	Forward	35D1	BLOCK D1	TEMPE	73	249	15628	73,84%
283S	Return	35D1	TEMPE	BLOCK M4	73	189	7703	47,95%
283S	Forward	35G1	BLOCK G2	TEMPE	73	250	11416	53,72%
283S	Return	35G1	TEMPE	BLOCK N1	73	251	15324	71,83%
283S	Forward	35K6	BLOCK K6	TEMPE	73	250	10654	50,14%
283S	Return	35K6	TEMPE	BLOCK K6	73	251	9217	43,20%
283T	Forward	0001	A1	CENTRAL PARK	60	1992	178711	61,45%
283T	Return	0001	CENTRAL PARK	A1	60	2661	228358,9	58,78%
283T	Forward	0002	A4	CENTRAL PARK	61	1722	147589	58,70%
283T	Return	0002	CENTRAL PARK	A4	61	2224	190978	58,82%
283T	Forward	0003	C2	CENTRAL PARK	57	482	43390	61,66%
283T	Return	0003	CENTRAL PARK	C2	57	485	44074	62,24%
283T	Return	0004	CENTRAL PARK	D1	62	726	63331	59,75%
283T	Forward	0004	D1	CENTRAL PARK	62	743	64128	59,12%
283T	Return	0005	CENTRAL PARK	J1	52	1708	148420	59,52%
283T	Forward	0005	J1	CENTRAL PARK	52	1497	130762	59,83%
283T	Return	0007	CENTRAL PARK	K6	51	2431	216397	60,97%
283T	Forward	0007	K6	CENTRAL PARK	51	1746	151716	59,52%
283T	Return	0009	CENTRAL PARK	N1	61	2262	195828	59,30%
283T	Forward	0009	N1	CENTRAL PARK	61	1367	141454	70,88%
283T	Return	0012	CENTRAL PARK	U7	61	1480	129189	59,79%
283T	Forward	0012	U7	CENTRAL PARK	61	1498	136605	62,46%
283T	Return	0013	CENTRAL PARK	W4	59	998	89661	61,53%
283T	Forward	0013	W4	CENTRAL PARK	59	1503	130557	59,50%
283T	Forward	001A	A1	CENTRAL PARK	67	124	11716,8	64,72%
283T	Return	001A	CENTRAL PARK	A1	67	286	28237	67,62%
283T	Return	0026	CENTRAL PARK	FAIRWAYS	53	6488	580015	61,23%
283T	Return	0026	CENTRAL PARK	KORTPAD	53	176	19085	74,27%
283T	Return	0029	CENTRAL PARK	H2	55	243	21699	61,16%
283T	Forward	0029	H2	CENTRAL PARK	55	251	22979	62,71%
283T	Forward	0030	FAIRWAYS	CENTRAL PARK	53	6697	569093	58,20%
283T	Forward	0036	E3	CENTRAL PARK	60	234	21194	62,04%
283T	Return	0041	BAYSWATER	CENTRAL PARK	8	1191	103805	59,70%
283T	Forward	0041	CENTRAL PARK	BAYSWATER	8	786	77750	67,75%
283T	Return	0042	BRANDWAG	CENTRAL PARK	6	242	24428	69,14%
283T	Forward	0044	CENTRAL PARK	DAN PIENAAR	8	2034	182053	61,30%
283T	Return	0044	DAN PIENAAR	CENTRAL PARK	8	1722	152043	60,48%
283T	Forward	0047	CENTRAL PARK	FICHARDT PARK	10	1006	85606	58,28%
283T	Return	0047	FICHARDT PARK	CENTRAL PARK	10	996	85473	58,78%
283T	Return	004A	CENTRAL PARK	D1	66	210	20061	65,43%
283T	Forward	004A	D1	CENTRAL PARK	66	123	12165	67,74%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
283T	Forward	0051	CENTRAL PARK	HAMILTON	4	741	64874	59,97%
283T	Return	0051	HAMILTON	CENTRAL PARK	4	265	25632	66,25%
283T	Forward	0052	CENTRAL PARK	HEUWELSIG	9	808	73872	62,62%
283T	Return	0052	HEUWELSIG	CENTRAL PARK	9	251	22695	61,93%
283T	Forward	0054	CENTRAL PARK	LANGENHOVENPA	13	2024	195706	66,23%
283T	Return	0054	LANGENHOVEN	CENTRAL PARK	13	2997	262848	60,07%
283T	Forward	0058	CENTRAL PARK	NOORDHOEK	8	989	84587	58,58%
283T	Return	0058	NOORDHOEK	CENTRAL PARK	8	243	22398	63,13%
283T	Forward	0059	CENTRAL PARK	OOSEINDE	6	259	25111	66,41%
283T	Return	0059	OOSEINDE	CENTRAL PARK	6	8	692	59,25%
283T	Return	005A	CENTRAL PARK	J1	63	234	21166	61,95%
283T	Return	005B	CENTRAL PARK	G2	63	415	39234,1	64,75%
283T	Forward	005B	G2	CENTRAL PARK	63	231	23955	71,03%
283T	Forward	0062	CENTRAL PARK	PELLISSIER	10	1375	120665	60,11%
283T	Return	0062	PELLISSIER	CENTRAL PARK	10	1276	126339	67,82%
283T	Forward	0067	CENTRAL PARK	UNIVERSITAS	9	1526	135032	60,61%
283T	Return	0067	UNIVERSITAS	CENTRAL PARK	9	1497	135053	61,79%
283T	Forward	0070	CENTRAL PARK	KWAGGAFONTEIN	10	8	715	61,22%
283T	Forward	0070	CENTRAL PARK	MAKRO	10	8	711	60,87%
283T	Forward	0070	CENTRAL PARK	WILGEHOF	8	249	24544	67,51%
283T	Return	0070	KWAGGAFONTEIN	CENTRAL PARK	10	8	859	73,54%
283T	Return	0070	WILGEHOF	CENTRAL PARK	8	485	42709	60,31%
283T	Forward	0081	CENTRAL PARK	KWAGGAFONTEIN	10	234	21350	62,49%
283T	Return	0099	CENTRAL PARK	BRANDFORT	60	25	2389	65,45%
283T	Forward	0099	BRANDFORT	CENTRAL PARK	60	25	2319	63,53%
283T	Return	008A	CENTRAL PARK	M4	62	1262	108745	59,02%
283T	Forward	009A	N1	CENTRAL PARK	79	31	3300	72,91%
283T	Forward	009B	N1	CENTRAL PARK	64	124	13427	74,17%
283T	Return	012A	CENTRAL PARK	U7	67	396	41537	71,84%
283T	Forward	012A	U7	CENTRAL PARK	67	392	38966	68,08%
283T	Forward	0146	CENTRAL PARK	WOODLAND HILLS	9	242	21263	60,18%
283T	Return	0146	WOODLANDS	CENTRAL PARK	9	481	43242	61,58%
283T	Return	051A	HAMILTON	CENTRAL PARK	4	242	22686	64,21%
283T	Return	051A	HAMILTON NAMPAK	CENTRAL PARK	4	729	62736	58,94%
284S	Forward	106	KOMMISSIEDRIFT	THABA NCHU	33	306	10142	38,99%
284S	Return	106	THABA NCHU	KOMMISSIEDRIFT	33	55	2578	55,14%
284S	Forward	110	KLIPFONTEIN	THABA NCHU	60	234	8568	43,08%
284S	Forward	110	SPRINGFONTEIN	THABA NCHU	60	72	3093	50,54%
284S	Return	110	THABA NCHU	SPRINGFONTEIN	60	259	11662	52,97%
284S	Return	111	THABA NCHU	WOODBIDGE	41	815	28511	41,16%
284S	Forward	111	WOODBIDGE	ESSO	41	9	159	20,78%
284S	Forward	111	WOODBIDGE	THABA NCHU	41	306	11199	43,06%
284S	Return	117	THABA NCHU SUN	ZONE 1	35	617	20769	39,60%
284S	Forward	117	ZONE 1	THABA NCHU SUN	35	617	20606	39,29%
284S	Return	106A	THABA NCHU	KOMMISSIEDRIFT	35	251	8879	41,62%
284S	Forward	110A	SPRINGFONTEIN	THABA NCHU	90	368	17866	57,12%
284S	Return	110A	THABA NCHU	SPRINGFONTEIN	90	421	16279	45,49%
284S	Return	111A	THABA NCHU	WOODBIDGE	47	356	12460	41,18%
284S	Forward	111A	WOODBIDGE	THABA NCHU	47	559	19858	41,79%
284S	Forward	111B	WOODBIDGE	THABA NCHU	57	250	8776	41,30%
284S	Forward	111C	ESSO	CENTRAL PARK	66	251	11372	53,30%
285S	Return	103	CENTRAL PARK	TALLA	94	102	3311	38,19%

