2015-2036

MMM – City Wide Integrated Public Transport Plan

Annexure G

INTEGRATED PUBLIC TRANSPORT NETWORK

MMM IPTN Team
09 September 2019
Revision 6.0

MANGAUNG
AT THE HEART OF IT ALL

Content

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – MAFORA CENTRAL

(4 Plus 1)

iSAHA

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ROUTE: MAFORA CENTRAL (4 Plus 1)
REPORT DATE: 20 October 2017

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

14 4 plus 1 vehicles were surveyed between the following dates:
Installation: 3 August 2017
De-installation: 18 August 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

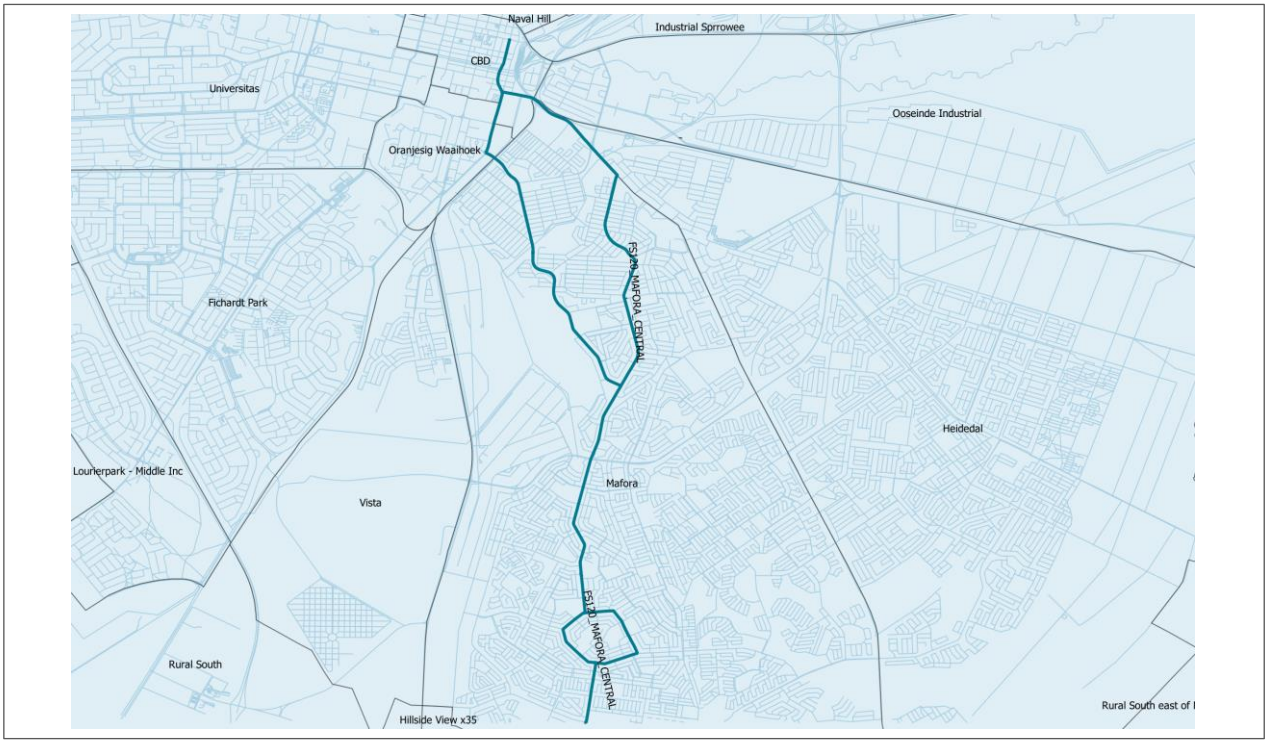
A total of 14 vehicles were surveyed between 3 and 17 August 2017. 11 vehicles had 6 or more consecutive days of data and 3 vehicles did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 712.85	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 4 989.92	Per week As determined from survey
Average monthly income	R 21 606.37	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R242 011.33	Calculated from weekly result Formula: 48.5 x weekly average

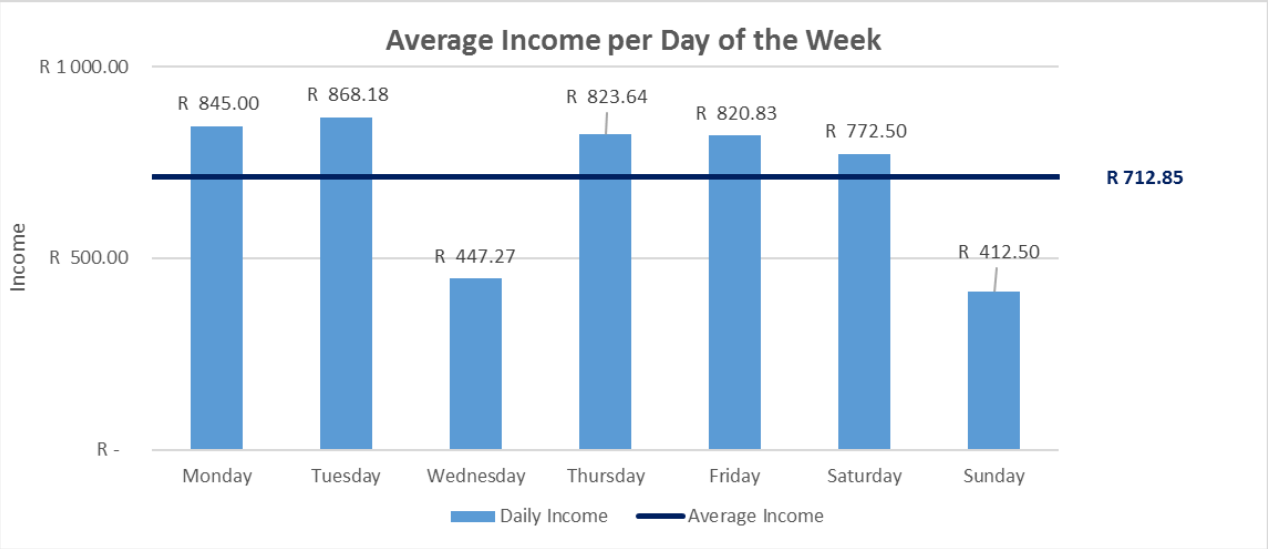


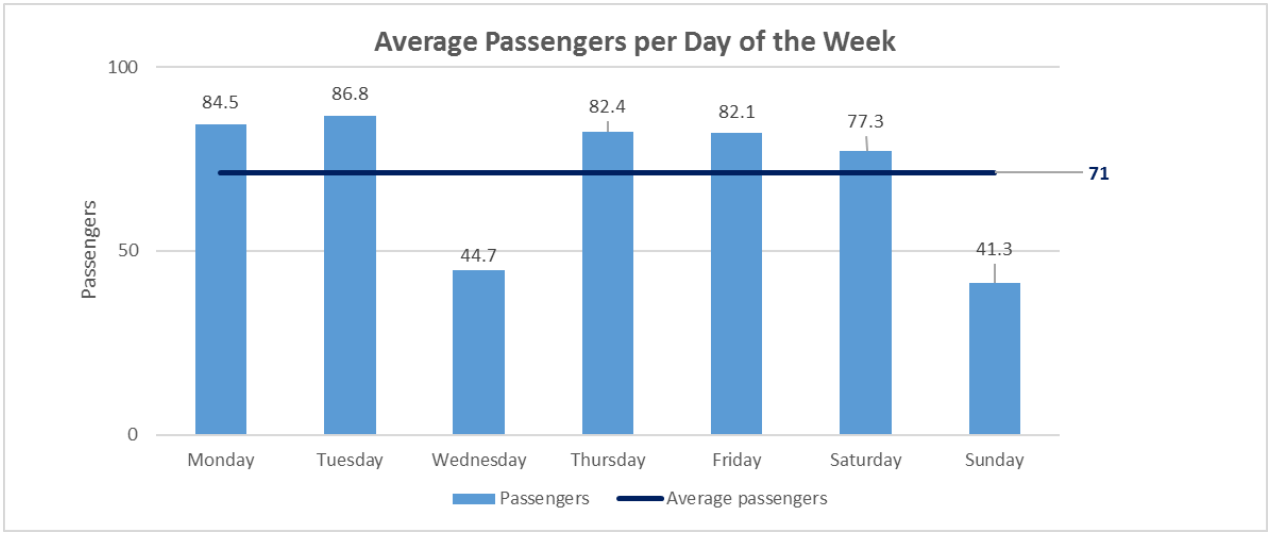
Corridor served by MAFORA CENTRAL Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	85	R 10.00	R 845.00
Tuesday	87	R 10.00	R 868.18
Wednesday	45	R 10.00	R 447.27
Thursday	82	R 10.00	R 823.64
Friday	82	R 10.00	R 820.83
Saturday	77	R 10.00	R 772.50
Sunday	41	R 10.00	R 412.50
Weekly total	499		R 4 989.92
Average	71	R 10.00	R 712.85
Weekday Avg	76	R 10.00	R 760.98