Contract No	Direction of Travel	Route			Route Length (km)	Annual Total Number Trips Operated	Annual Total Number of Passengers Transported	Determined Average Utilisation Rate (%)
		No.	From	To				
285S	Forward	105	BOFULO	THABA NCHU	47	251	8071	37,83%
285S	Return	105	THABA NCHU	BOFULO	47	251	14330	67,17%
285S	Forward	107	MARIASDAL	THABA NCHU	67	251	7798	36,55%
285S	Return	107	THABA NCHU	MARIASDAL	67	250	9929	46,72%
285S	Forward	108	MERINO	THABA NCHU	29	55	2422	51,81%
285S	Return	108	THABA NCHU	MERINO	29	56	2094	43,99%
285S	Return	109	THABA NCHU	ROOIFONTEIN	11	251	8150	38,20%
285S	Forward	115	SPITSKOP	THABA NCHU	41	675	21143	36,85%
285S	Return	115	THABA NCHU	SPITSKOP	41	480	14737	36,12%
285S	Forward	119	SEDIBA	THABA NCHU	67	789	24384	36,36%
285S	Return	119	THABA NCHU	SEDIBA	67	309	10888	41,45%
285S	Forward	120	ROOIBULT	THABA NCHU	44	251	8239	38,62%
285S	Return	120	THABA NCHU	ROOIBULT	44	511	16478	37,94%
285S	Forward	122	FELOANE	THABA NCHU	22	251	8620	40,40%
285S	Return	122	THABA NCHU	FELOANE	22	251	8790	41,20%
285S	Forward	123	MORAGO	THABA NCHU	41	251	12988	60,88%
285S	Return	123	THABA NCHU	MORAGO	41	250	8728	41,07%
285S	Return	124	THABA NCHU	SEDITI	37,8	468	17074	42,92%
285S	Forward	100A	MOROTO	CENTRAL PARK	102	251	8085	37,90%
285S	Forward	100B	MARIASDAL	CENTRAL PARK	110	56	2030	42,65%
285S	Forward	103A	TALLA	CENTRAL PARK	99	249	8102	38,28%
285S	Forward	103B	HOUTNEK	TALLA	26	194	6777	41,10%
285S	Forward	105A	TALLA	THABA NCHU	52	114	7605	78,48%
285S	Return	105A	THABA NCHU	TALLA	52	55	2015	43,10%
285S	Forward	107A	MARIASDAL	THABA NCHU	41	17	161	11,14%
285S	Return	107A	THABA NCHU	MARIASDAL	41	55	2172	46,46%
285S	Return	107A	THABA NCHU	MARIASDAL	67	234	7971	40,08%
285S	Forward	107B	MARIASDAL	THABA NCHU	90	361	24246	79,02%
285S	Return	107B	THABA NCHU	MARIASDAL	90	358	18285	60,09%
285S	Forward	107C	MARIASDAL	THABA NCHU	60	112	4083	42,89%
285S	Return	107C	THABA NCHU	MARIASDAL	60	307	9568	36,67%
285S	Forward	107D	MARIASDAL	THABA NCHU	63	248	9148	43,40%
285S	Return	107E	THABA NCHU	TALLA	60	56	2078	43,66%
285S	Forward	107F	SEDITI	THABA NCHU	41	232	7943	40,28%
285S	Forward	108A	MERINO	THABA NCHU	22	250	8494	39,97%
285S	Return	108A	THABA NCHU	MERINO	22	251	8175	38,32%
285S	Forward	108B	TIGER RIVER	THABA NCHU	32	251	8504	39,86%
285S	Forward	109A	ROOIFONTEIN	THABA NCHU	20	251	7979	37,40%
285S	Forward	115A	SPITSKOP	THABA NCHU	36	251	8840	41,43%
285S	Return	115A	THABA NCHU	SPITSKOP	36	251	9300	43,59%
285S	Forward	115B	SPITSKOP	THABA NCHU	29	56	2235	46,95%
285S	Return	115B	THABA NCHU	SPITSKOP	29	56	1968	41,34%
285S	Forward	119A	SEDIBA	THABA NCHU	52	307	9898	37,93%
285S	Return	119A	THABA NCHU	SEDIBA	52	56	1998	41,97%
285S	Forward	119B	SEDIBA	THABA NCHU	42	251	14045	65,83%
285S	Return	119B	THABA NCHU	SEDIBA	42	56	2048	43,03%
285S	Forward	123B	MORAGO	THABA NCHU	36	250	8316	39,13%
285S	Forward	124B	MORAGO	THABA NCHU	45	251	7863	36,85%
285S	Return	124B	THABA NCHU	MORAGO	45	249	8291	39,17%
283S	Forward	1	Soutpan	Bloemfontein	47,9	617	39167,17	74,68%
283S	Return	1	Bloemfontein	Soutpan	47,6	613	32904,07	63,15%

Total number of passengers reflected in the table above includes the number of cash paying customers as well as the seasonal (MJT) passengers per annum per route. Furthermore, the capacity calculation was based on the maximum allowable number of passengers per bus (seated and standing) for the standard and train bus configurations. The contractual capacity for a standard IBL bus is reflected as 85 passengers and that for a train bus as 146 passengers per vehicle.

The above utilisation percentages thus show that bus utilisation in some cases are as low as 11% whilst other routes are above 100%. The routes with lower than 50% utilisation are highlighted in red in the table above. The routes where train buses are utilised, which are the long-distance services, are used more effectively and thus shows higher utilisation rates than the standard buses which predominantly operate the shorter distance routes in and around the CBD area. It can thus be deduced that substantial inefficiencies exist within the current contracted bus services. The entire bus service should thus be optimised to maximise bus utilisation in order to reduce the amount of subsidy paid to IBL. This strategy should be applied in a manner that services to commuters do not suffer, in other words the level of service improves rather than reduces, without any detrimental effect to the profitability of the service provider.

5.4.5 Bus subsidies

The main objective with the payment of subsidies is to ensure efficiencies are built into the transport system in order to limit its dependency on transport subsidies whilst at the same time ensuring that the service offering remains cost effective, efficient and affordable to commuters.

The IBL service investigation relating to the bus services for Bloemfontein, Botshabelo and Thaba Nchu include a subsidised as well as an unsubsidised service. The unsubsidised section of the bus services are reported separately. The main focus of this investigation was to report on the subsidised section of the IBL service as this component of the IBL service is partially funded by the Public Transport Operations Grant (PTOG). The PTO Grant is utilised to fill the gap (shortfall) where operational costs exceed actual ticket sale income.

The relationship between the fare box which consist of cash sales, multi journey tickets (MJT) and subsidies per contract are highlighted in the sections below Table 5-27 and Table 5-28 provide an indication of the cash collected from ticket sales as well as the subsidies paid per contract. The ticket sales revenue, passenger numbers and the subsidies paid are for the period 1 March 2015 to 28 February 2016. The detail per route can be obtained from the analysis report prepared for the IBL bus services.

Table 5-27: Revenue Received and Subsidies Paid per Contract per annum (2015/16)

Measurement	VT20282S	VT20282T	VT20283S	VT20283T	Totals for these Contracts
Cash Passenger Revenue:	R 5 625 199,56	R 2 191 742,09	R 4 746 154,89	R 7 126 032,53	R 19 689 129,07
MJT (Season) Passenger Revenue:	R 19 761 890,21	R 6 967 878,70	R 26 525 845,74	R 37 534 280,20	R 90 789 894,85
Total Passenger Revenue:	R 25 387 089,77	R 9 159 620,80	R 31 272 000,63	R 44 660 312,73	R 110 479 023,93
PTOG allocation:	R 49 032 607,00	R 10 871 483,00	R 47 035 804,00	R 60 791 558,00	R 167 731 452,00
Subsidy Paid:	R 46 246 779,86	R 11 365 780,73	R 46 135 878,07	R 59 911 940,84	R 163 660 379,50
Average Subsidy/Km Operated:	R 17,70	R 13,75	R 16,73	R 21,21	

Table 5-28: Revenue Received and Subsidies Paid per Contract per annum (Continue)

Measurement	VT20284S	VT20285S	VT20286S	Totals for these Contracts
Cash Passenger Revenue:	R 754 363,34	R 1 512 317,22	R 319 191,15	R 2 585 871,71
MJT (Season) Passenger Revenue:	R 799 279,07	R 1 674 244,90	R 745 490,31	R 3 219 014,28
Total Passenger Revenue:	R 1 553 642,41	R 3 186 562,11	R 1 064 681,45	R 5 804 885,97
PTOG allocation:	R 4 437 340,00	R 8 874 680,00	R 668 584,50	R 13 980 604,50
Subsidy Paid:	R 5 118 208,75	R 10 995 492,88	R 973 790,86	R 17 087 492,49

The combined revenue and subsidy values as per Table 5-27 and Table 5-28 above are summarised in Table 5-29 below.

Table 5-29: Revenue Received and Subsidies Paid per Contract per annum

Measurement	Combined Totals
Cash Passenger Revenue:	R 22 275 000,78
MJT (Season) Passenger Revenue:	R 94 008 909,13
Total Passenger Revenue:	R 116 283 909,90
PTOG allocation:	R 181 712 056,50
Subsidy Paid:	R 180 747 871,99
Total Operational Costs	R 297 031 781,89

From Table 5-29 above it is clear that the IBL services which forms part of the contracted services generate an annual amount of R 116,28 million from ticket sales. The operational costs to run the IBL service however amounts to R 297,03 million which implies that a shortfall of R 180,75 million is required as a subsidy from the PTOG on an annual basis.

5.4.6 Passenger Waiting Times and Level of Service

A detailed waiting time survey was not conducted during the period of investigation, however some indications were given by IBL of buses not arriving due to breakdowns as well as buses arriving more than 30 minutes late. A summary of the aforementioned survey information is shown in Table 5-30 below.

Table 5-30: Passenger waiting times and Level of Service

Scheduled Trips	Additional Trips	Trips that were held back	Did not Operate	Late >30 minutes	Total Trips Operated
223 368	16	312	496	194	222 382
	0,01%	0,14%	0,22%	0,09%	
			1 002		

Scheduled Trips	Additional Trips	Trips that were held back	Did not Operate	Late >30 minutes	Total Trips Operated
			0,45%		

It can be seen from the table above that IBL had the minimum breakdowns or increased capacity requirements (<0,1%) where additional trips had to be performed in order to maintain the same level of service. The overall total number of no shows or where the delays were so long that it disrupted the service are given as 1 002 trips. Even with this number of no shows (disruption to the service) the number only represent 0,45% of the overall total number of trips operated.

It should however be noted that the range of time delays are too coarse which implies that in order to provide a good level of service, one should measure time delays at 5 min interval from 5 to 30 minutes. The percentage of defaults in these ranges might be far higher than expected. Any delay in scheduled time of 15 minutes and longer provides a substantial delay to commuters and reduces the level of service dramatically. It might thus in future be necessary to conduct a customer satisfaction survey in order better quantify the time delays. According to the existing information the contracted service complies almost 99,5% with the contractual requirements.

5.4.7 Bus User Cost

The user cost individual route has been determined and included in the IBL investigation report. For purposes of this section of the report a summary with averages are provided as an indication of the overall cost for the commuter. The values might vary when considering the data per route. Table 5-31 provides an indication of the average costs per contract as shown below.

Table 5-31: User Cost Comparison per Contract

Measurement	VT20282S	VT20282T	VT20283S	VT20283T	VT20284S	VT20285S	VT20286S
Average Revenue/Trip:	R 489,32	R 838,26	R 446,90	R 634,25	R 270,39	R 256,11	R 865,59
Average Revenue/Km Operated:	R 9,71	R 11,08	R 11,34	R 15,81	R 5,38	R 4,91	R 18,13
Average Subsidy/Km Operated:	R 17,70	R 13,75	R 16,73	R 21,21	R 17,71	R 16,96	R 16,58
Total Cost/Km Operated	R 27,41	R 24,83	R 28,07	R 37,02	R 23,09	R 21,87	R 34,71
Average Revenue/Passenger:	R 9,22	R 9,16	R 7,55	R 7,11	R 7,30	R 7,01	R 14,77
Shortfall/Km Operated	R 18,19	R 15,67	R 20,52	R 29,91	R 15,79	R 14,86	R 19,94
Revenue/Subsidy Ratio	1:1,97	1:1,71	1:2,72	1:4,21	1:2,163	1:2,12	1:1,35
% Revenue of Total cost/Km Operated	35,4%	44,6%	40,4%	42,7%	23,3%	22,5%	52,2%
% Subsidy of Total cost/Km Operated	64,6%	55,4%	59,6%	57,3%	76,7%	77,5%	47,8%

It should be noted that the above table only provides average revenue generated per passenger, calculated against total revenue collected and the total number passengers transport. The subsidies for specific routes thus represents between 50% and 77% of the total operational costs. The above

table thus shows that some contracts are subsidised more than others which directly benefits commuters as they have to pay less out of their pockets for their transport. The percentage split in some cases are substantial which implies that when the averages per route are considered, some routes subsidise others.

5.4.8 Bus Stops

The bus stops in the Bloemfontein, Botshabelo and Thaba Nchu areas range from formal, to semi-formal to informal. In the majority of cases the bus stops are represented by a single pole with a route number and a destination attached to it, next to the edge of the road. The IBL bus service aims to provide a long-distance transport system between the rural areas of Botshabelo, Thaba Nchu and Soutpan and that of the Bloemfontein CBD.



Due to the rural nature of the IBL bus service and the long distances between the Botshabelo, Thaba Nchu and Soutpan areas, bus stops are spaced at irregular distances. The spacing of bus stops in or close to built-up areas or areas of high economic activity, bus stop spacing ranges between 300m to 1 km, in other words, within the limits of the allowable walking distance.

6 Non-Motorised Transport (NMT)

A large portion of the Mangaung population still walk long distances and cycle on a daily basis to access their place of work, attend school, shopping or for leisure purposes. In order to better understand the reason for walking or cycling one should consider the demographics of the city as well as the availability and accessibility of efficient and cost effective transport systems within the confines of the city. The majority of individuals which walk long distances daily are scholars.

6.1.1 Status Quo

The process of determining the walking and cycling status quo for Mangaung, a number of surveys were conducted on NMT users including pedestrians, cyclists and others.

The trip purpose (reason for travel) and other details can be obtained from the results of the household travel survey which was conducted during 2016/17 to assist with the planning and the design of the IPTN.

In order to fully understand the population demand to walk, proper investigations are required to assess their reason for walking, time of the activity, how often and particularly the distances they have to walk to get to their final destinations. This information will assist the city in determining the walking desire lines, the volumes of pedestrians in order to better understand the city’s need to provide adequate NMT infrastructure along important corridors.

A limited number of routes were surveyed during the IPTN process with the primary aim of ensuring adequate NMT infrastructure along IPTN routes in order to improve accessibility. This approach was necessary to ensure adequate NMT infrastructure will be available in future to further promote Mangaung’s status as “the walking city”. This initial investigation needs to be expanded throughout the entire city in order to develop demand sensitive NMT movement plans across the entire city. Limited pedestrian surveys were conducted in the following areas in order to assist the NMT planning process along main public transport routes, namely:

- Bloemfontein CBD,
- Botshabelo,
- Thaba Nchu.

The locations and the details of pedestrian surveys which were captured in 2017 are reflected in the sections below.

6.1.2 Bloemfontein CBD

The pedestrian surveys conducted in the Bloemfontein CBD area was selected to align with IPTN trunk routes or feeder routes to enable integration of the various modes of transport namely walking, cycling, buses and taxis for the IPTN. The positions of the various pedestrian counts conducted in the Bloemfontein CBD are reflected in Figure 6-1 below.

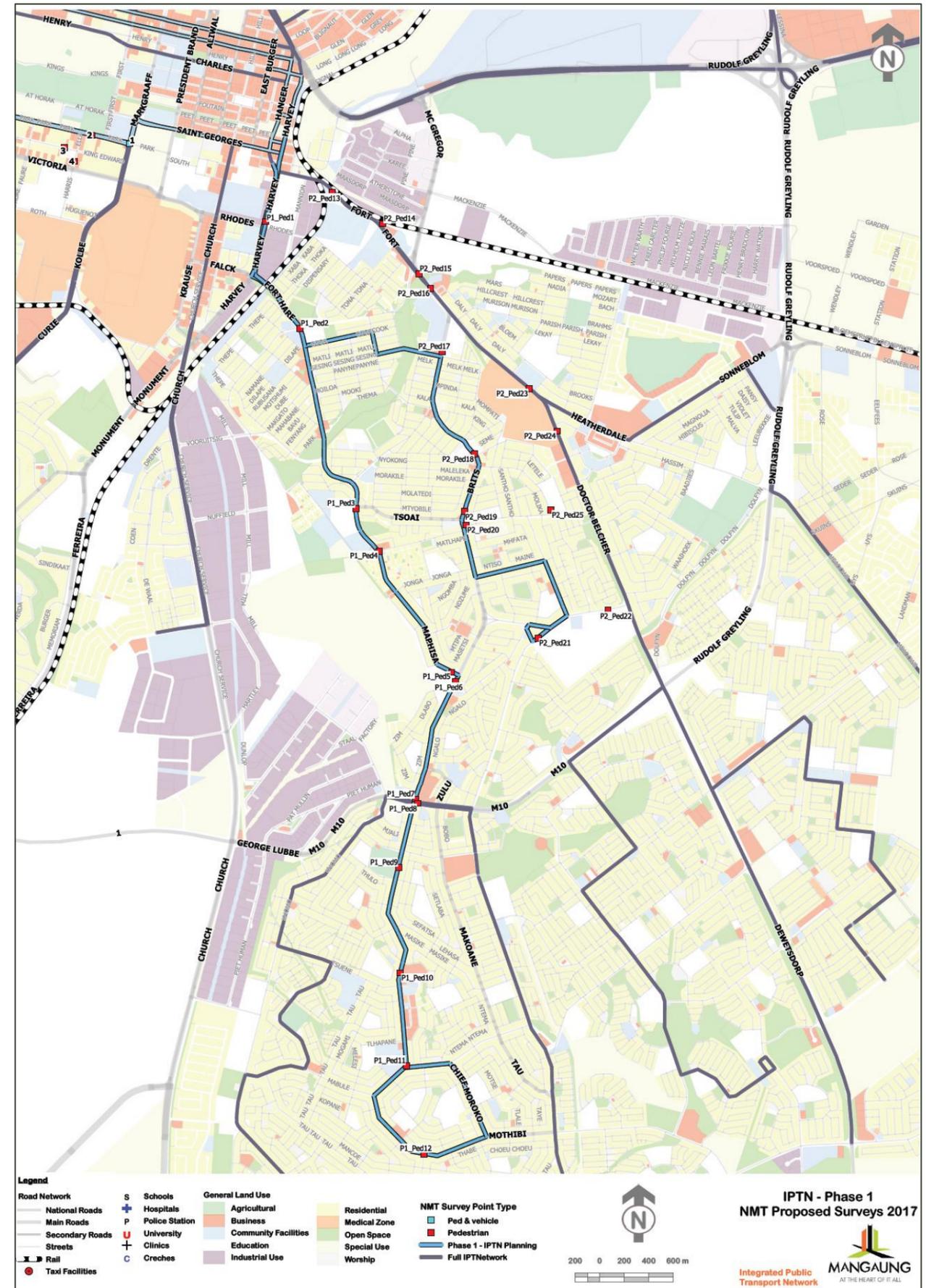


Figure 6-1: Locations of Pedestrian Surveys conducted in Botshabelo (2017)

6.1.3 Botshabelo (2017)

The positions of the pedestrian counts done in Botshabelo are reflected in Figure 6-2 below.



Figure 6-2: Locations of Pedestrian Surveys conducted in Botshabelo (2017)

6.1.4 Thaba Nchu (2017)

The locations of the various pedestrian counts done in Thaba Nchu are reflected in Figure 6-3 below.



Figure 6-3: Locations of Pedestrian Survey conducted in Thaba Nchu (2017)

It should however be noted that larger maps of these shown above are attached in Annexure G. Included in Annexure G is the diagrammatic presentation of the directional split of movement and weekday AM, midday and PM peak hour volumes diagrammatically.

6.1.5 Pedestrian Volumes 2017

A number of 14 hour pedestrian surveys were conducted during 2017 for the Bloemfontein CBD, Botshabelo and Thaba Nchu areas. The details of these surveys are reflected below.