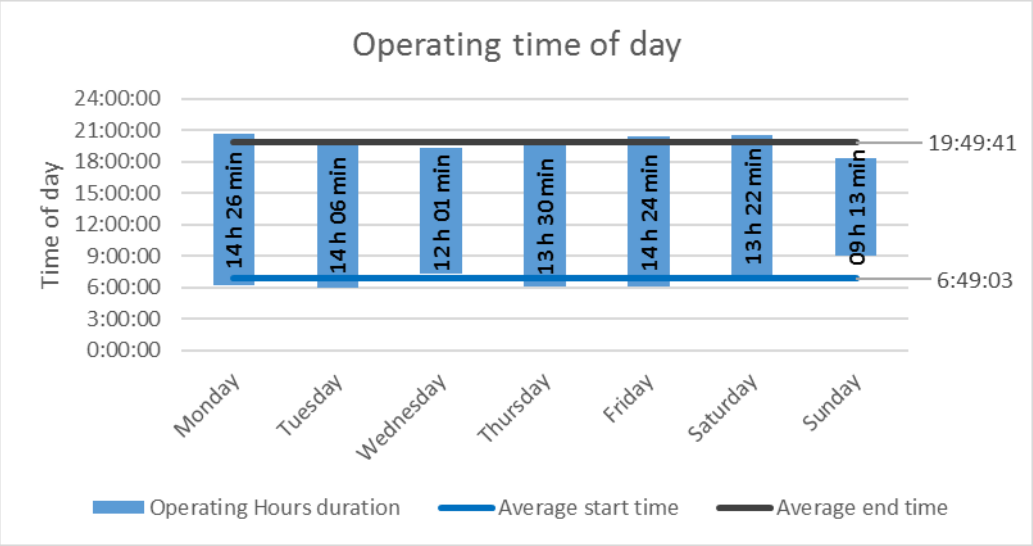



Average Passengers per Day of the Week
100
50
0
Passengers
84.5
86.8
44.7
82.4
82.1
77.3
41.3
71
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.3. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	6:49:03	19:49:41	13:00:38
Weekday (Mon-Fri) avg	6:18:11	19:59:50	13:41:39
Monday	6:12:47	20:39:07	14:26:20
Tuesday	5:55:31	20:01:38	14:06:07
Wednesday	7:14:56	19:16:16	12:01:20
Thursday	6:04:34	19:34:45	13:30:11
Friday	6:03:08	20:27:24	14:24:17
Saturday	7:07:57	20:30:16	13:22:18
Sunday	9:04:25	18:18:20	9:13:54



3.4. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	219	219	R	3.25	40%
Weekday (Mon-Fri) avg	239	239	R	3.19	40%
Monday	257	257	R	3.29	40%
Tuesday	267	267	R	3.25	41%
Wednesday	181	181	R	2.46	33%
Thursday	249	249	R	3.31	40%
Friday	239	239	R	3.43	44%
Saturday	222	222	R	3.49	42%
Sunday	120	120	R	3.44	41%

3.5. Operational analysis

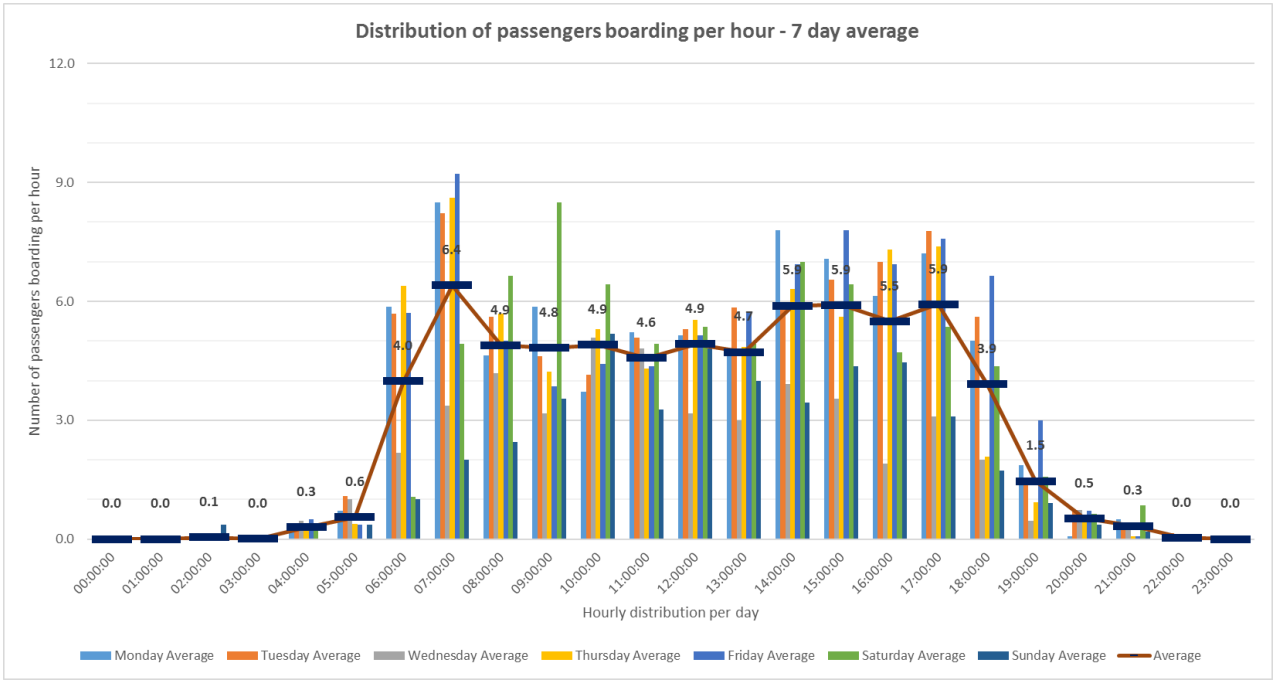
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	219.3	71	3.08	00:07:52	16.1	415.6	1020.1	40%
Weekday (Mon-Fri) avg	238.7	76	3.14	00:07:35	17.0	419.0	1044.1	40%
Monday	257.1	85	3.04	00:07:04	17.7	427.0	1064.8	40%
Tuesday	267.2	87	3.08	00:06:37	18.9	444.5	1090.0	41%
Wednesday	181.5	45	4.06	00:10:12	13.6	325.8	964.6	33%
Thursday	248.8	82	3.02	00:06:44	18.3	427.3	1060.8	40%
Friday	239.1	82	2.91	00:07:17	16.6	444.1	1013.7	44%
Saturday	221.6	77	2.87	00:07:09	16.7	411.3	963.4	42%
Sunday	119.8	41	2.90	00:10:03	10.5	389.3	885.4	41%

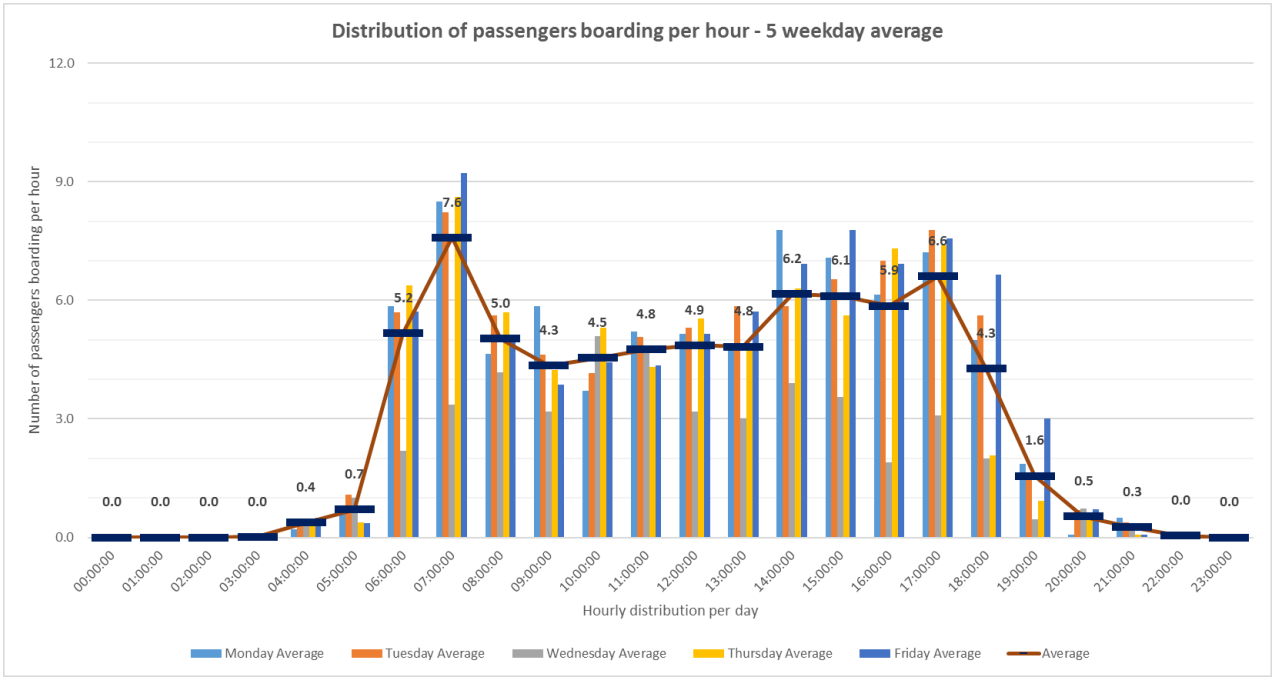
3.6. Fluctuations

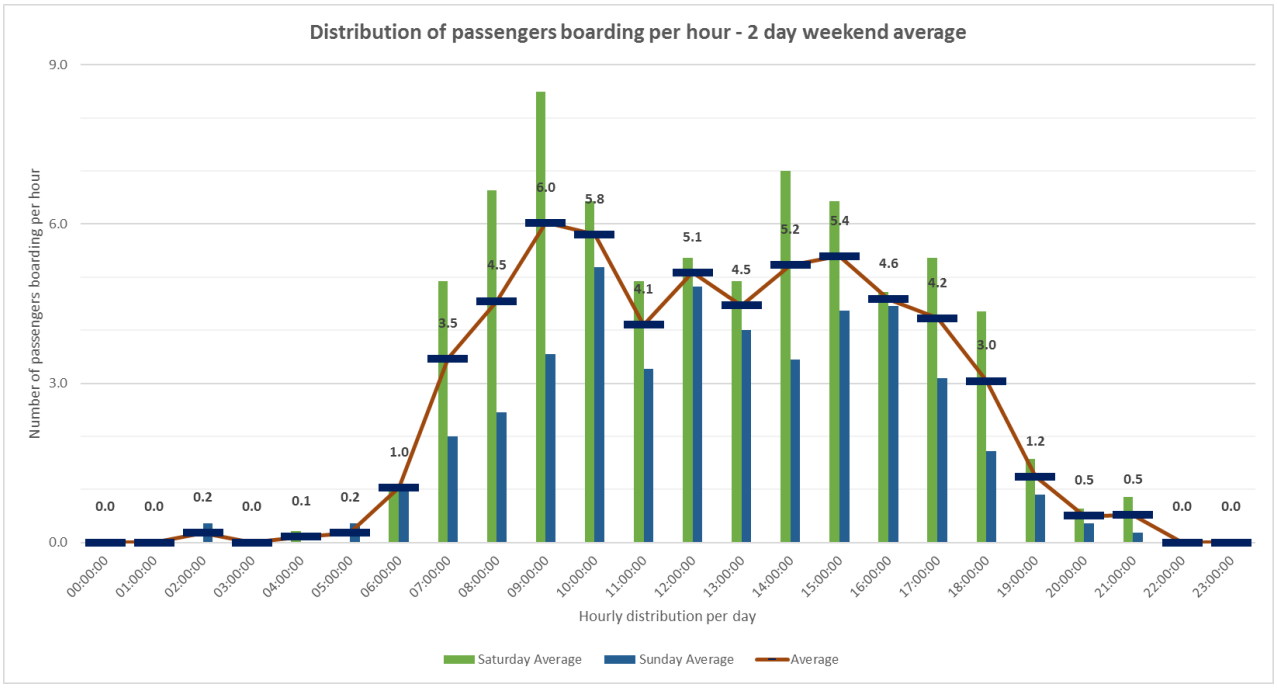
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.0	R -	0%
01:00	01:59	0.0	R -	0%
02:00	02:59	0.1	R 0.52	0%
03:00	03:59	0.0	R 0.11	0%
04:00	04:59	0.3	R 2.96	2%
05:00	05:59	0.6	R 5.57	6%
06:00	06:59	4.0	R 39.86	27%
07:00	07:59	6.4	R 64.08	30%
08:00	08:59	4.9	R 48.90	24%
09:00	09:59	4.8	R 48.27	28%
10:00	10:59	4.9	R 49.01	33%
11:00	11:59	4.6	R 45.68	32%
12:00	12:59	4.9	R 49.27	38%
13:00	13:59	4.7	R 47.21	36%
14:00	14:59	5.9	R 58.90	41%
15:00	15:59	5.9	R 59.07	39%
16:00	16:59	5.5	R 54.94	36%
17:00	17:59	5.9	R 59.26	34%
18:00	18:59	3.9	R 39.17	28%
19:00	19:59	1.5	R 14.65	12%
20:00	20:59	0.5	R 5.25	5%
21:00	21:59	0.3	R 3.35	5%
22:00	22:59	0.0	R 0.35	2%
23:00	23:59	0.0	R -	0%

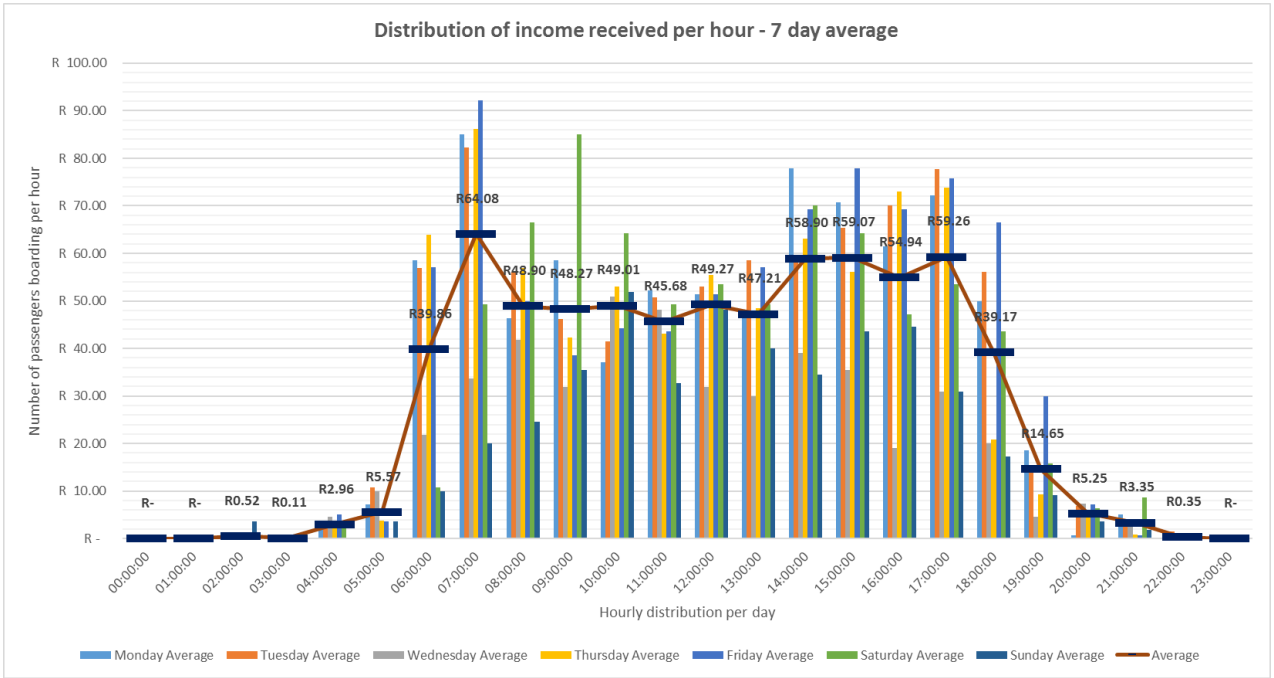
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