6.1.6 Bloemfontein CBD

Table 6-1 reflects the number and location of the pedestrian surveys for the CBD

Table 6-1: Survey Locations and Peak Hour Information for Botshabelo

Location No.	Location Name
1	Cnr Park and Markgraaff Street
2	Park Road between First Ave and Ella Street
3	King Edward Street Between Ehrlich and Ella Street
4	Ella Street between Victoria Road and King Edward Street
5	Victoria Road between Saint David and Ella Street
P1_Ped1	Harvey Road (between Fort Street and Rhodes Avenue)
P1_Ped2	Intersection of Fort Hare Rd and Hamilton Road
P1_Ped3	Maphisa Road (south from Tsoai Street
P1_Ped4	Intersection of Maphisa Rd and Maibamolotsha Street
P1_Ped5	Maphisa Road before Moshoeshoe Street
P1_Ped6	Moshoeshoe Street west from Maphisa Road
P1_Ped7	Moshoeshoe towards the M10
P1_Ped8	M10 towards Moshoeshoe Street
P1_Ped9	Moshoeshoe Street outside the Dr Rantlai Petrus Molemela Stadium
P1_Ped10	Cnr Tsuene and Moshoeshoe Street
P1_Ped11	Cnr of Chief Moroka and Moshoeshoe Street
P1_Ped12	Chief Moroka west of Mothibi Street
P2_Ped13	Fort Rd between Mannion and Lovedale Street
P2_Ped14	Cnr Fort and McGregor Road
P2_Ped15	Dr Belcher between McGregor and Daly Street
P2_Ped16	Dr Belcher between Daly and McGregor Road
P2_Ped17	Mkuhlane Street between Dr Belcher and Cooper Street
P2_Ped18	Brits Street between Kodisang and Goronyane Street
P2_Ped19	Brits Street between Tsoai and Moikangoa Street
P2_Ped20	Tsoai Street between Dlamini and Ramatsoele Street
P2_Ped21	Monapi Street between Short and Seiso Street
P2_Ped22	Monapi Street between Noname and Dr Belcher
P2_Ped23	Dr Belcher Street between Sending and Moravia Street
P2_Ped24	Dr Belcher Street between Adin and Hamlet Street
P2_Ped25	Dlamini Street between Dingalo and Dlamini Street

A substantial number of movements were measured and the directional, AM and PM peak pedestrian volumes from the surveys are reflected Annexure G.

6.1.7 Botshabelo

The representative survey locations as well as the pedestrian volumes captured for Botshabelo are summarised in Table 6-2 below.

Table 6-2: Survey Locations and Peak Hour Information for Botshabelo

Location No.	Location Name	AM Peak (6:45 – 7:45)	PM Peak (17:00 – 18:00)	Total for Survey Period
B01	Road N (N/S)	114	136	1 467
B02	South-West Of Road N (N/S)	69	149	1 281
B03/B04	East Of Road B (E/W)/ West Of Road B (E/W)	143	121	1 638
B05	Road G (E/W)	110	69	1 004
B06/B07	Pedestrian Bridge (E/W)/ Pedestrian Foot Path (E/W)	20	56	311
B08	Road E (E/W)	100	77	1 028
B09	South Of Road E (N/S)	21	50	311
B10	Road E (N/S)	75	66	771
B11	South Of Road E (N/S)	2	0	3
B12	Road E (E/W)	38	21	384
B13	Road E (E/W)	87	60	829
B14	South Of Road E (E/W)	140	43	1 009
B15	Road E (N/S)	90	142	1 185
B16	Road E (N/S)	182	285	3 321
B17/B18	North Of Road E (N/S)/ South Of Road E (N/S)	12	10	139

The detail pedestrian volumes per direction surveyed (along roadways and across the road for both directions) are attached to this report in Annexure H.

6.1.8 Thaba Nchu

The representative survey locations and the pedestrian volumes captured for Thaba Nchu are summarised in Table 6-3 below.

Table 6-3: Survey Locations and Peak Hour Information for Thaba Nchu

Location No.	Location Name	AM Peak (6:45 – 7:45)	PM Peak (17:00 – 18:00)	Total Number Pedestrians for Survey Period
T01	Road D (N/S)	148	82	1 314
T01	Road D (N/S)	307	156	3 526
T03	Brand St (E/W)	146	137	1 762
T04	ROAD C (N/S)	207	405	5 668
T05	ROAD O (N/S)	230	178	2 489

The detail pedestrian volumes per direction surveyed (along roadway and across the road for both directions) are attached to this report in Annexure H. A detailed investigation was conducted to assess the capacity required to accommodate the current pedestrian volumes as reflected in the tables above.

7 Universal Accessible Transport

To attain the status quo relating to people with categories of special needs surveys are required. These surveys need to be commissioned during the next financial year. The percentage of the population reported to have special needs in 2011 stemming from the Census 2011 are presented in Table 7-1. It needs to be noted that subsequent studies did indicate that the percentage is under reported due to several factors.

Table 7-1: People with Categories of Special Needs

	With Special Needs		Without Special Needs		Total
	N	%	N	%	
Free State	234 738	11,1	1 888 869	88,9	2 123 607
MAN: Mangaung	57 062	9,8	526 798	90,2	583 860
Male	23 139	8,4	252 264	91,6	275 403
Female	33 923	11,0	274 534	89,0	308 457

2011 - Profile of persons with disabilities in South Africa (StatsSA)

8 Air Transport Status Quo

Bram Fischer International Airport is located approximately 8km from the Bloemfontein CBD and is therefore well connected to the arterials of the N8, N6 and N1. The airport is centrally located linking the three urban areas in the Mangaung Local Municipality (Bloemfontein, Thaba Nchu and Botshabelo) with Maseru in nearby Lesotho and Kimberley in the Northern Cape Province.

Bram Fischer International Airport is a busy gateway. The airport has capacity to handle 600 000 passengers per annum. It also handles substantial volumes of cargo.

The runways are shared by Bloemspruit Air Force Base, whose activities contribute to the economic activity and sustainability of the area.

8.1 Property

The N8 corridor development between the city centre and the airport has been identified in the Mangaung Spatial Development Framework as a significant growth corridor for the city and where public and private investment will be directed. The airport has been identified as one of the primary development nodes along this corridor.

Bram Fischer International Airport
 GDP contribution: **R79 million**
 % contribution to provincial GDP: **0.1%**
 Employment contribution: **239 jobs**
 Income contribution: **R42 million**

Airports Company South Africa has enabled and fully and partially serviced the Bram Fischer Airport Boulevard measuring approximately 32Ha. Full development rights have been achieved for 5 Ha of the 32 Ha. The balance of the area enabled is awaiting EIA approval with the basket of rights application already submitted to the local authority for approval. The site is envisaged to accommodate a range of commercial mixed-use development, with the development of a private hospital concluded and underway. The Boulevard Precinct is the first phased envisaged to be developed over a period of 10 years to 2022. The second phase of the development area measures approximately 98 Ha; this will be enabled post completion of the development on the Boulevard Precinct.

The sites are secured, well connected to the regional road network and are ideal locations for freight, logistics and distribution related activities.

The airport will also be undertaking the development of a 3MW Solar PV installation over an area measuring approximate 6Ha. The project will form part of the sustainability and economic development aspect of the business. The installation will allow for the resale of electricity into the commercial grid.

8.2 Airport Service Quality

Bram Fischer International Airport ranked best airport by region in “under 2 million passengers” category and most improved airport (2018)

Capacity capabilities/constraints:

- Runway: up to Code 4E aircraft with load limitations
- Taxiway system the runways can accommodate up to 60 movements per hour
- Aircraft parking constraints; only 6 parking bays available.
- Scope for expansion into surrounding land if demand requires it in the longer-term

8.3 Existing Air Passengers

For the development of the IPTN the number of passengers that can be generated from the airport as a dedicated destination or origin is required to determine if a dedicated service need to be implemented to the airport. For the purpose this purpose the daily passenger demand was obtained. The 2016/17 annual passenger number was 395 452.

The air passenger growth fluctuates between -9% to +8% and +0.5% for 2016/17. A passenger growth percentage of between +0,5 and +1% is more realistic for the Braam Fischer Airport. The trend is either negative or very low positive, therefore the +8% in 2015/16 seems to be an anomaly.

9 Other Public Transport Modes

Metered taxis operate from several locations in the city. The main taxi association for metered taxis is Rainbow taxi association.

10 Rail Transport

10.1 Long distance Passenger Rail (PRASA)

Rail transport as a public transport mode to and from Bloemfontein is limited to the current Shosholoza Meyl. Shosholoza Meyl is a division of the Passenger Rail Agency of South Africa (PRASA) that mainly operates a long-distance passenger rail service. According to the formal PRASA information published on their 2018 website, they provide a long-distance rail service country wide, to approximately 4 million passengers annually, to various destinations. Bloemfontein station is merely one of the stations on route to numerous other destinations. Figure 10-1 is a map which depicts the routes passing Bloemfontein to the destinations shown on the map.