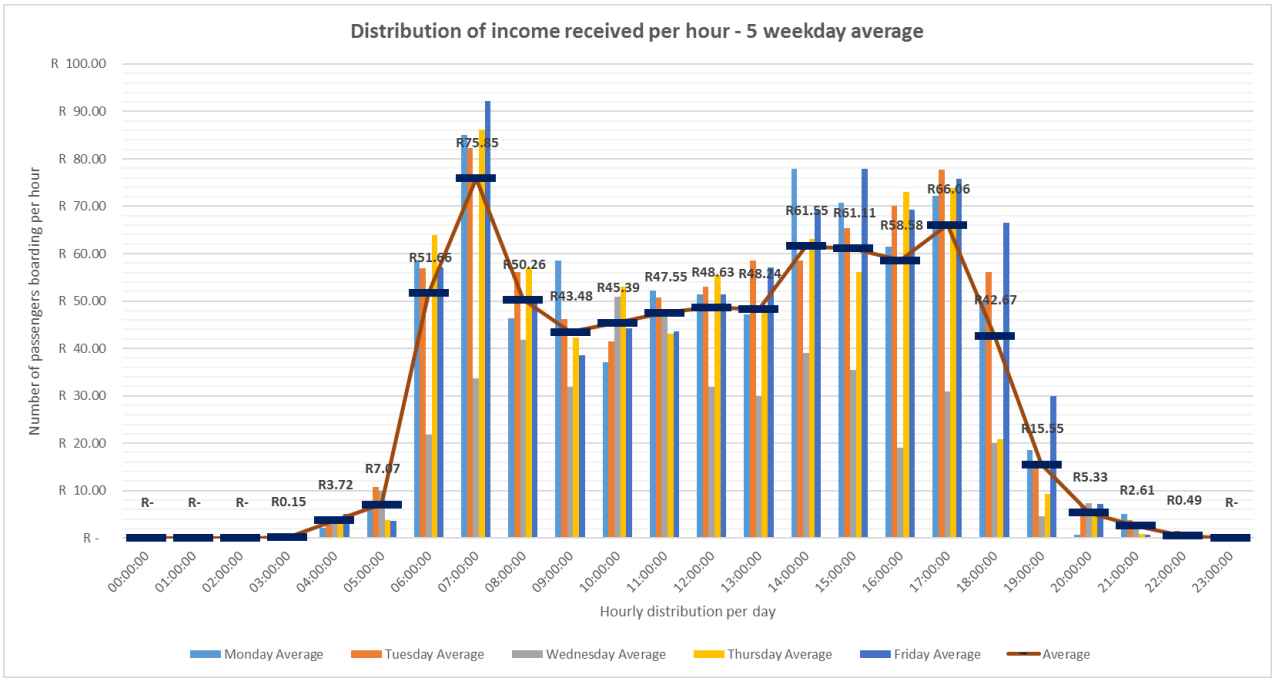


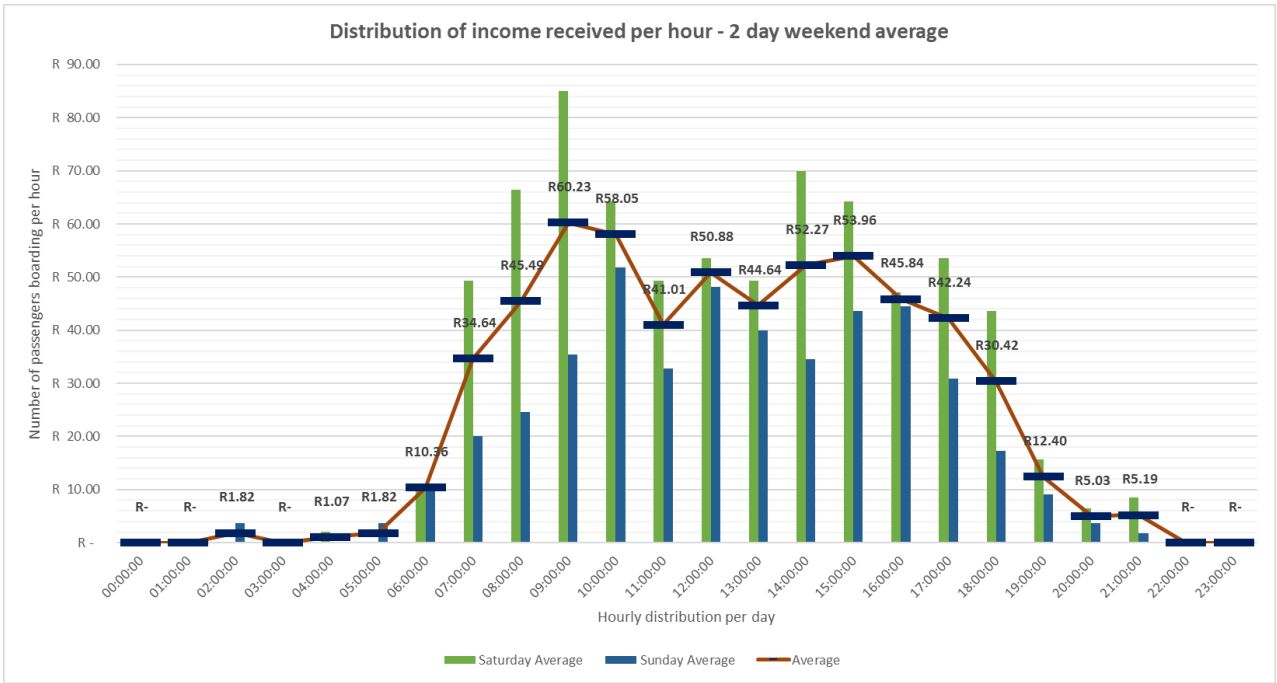




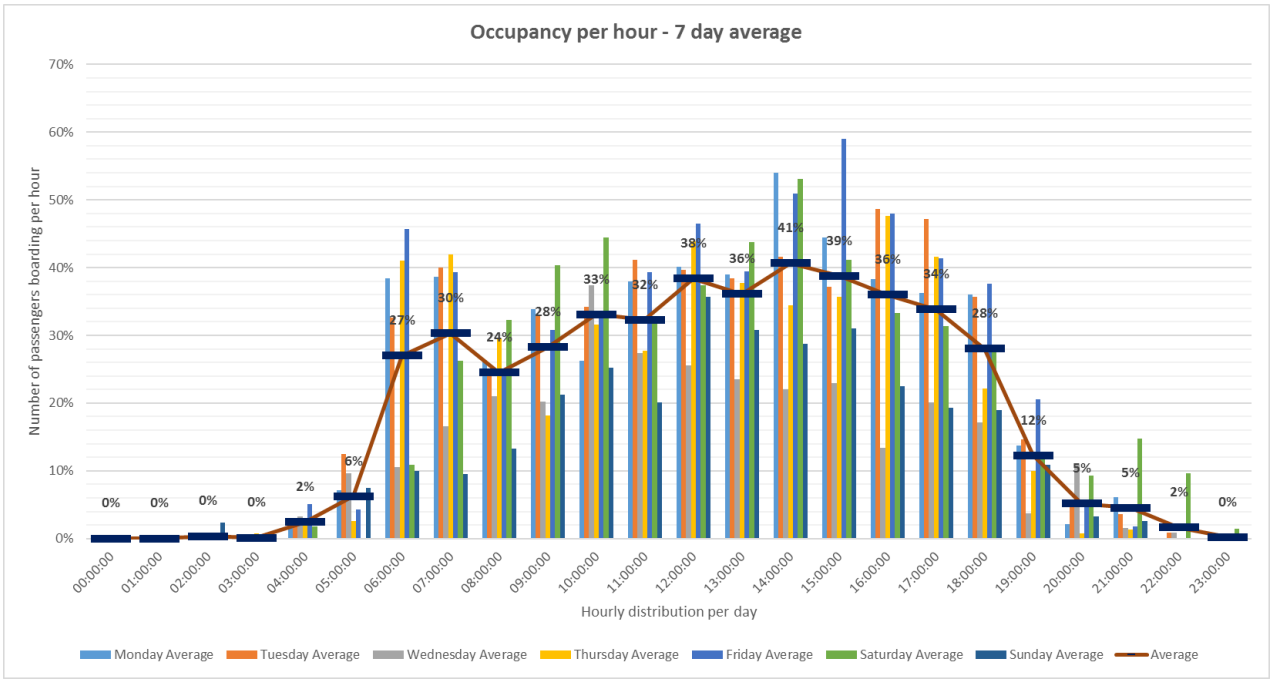
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

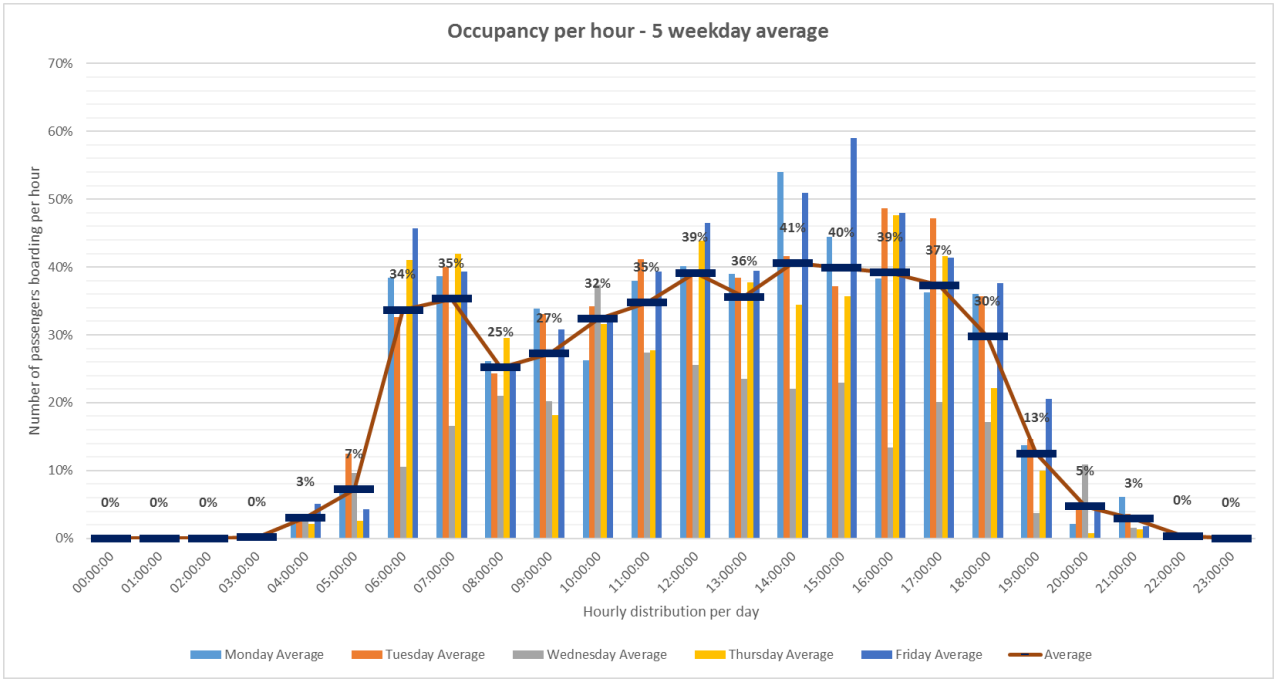


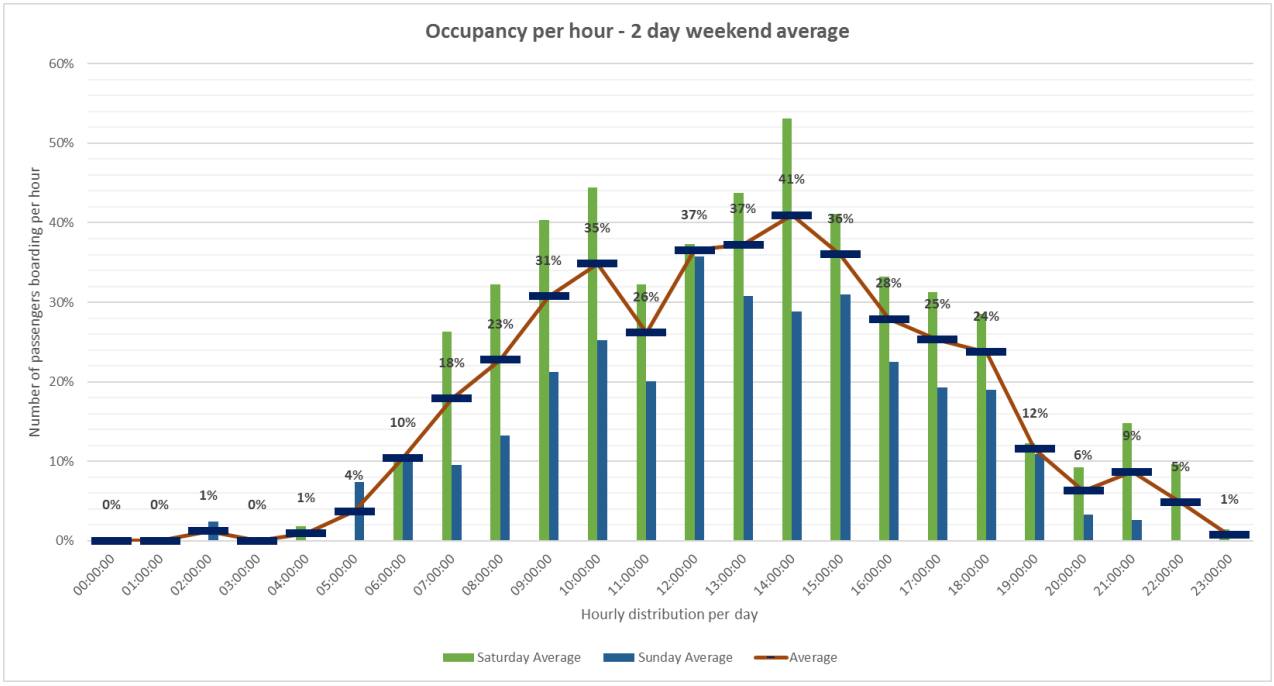

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 100.00
R 90.00
R 80.00
R 70.00
R 60.00
R 50.00
R 40.00
R 30.00
R 20.00
R 10.00
R -
R- R- R- R0.15 R3.72 R7.07 R51.66 R75.85 R50.26 R43.48 R45.39 R47.55 R48.63 R48.14 R61.55 R61.11 R58.58 R66.06 R42.67 R15.55 R5.33 R2.61 R0.49 R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 90.00
R 80.00
R 70.00
R 60.00
R 50.00
R 40.00
R 30.00
R 20.00
R 10.00
R -
R- R- R1.82 R- R1.07 R1.82 R10.36 R34.64 R45.49 R60.23 R58.05 R41.01 R50.88 R44.64 R52.27 R53.96 R45.84 R42.24 R30.42 R12.40 R5.03 R5.19 R- R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

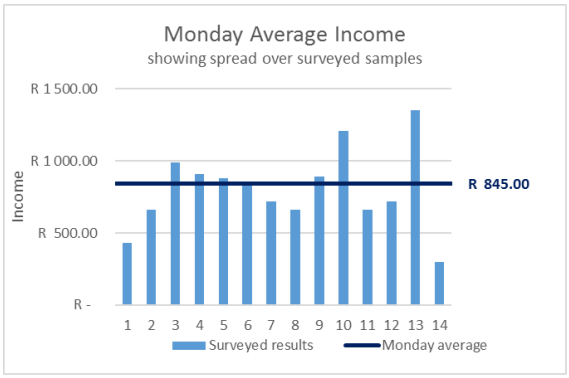


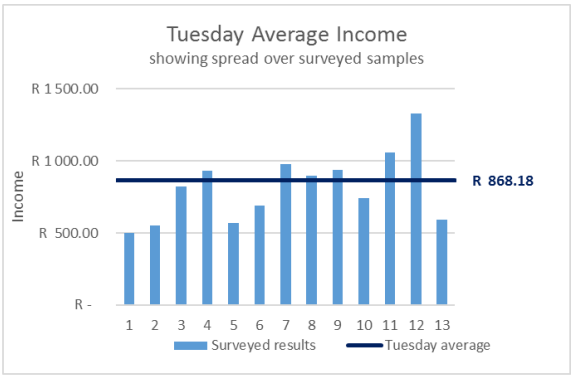


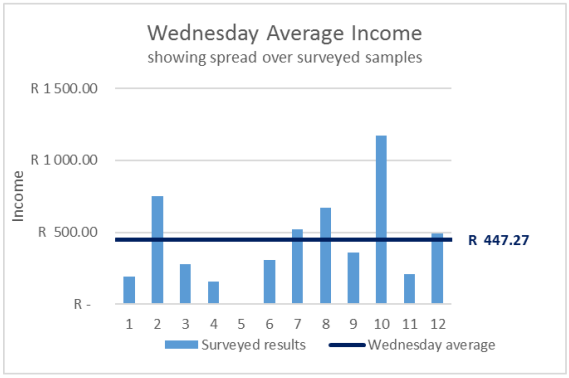

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
60%
50%
40%
30%
20%
10%
0%
0% 0% 1% 0% 1% 4% 10% 18% 23% 31% 35% 26% 37% 37% 41% 36% 28% 25% 24% 12% 6% 9% 5% 1%
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