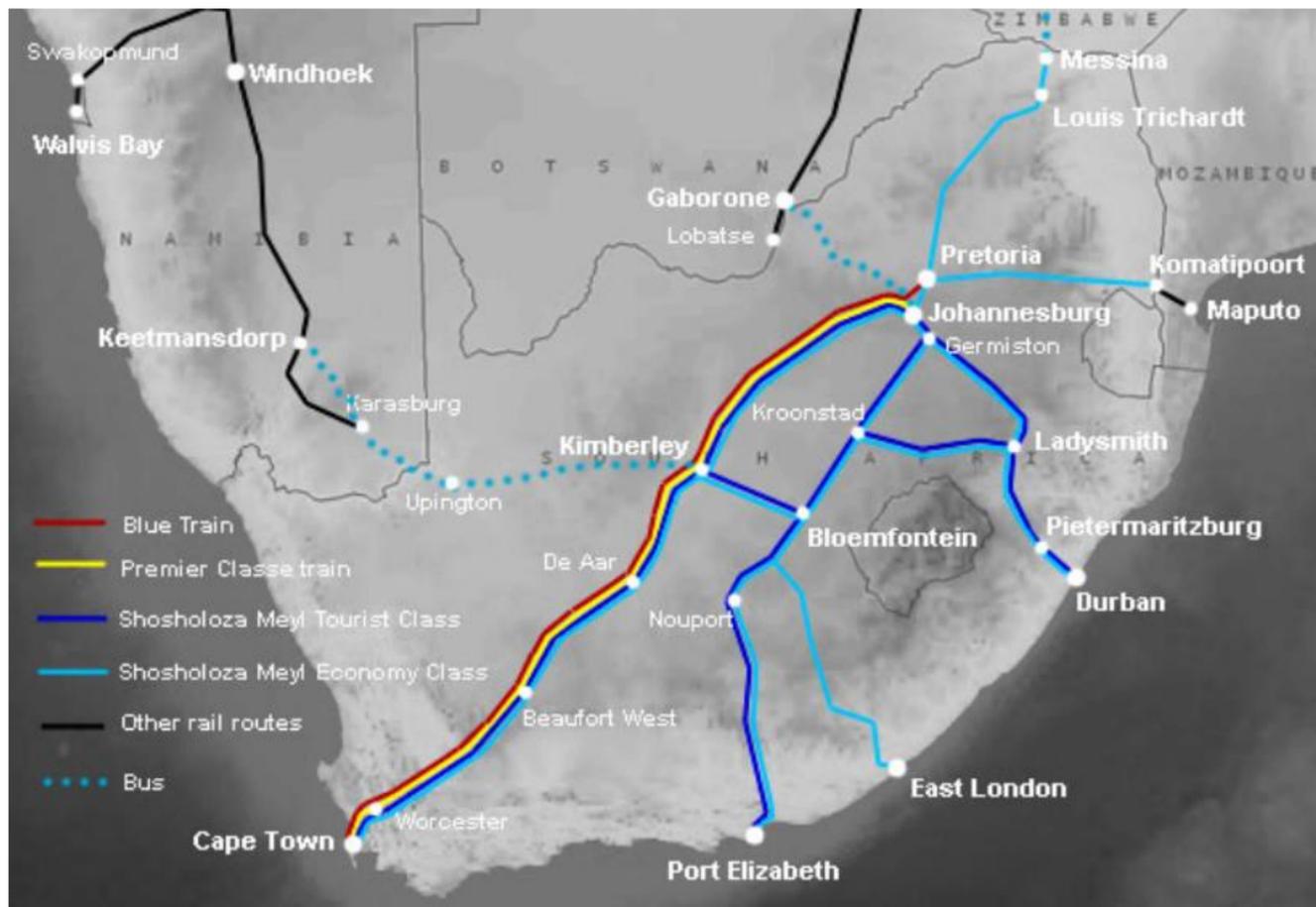


Figure 10-1: Shosholoza Meyl Route Map (2018)

The map only provides an indication of routes operated by PRASA in the past and might differ from the current situation due to operational decisions taken by PRASA from time to time. Furthermore, PRASA provides on Tourist Class (Economy Sleeper) trains and Premier Class (Deluxe Sleeper) trains for tourist and economy class services on these routes which thus allows a commuter to choose between a seated coach and or a sleeper coach. The two directional trips passing through Bloemfontein station include the following:

- Johannesburg to Bloemfontein
- East London to Bloemfontein
- Port Elizabeth to Bloemfontein.

Table 10-1: Shosholoza Meyl Destinations, Travel Time and Estimated Fares (2018)

	Origin - Destination	Days of Week	Travel Time to Destination	Estimated Fare*
1.	Johannesburg to Bloemfontein or Bloemfontein to Johannesburg	3 x per week (Wed, Friday & Sunday)	6 hours 55 minutes	R 270-00
2.	East London to Bloemfontein	3 x per week (Wed, Friday & Sunday)	12 hours 45 minutes	R 260-00
3.	Port Elizabeth to Bloemfontein	3 x per week (Wed, Friday & Sunday)	12 hours 40 minutes	R 280-00

Note: * single trip per adult. This fair is subject to change and therefore purely an indication of the travel cost as seasonal adjustments are applicable

10.2 Commuter Rail

No commuter rail system is available in the City of Mangaung. The Transnet network however pass through the CBD of Bloemfontein with proper station infrastructure. The rail station is in close proximity with the bus and taxi facility. It would even be possible to integrate the Bloemfontein rail station with the Inter-modal facility for which the minimum capital input would be required in order to ensure that the rail station and the bus and taxi facilities are fully integrated. This initiative will ensure proper inter-modality between rail, bus and taxi transport.

The MMM has however acknowledged the continuous quest to provide reliable and affordable transport, not only for commuters but the state alike. The majority of transport systems are dependable on receiving subsidies (except for the taxi industry) to be affordable for daily commuters. This pressure has required the city to look at all possibilities, especially on the longer haul routes. The MMM thus launched an investigation to investigate the possibility to introduce a commuter rail service from Thaba Nchu and Botshabelo into the CBD. The investigation is aimed at testing the technical feasibility as well as the financial viability to introduce a scheduled daily rail service from Thaba Nchu and Botshabelo into the CBD. The outcome of this investigation has not been published as yet and therefore no further comment is possible relating to the potential to introduce a long-distance commuter rail service for Mangaung. . Figure 10-3 illustrate the alignment options included in the Thaba Nchu CBD Rejuvenation Plan The existing rail infrastructure is presented in Figure 10-2.