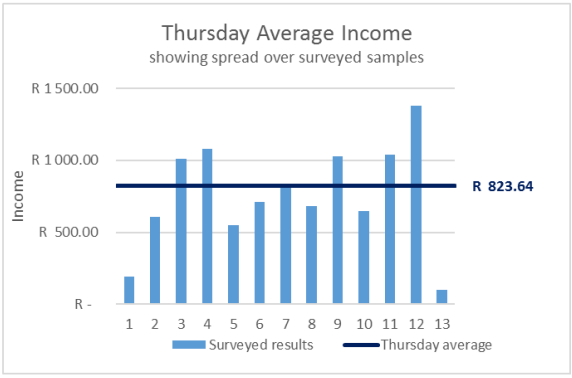
4. DETAILED SURVEY RESULTS

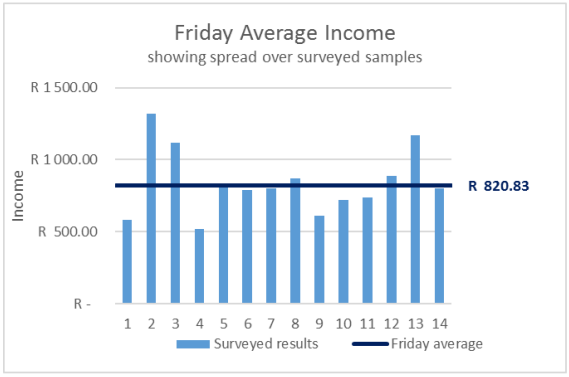
4.1. Income distribution

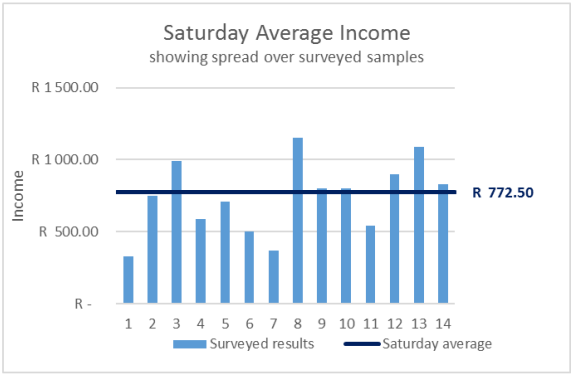


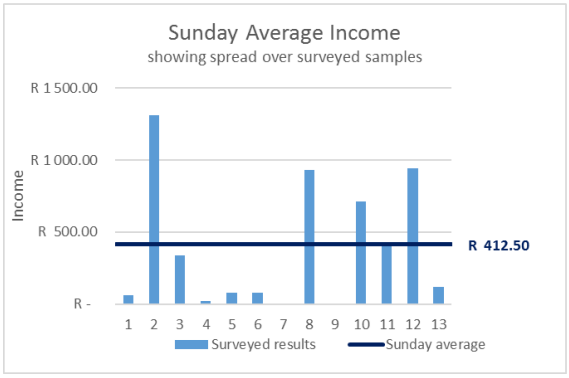




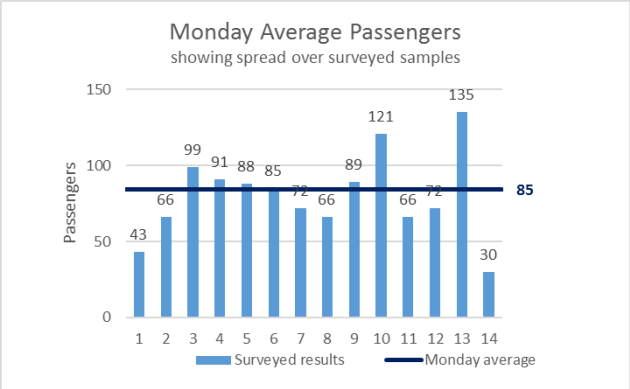


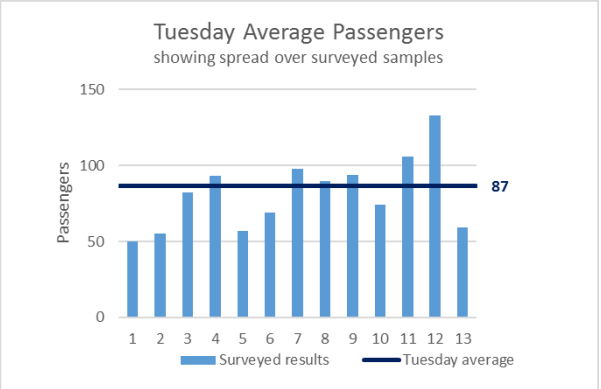


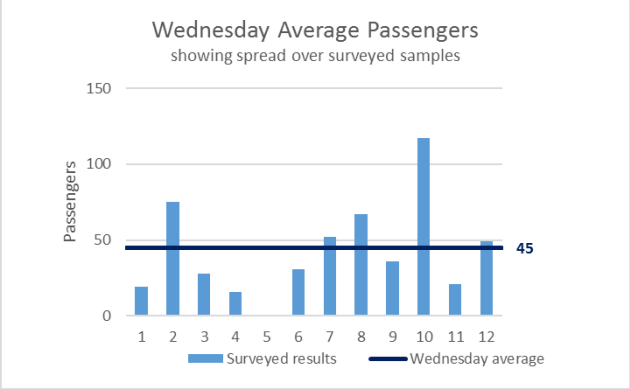


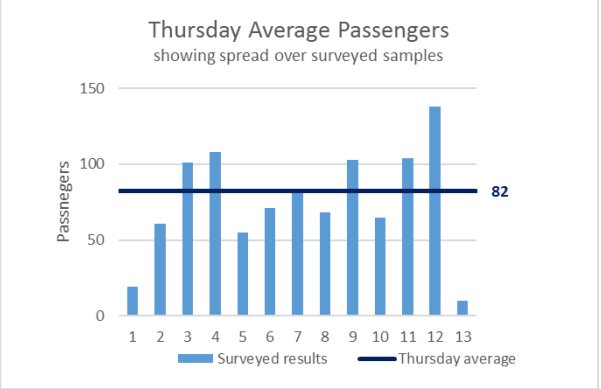


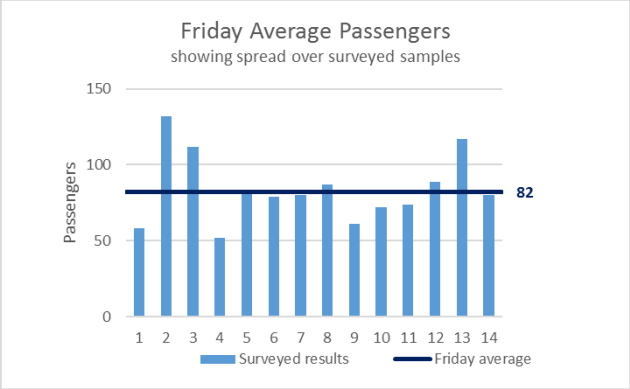
4.2. Passenger number distribution

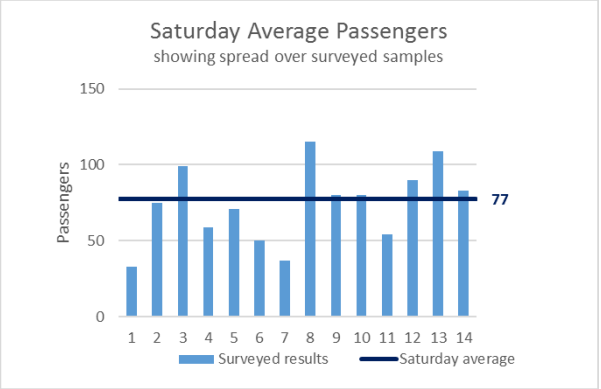


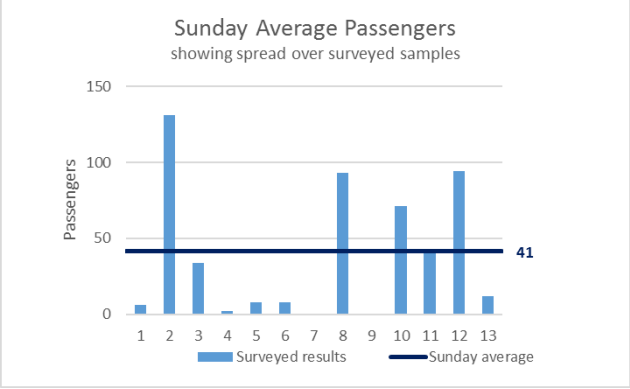










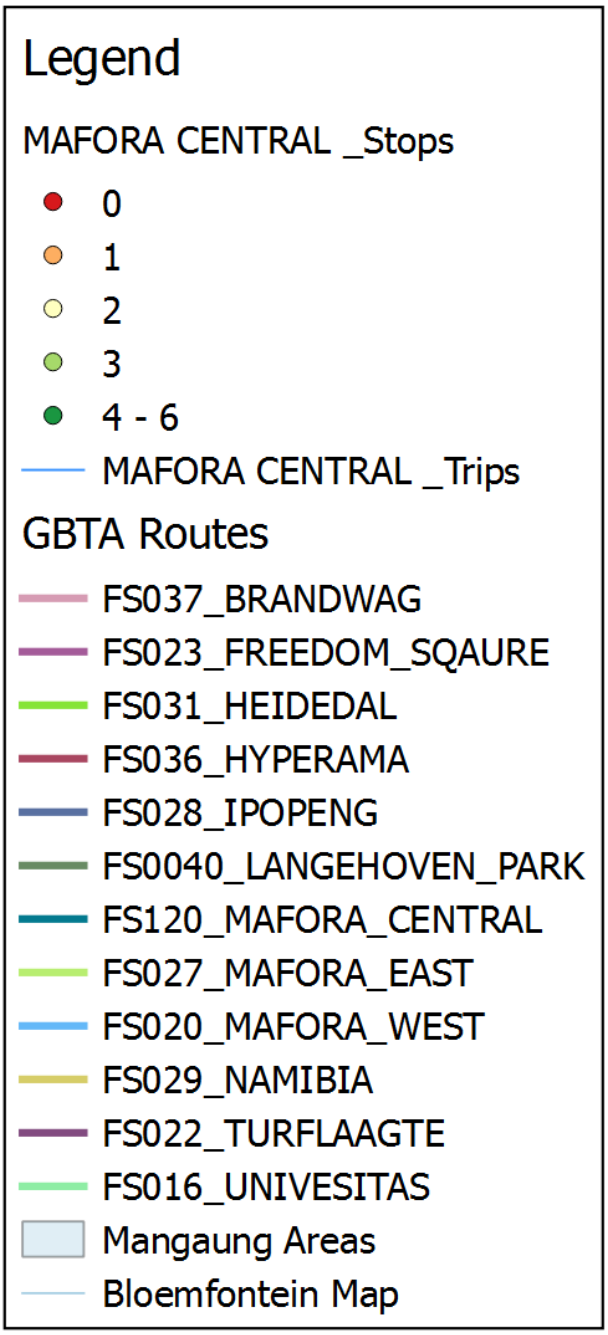


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

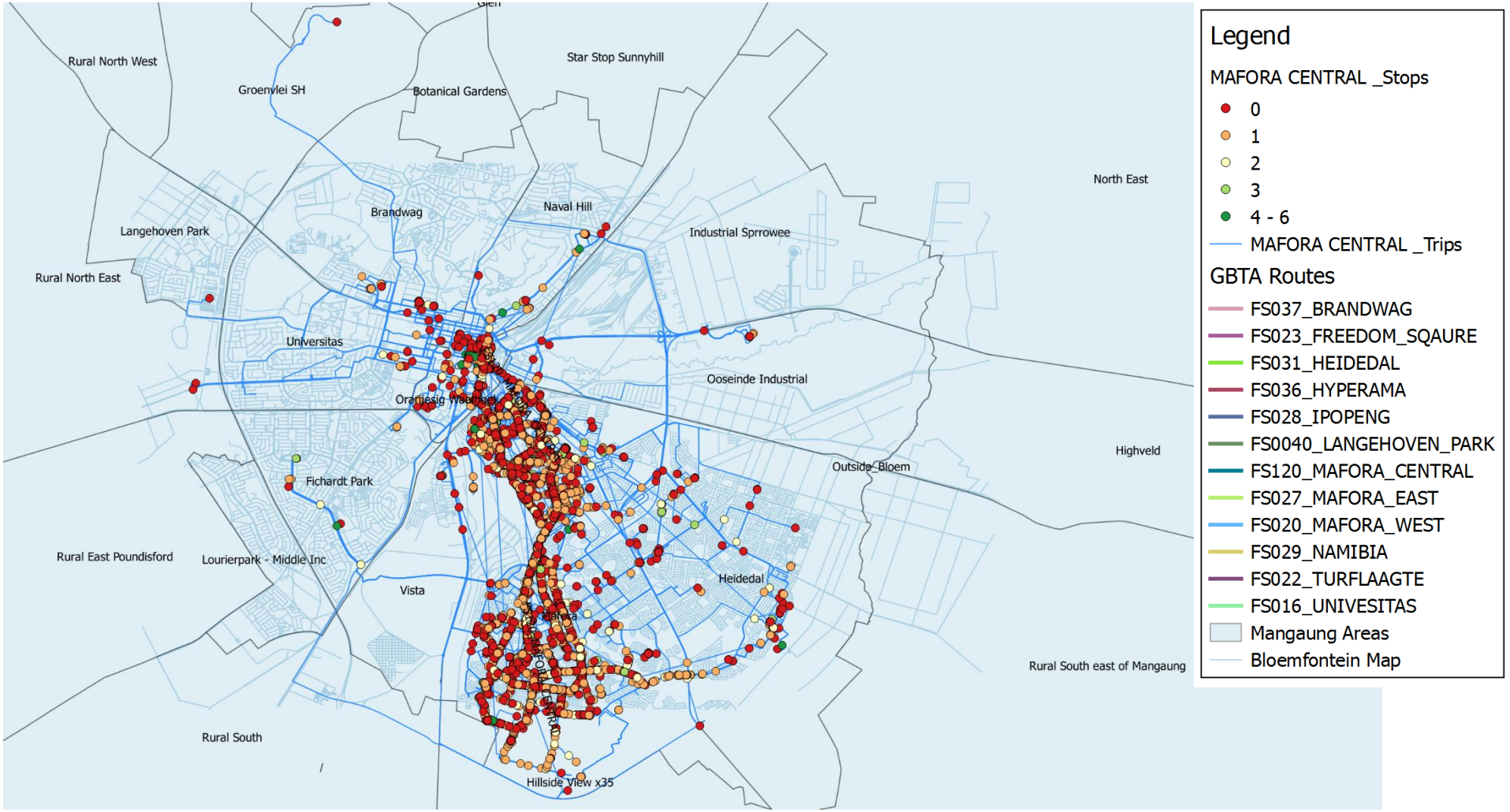


5.1. All surveyed operations

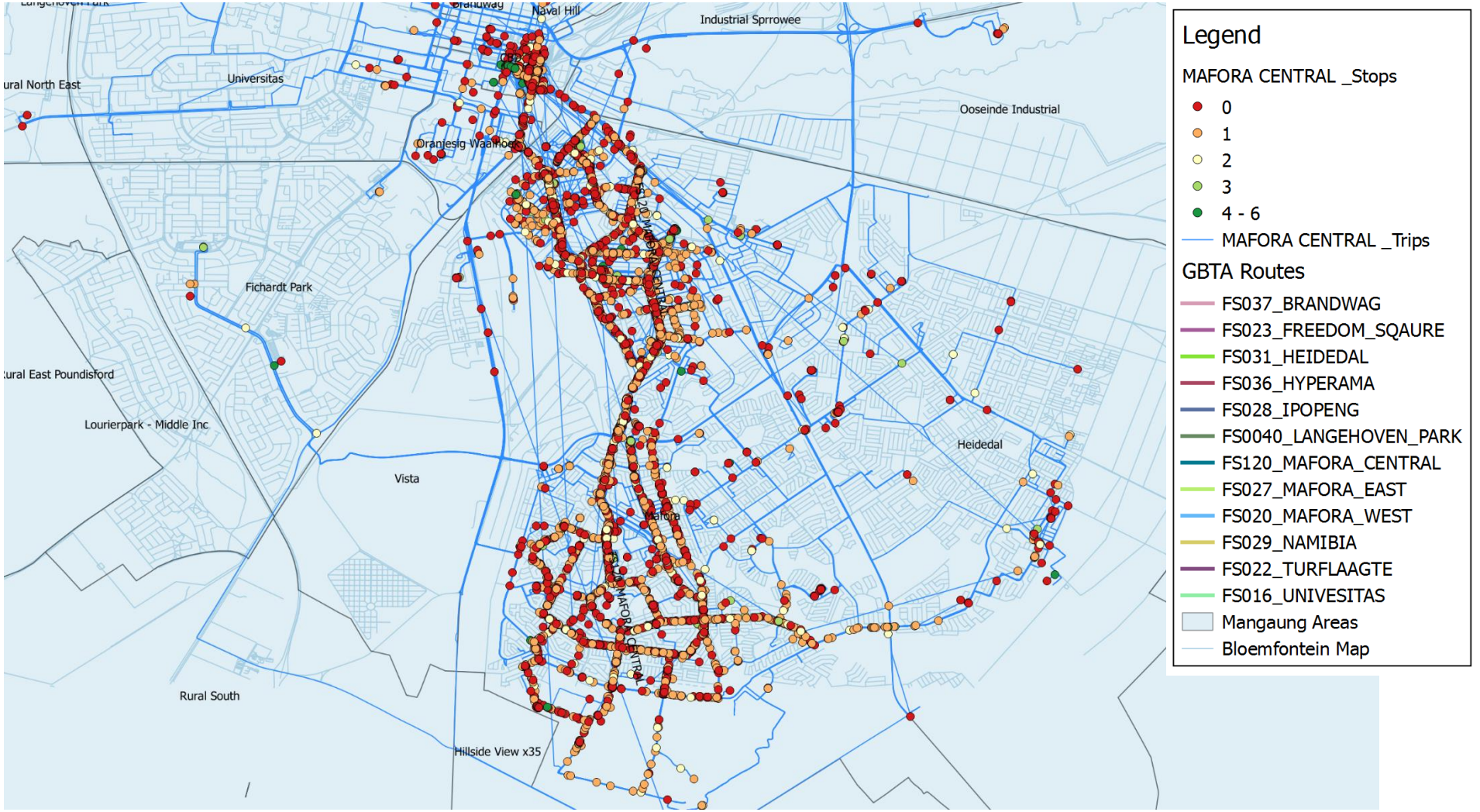
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

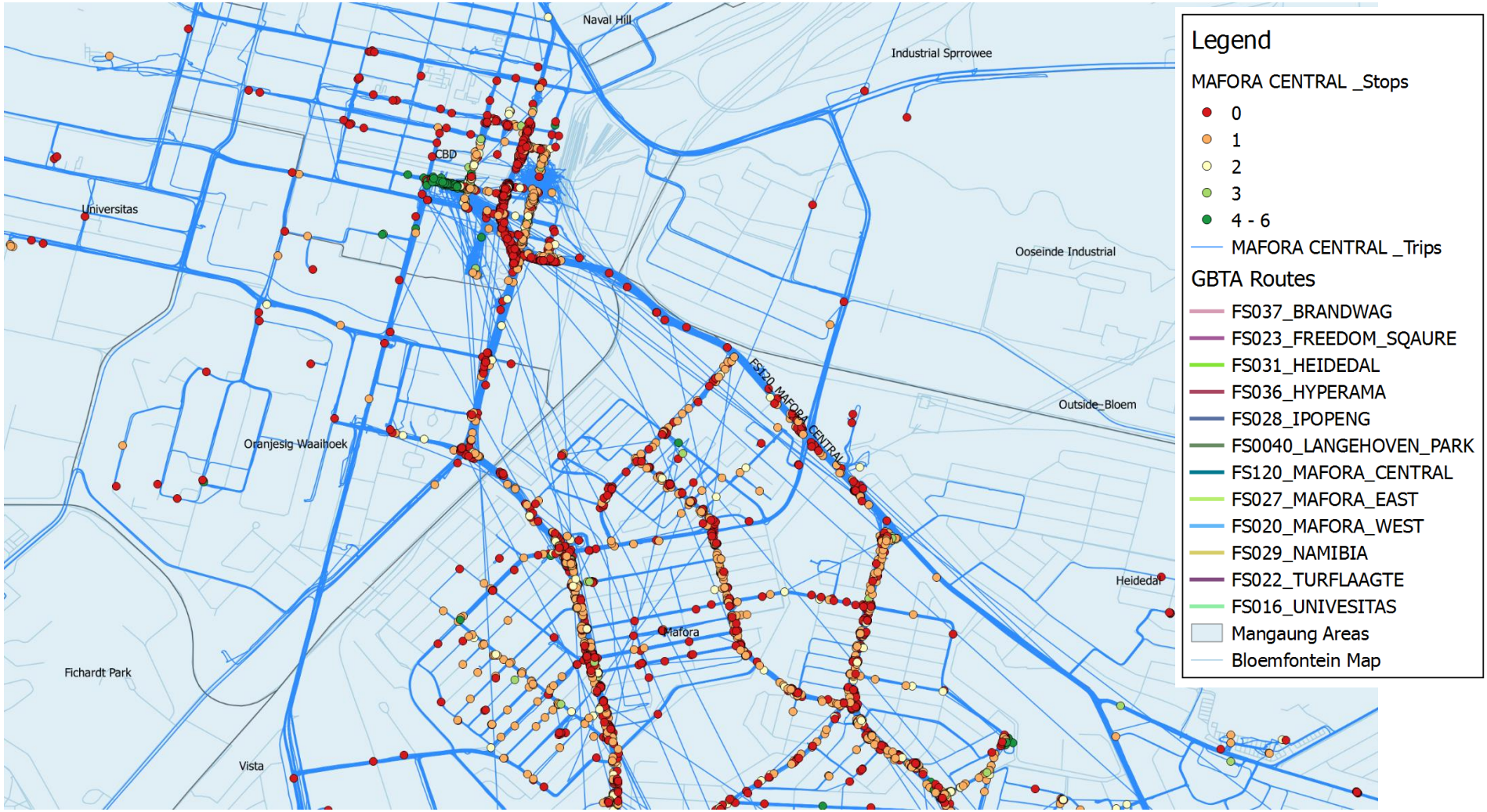
Operations of all surveyed taxis including stops