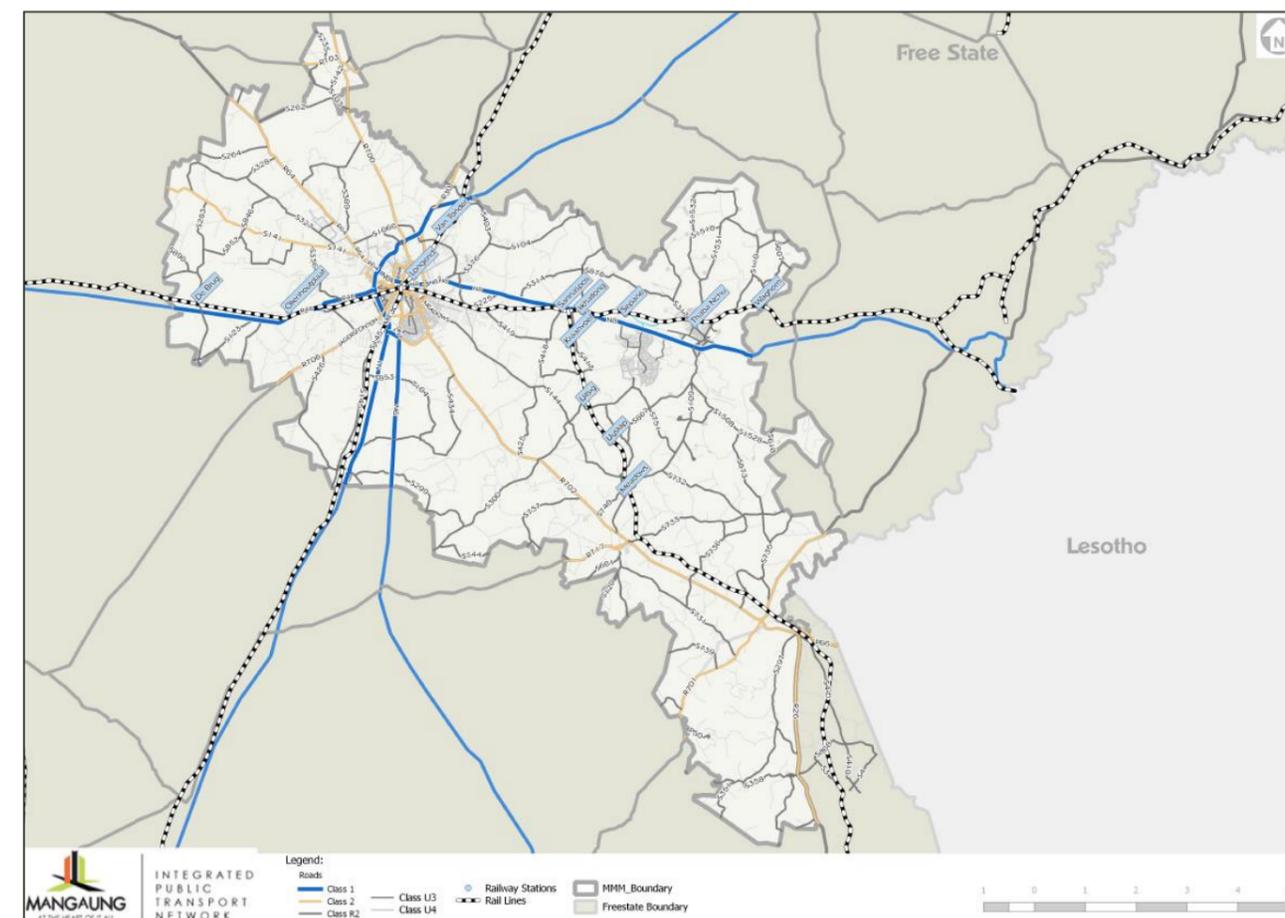


Figure 10-2: Rail Infrastructure

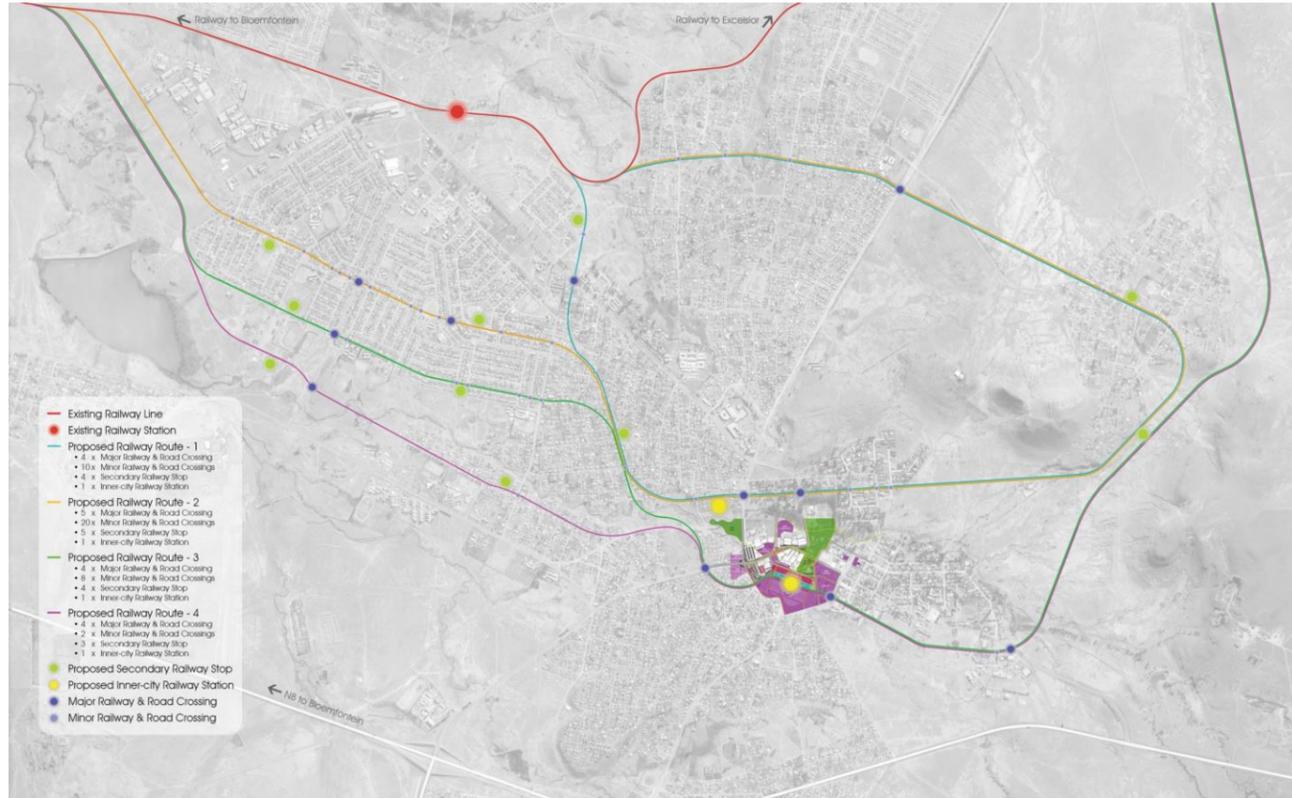


Figure 10-3: Rail Alignment Options – Thaba Nchu

11 Road Infrastructure and Network

Mangaung Local Municipality update the Road Master Plan for the city through the continues update of several local roadmaster Plans. The road master plans were initially developed between 1999-2004 and in recent years these plans were updated. The master plans in the process of updating or recently complete are:

- Bloemfontein Eastern Areas Roads Master Plan
- Western Areas Road Planning Study
- OR Tambo Transport study
- Waaihoek Bridge Study; and
- Thaba Nchu (Refer to Figure 11-4).

The road classification presented in the 2008 ITP is presented in Figure 11-1. The road classification is not based on the RCAM or RISFSA national(COTO) adopted road classification. Botshabelo and Thaba Nchu need to be included in the update of the road master plan to ensure integrated planning within all CBD's of the MMM. It is envisaged that the road master plan will be revised to align with the latest national accepted road classification system with the update of the Integrated Transport Plan.

Given the current road classification a Draft/proposed road network is presented for the utilisation in the Integrated Public Transport Network. The proposed road classification is presented in Figure 11-2 and was used as the basis in the public demand assignment model.

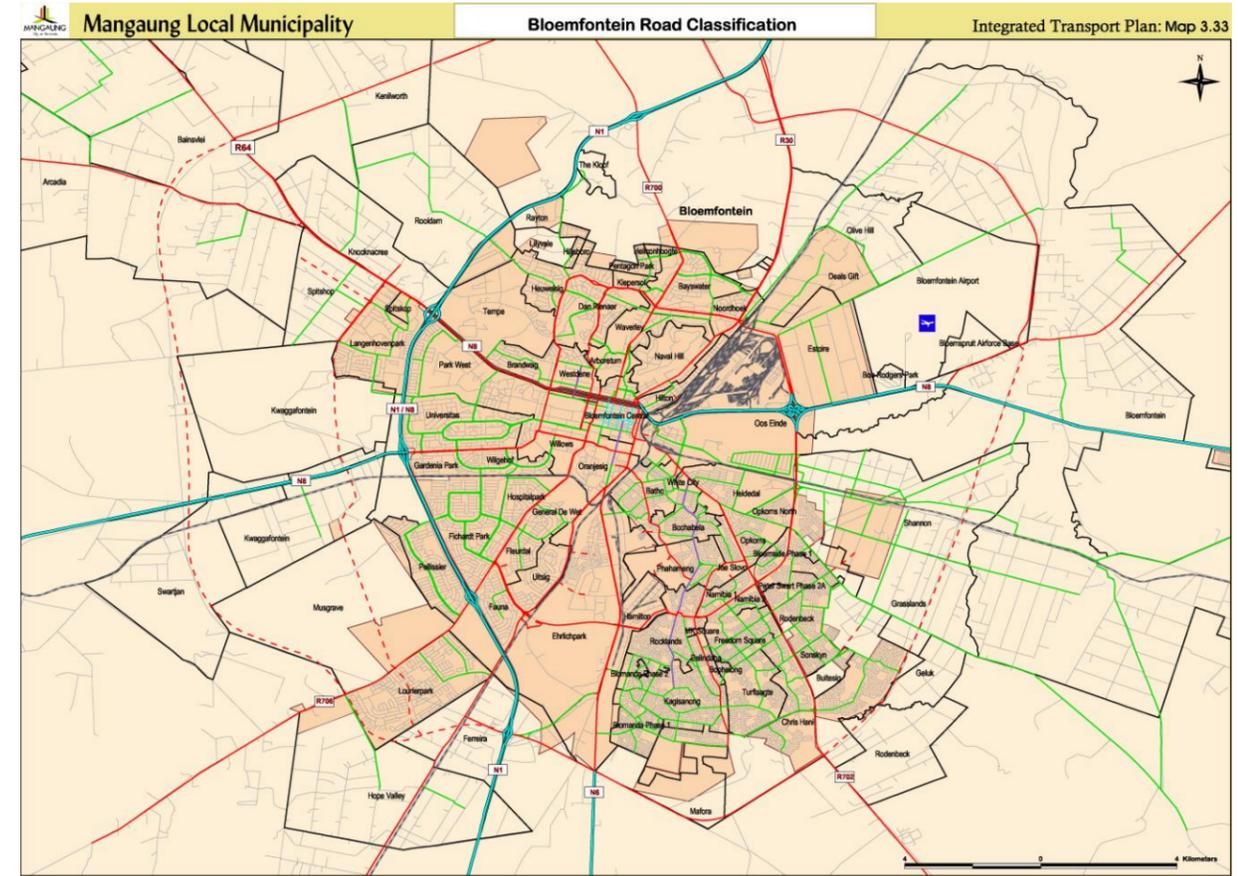


Figure 11-1: 2008 ITP Road Classification

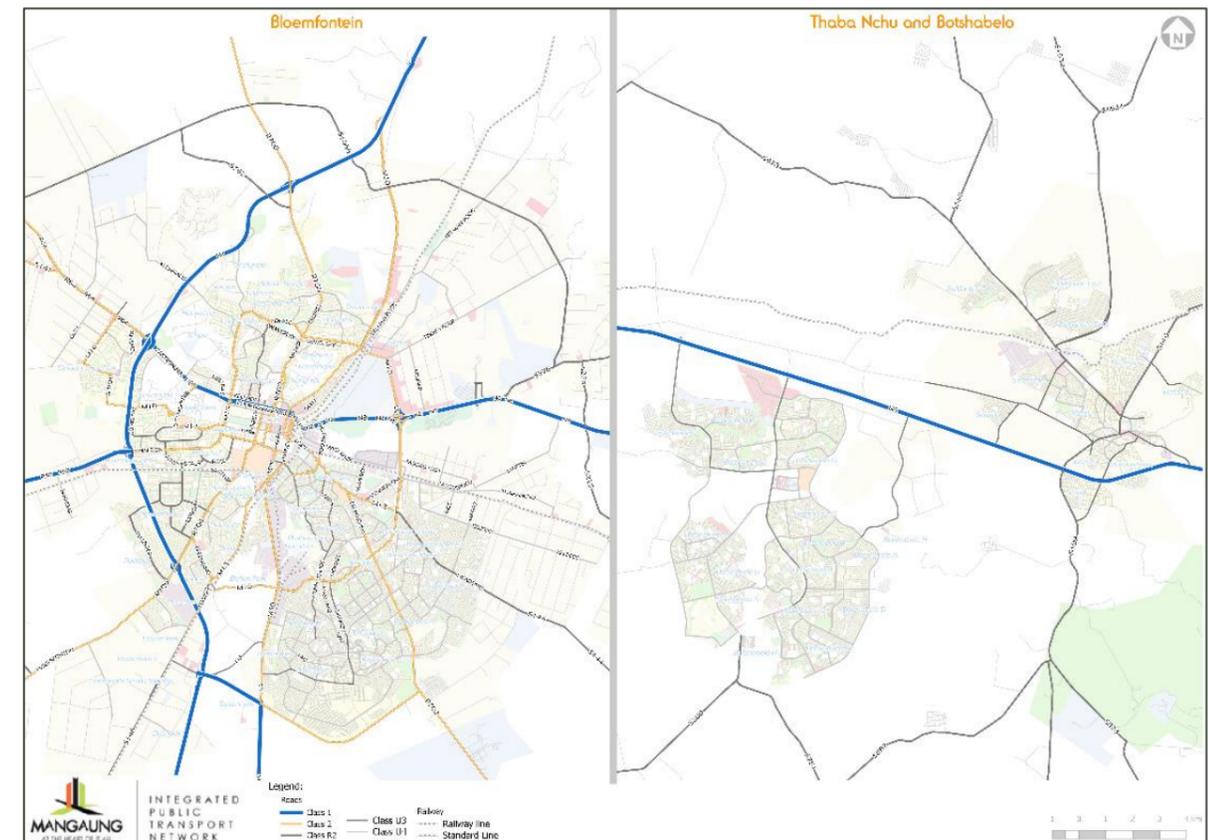


Figure 11-2: Existing Road Classification

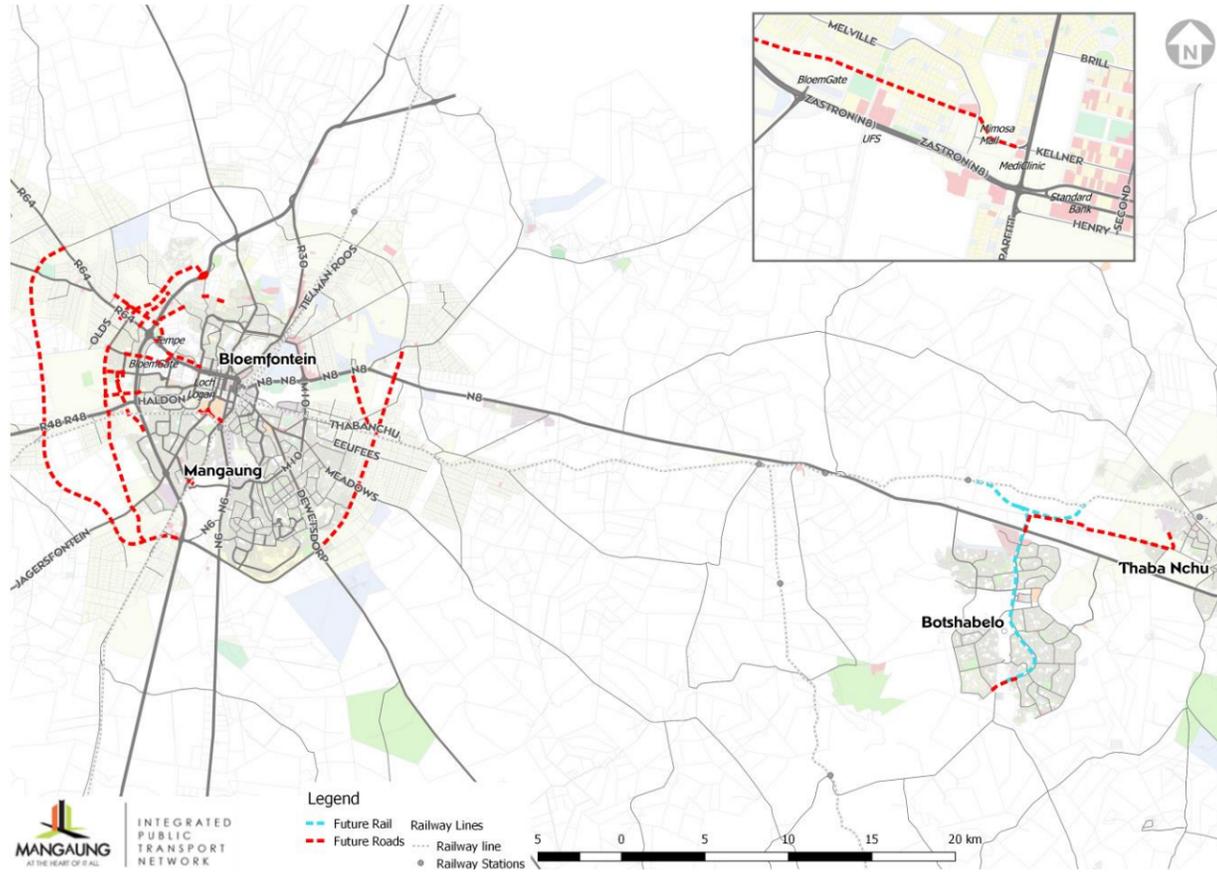


Figure 11-3: Proposed Road Network

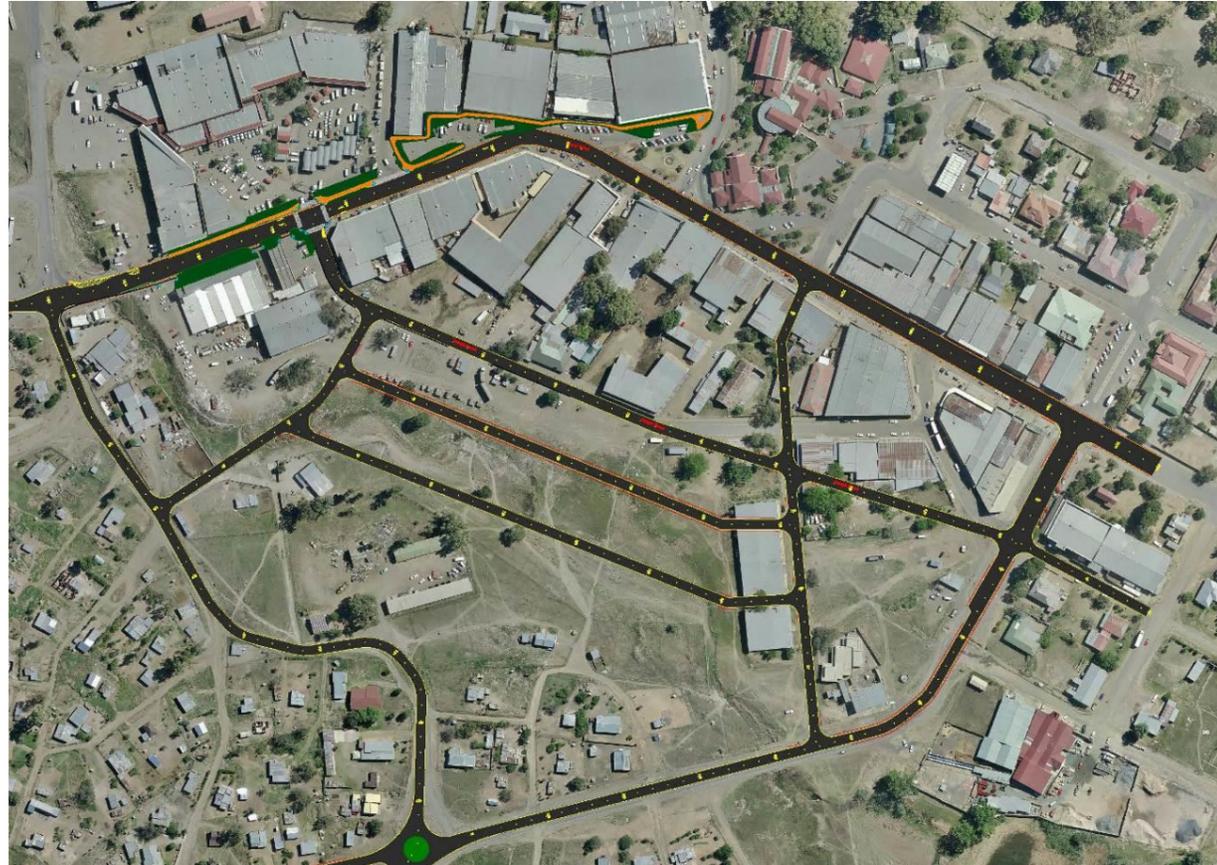


Figure 11-4: Thaba Nchu Proposed Road Network

12 Law Enforcement Status Quo

There is an acute need for dedicated and effective law enforcement to monitor and reduce the extent of illegal public transport operations in Mangaung. The law enforcement should be aimed at improving the compliance of the public transport service to specifications and regulations, as per the legal requirements i.e. operating permits, roadworthiness tests, overloading controlled, etc. The vision of the Mangaung ITP is to promote a safe and reliable public transport system and law enforcement officers should acquire additional training in the application of public transport policies and regulations.

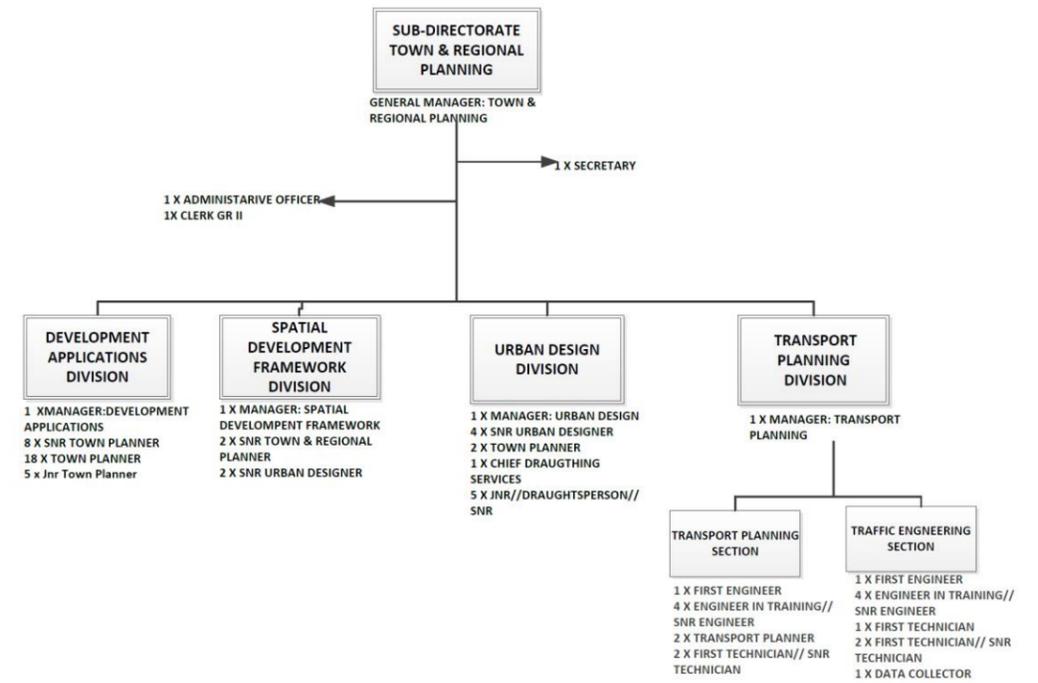
The Free State Province is responsible for the issuing of operating licences to minibus-taxi and bus operators and thus all law enforcement actions relating to public transport are coordinated by the provincial transport inspectorate. It is however suggested that any future transport law enforcement actions should be a combined effort between provincial and municipal law enforcement agencies incorporating the SAPS. The province will remain the overall coordinator of any such action.

13 Institutional Structures Status Quo

The Transport Planning Division for the city reside in the Directorate Planning, Sub-directorate Town and Regional Planning. The division comprise of Transport Planning and Traffic Engineering Sections. The total number of posts for transportation planning is presented in Diagram 13-1 and the Organisational Structures for MMM and Directorate Planning is presented in Diagram 13-2 and Diagram 13-3 respectively.

Tuesday, September 22, 2015

SUB-DIRECTORATE TOWN & REGIONAL PLANNING



ANNEXURE D.1

Diagram 13-1: Transport Planning Division Structure

Wednesday, September 21, 2016

ORGANISATIONAL STRUCTURE: MANGAUNG METRO

MUNICIPALITY

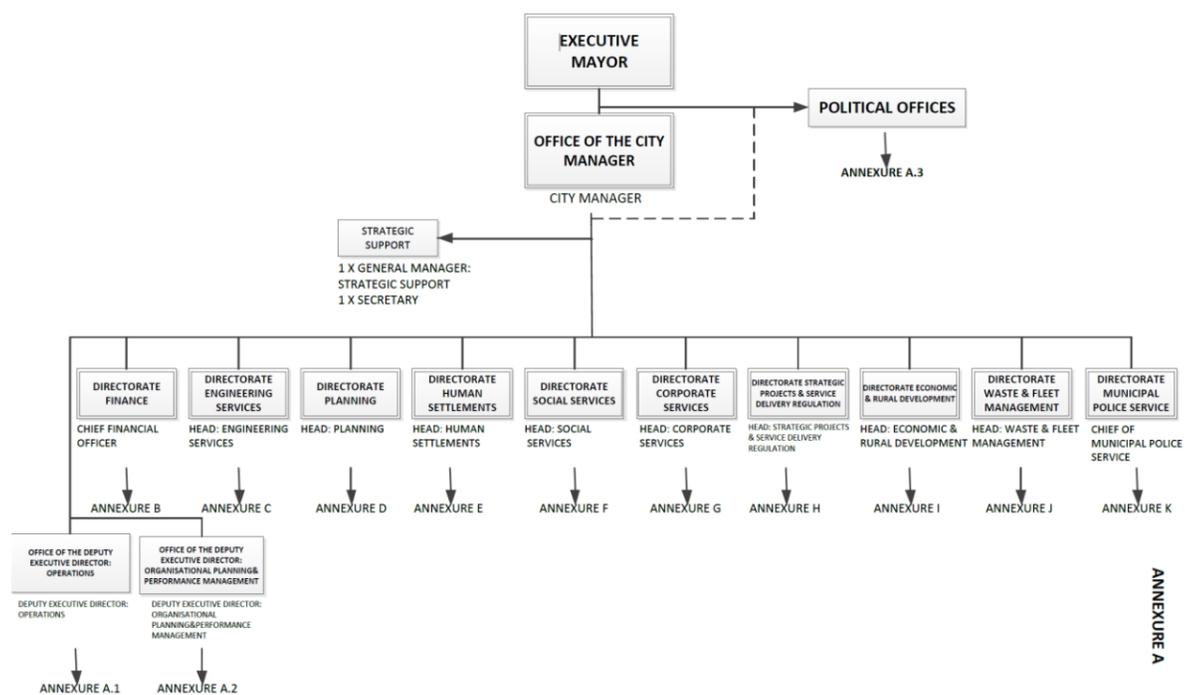


Diagram 13-2: Organisational Structure MMM

Tuesday, September 22, 2015

Approved Organisational Structure: DIRECTORATE PLANNING

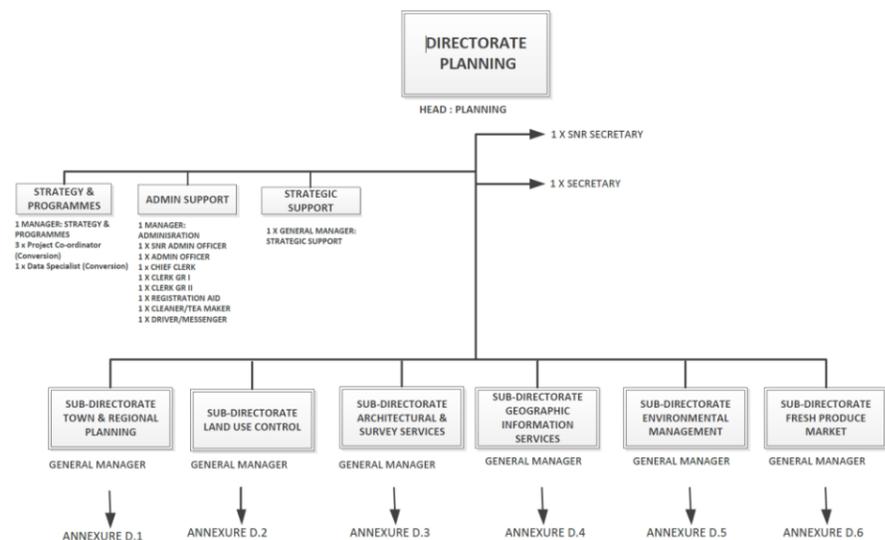


Diagram 13-3: Organisational Structure Directorate Planning

Annexure A: DETAIL MAPS AND LAYOUTS OF NEW DEVELOPMENTS

Annexure B: B Background to Demographic Projections and Economic Forecasts

Annexure C: THE IHS DEMOGRAPHIC MODEL

Annexure D: IHS GLOBAL ECONOMIC OUTLOOK

Annexure E: IHS SOUTH AFRICAN ECONOMIC OUTLOOK, MARCH 2016

Annexure F: EXAMPLES OF DELIVERABLES PER TRAFFIC ZONE

Annexure G: On-Board Taxi Survey Reports

Annexure H: Pedestrian Surveys

Annexure I: Traffic Impact study for OR Tambo and Maphisa/Moshoeshoe Corridors

Annexure J: Public Transport Validation Counts

Annexure K: TRIP PURPOSE BY TIME OF DAY - ALL MODES (FROM TRIP FILE)

Annexure L: TRIPS BY MODE BY TIME OF DAY - ALL TRIP PURPOSES (FROM TRIP FILE)

Annexure M: Public Transport Base Year Prior Matrix

Annexure N: VALIDATED BASE YEAR MATRIX

Annexure O: INPUT LAND USE PROJECTIONS

Annexure P: 2025 and 2036 Matrices

Annexure Q: Assigned Volumes per Functional Public Transport Corridor

Annexure R: Detail Origin Destination Pairs Per Functional Corridor

Annexure S: First Order Mode Selection

Annexure T: Route Design Options Per Functional Public Transport Corridor Route Design Options per Functional Public Transport Sub-Corridor

Annexure U: Vehicle Specifications

Annexure V: Private and Heavy vehicle volumes 2017

Annexure W: Passengers per route and station per corridor

Annexure X: CBD Traffic Impact Study – IPTN

Annexure Y: Road Infrastructure Maintenance and Upgrades

Annexure Z: Waiting Areas Guidelines Per Number of Passengers in the peak 15-minutes of the peak hour

Annexure AA: Station Sizing

Annexure BB: Hoffman Square – Capacity Calculation

Annexure CC: MMM IPTN NMT Plan

Annexure DD: Detailed Infrastructure per Corridor

Annexure EE: Detail Route

Annexure FF: Facility Sizing per Design Year

Annexure GG: Route Details per Design Year Trunk, Feeder and Complementary Routes (31_Excel File)

Annexure HH: Detail Operational Cost and Revenue Calculation Per Route

Annexure II: NMT Infrastructure Projects Parameters

Annexure JJ: Operational Cost and Revenue per Route Design Options and Functional Public Transport Corridor

Annexure KK: Subsidised Bus Service Volumes and routes per functional public transport corridor

Annexure LL: Phase 1 Business Plan

Annexure MM: Environmental Strategy and Action Plan

Annexure NN: Universal Access Strategy and Action Plan

Annexure OO: Industry Transition

Annexure PP: Legal and Compliance

Annexure QQ: Marketing Communications

Annexure RR: Stakeholder Participation

Annexure SS: Economic Impact

Annexure TT: Social Impact

Annexure UU: Signage and Wayfinding

Annexure VV: Traffic Management

Annexure WW: Household Travel Survey Technical Report and Results