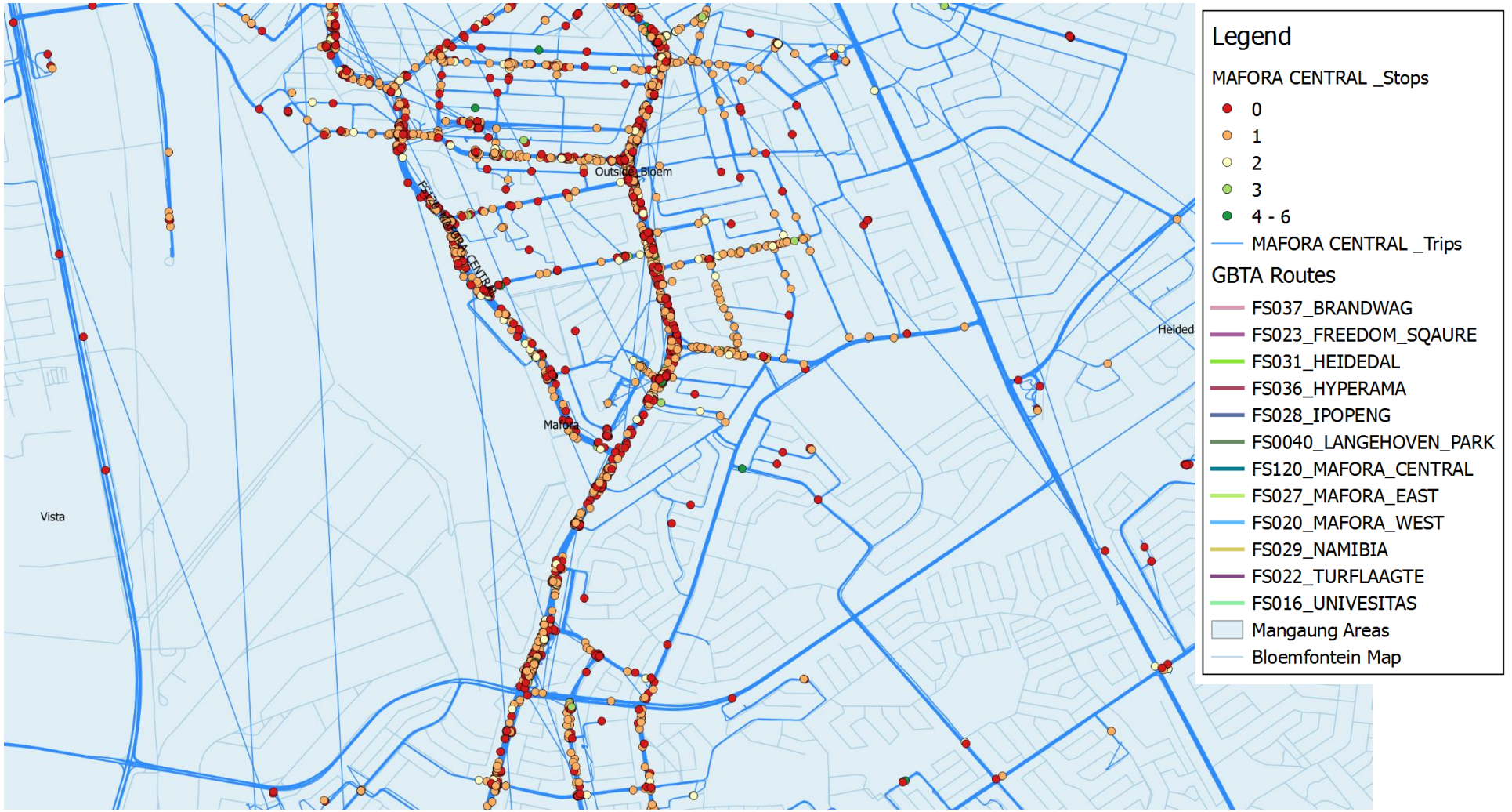
Operations of all surveyed taxis including stops – Focused on the MAFORA CENTRAL route



Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the Corner of Maphisa Rd and Moshoeshoe St on the MAFORA CENTRAL route



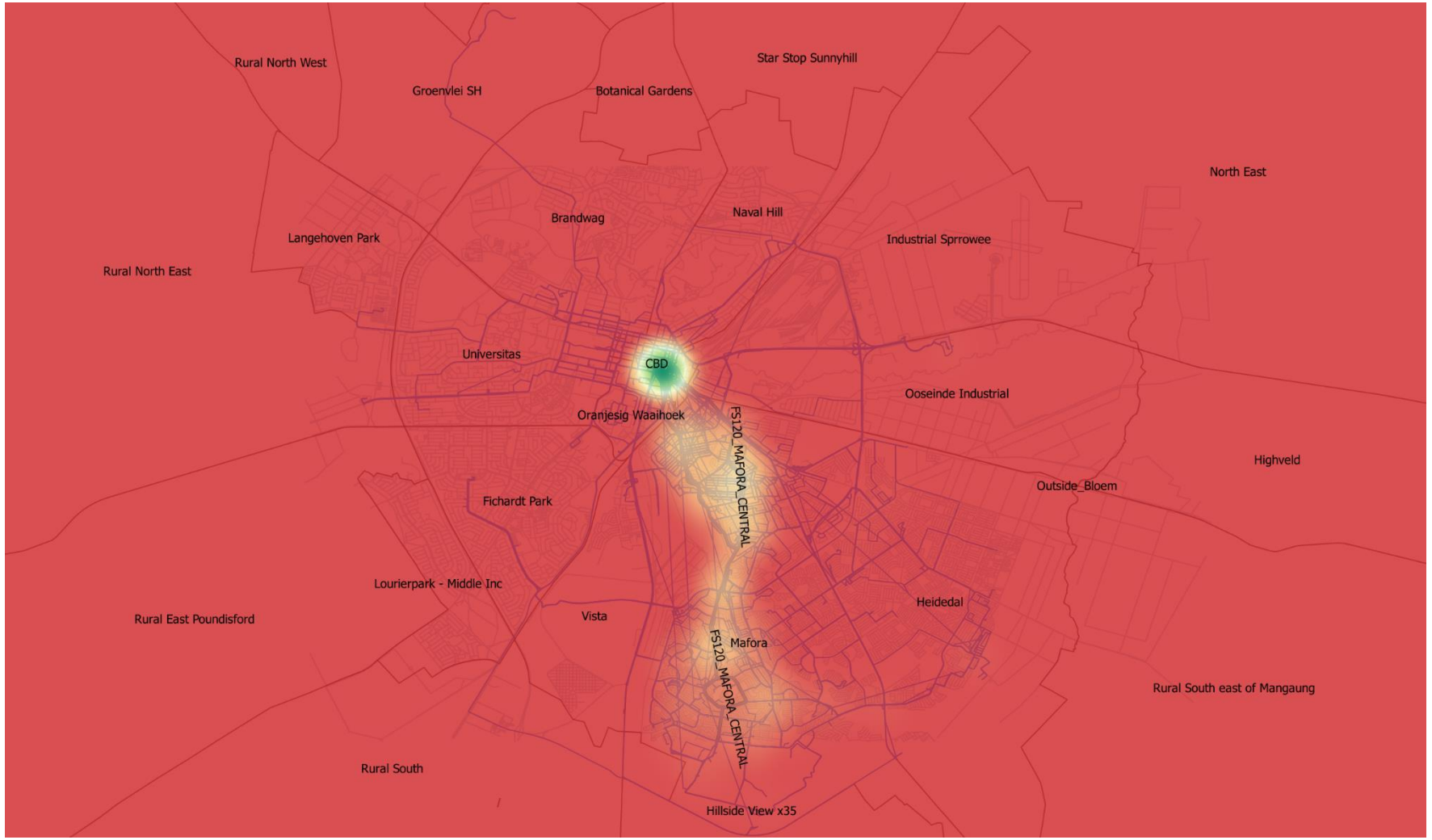
Operations of all surveyed taxis including stops – Focused on the MAFORA CENTRAL area

5.2. Heatmaps of taxi operations

The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

Heatmap of total surveyed area.



Heatmap of total surveyed area – Focused on the MAFORA CENTRAL route

Heatmap of total surveyed area – Focused on the CBD

Heatmap of total surveyed area – Focused on the corner of Maphisa Rd and Moshoeshoe St on the MAFORA CENTRAL route

Heatmap of total surveyed area – Focused on MAFORA CENTRAL

ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

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Survey results for

Taxi Route – BRANDWAG

iSAHA

Table of Contents

ROUTE: **BRANDWAG**
REPORT DATE: **18 October 2017**

1. INTRODUCTION

The electronic on-board survey results for Brandwag Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Brandwag Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option B*		*Option C*	
Average operating income per month	**R 44 340.28**		**R 40 691.18**		**R 48 669.20**	
Average operating income per day	R	1 462.89	R	1 342.50	R	1 605.71
Cost of operations per month	**R 15 788.05**		**R 14 419.46**		**R 18 517.41**	
Cost of operations per day	R	518.49	R	473.55	R	608.13
Operational cost - Fuel & Oil	*R 4 972.03*	*R 163.28*	*R 7 535.09*	*R 247.46*	*R 4 399.42*	*R 144.48*
Operational cost - Maintenance	*R 3 636.69*	*R 119.43*	*R 2 766.03*	*R 90.84*	*R 4 229.66*	*R 138.91*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 3 660.00*	*R 120.20*	*R 9 430.00*	*R 309.69*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 28 552.23**		**R 26 271.72**		**R 30 151.79**	
Average daily operating profit *	R	944.40	R	868.95	R	997.59
** Excluding driver salary*						
Excluding payments to owner						

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1

Driver Salary	**R 5 000.00**	**R 5 000.00**	**R 5 000.00**
Average monthly operating profit	**R 28 552.23**	**R 26 271.72**	**R 30 151.79**
Driver Salary	**R 5 000.00**	**R 5 000.00**	**R 5 000.00**
Monthly profit to Owner	**R 23 552.23**	**R 21 271.72**	**R 25 151.79**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:			
Total usage fee paid to owner per month	**R 17 617.50**	**R 11 745.00**	**R 21 097.50**
Average operating income per month	**R 44 340.28**	**R 40 691.18**	**R 48 669.20**
Monthly usage fee to Owner	**R 17 617.50**	**R 11 745.00**	**R 21 097.50**
Usage cost per month (fuel, oil)	**R 4 972.03**	**R 7 535.09**	**R 4 399.42**
Monthly profit to Driver	**R 21 750.75**	**R 21 411.08**	**R 23 172.28**
Monthly usage fee to Owner	**R 17 617.50**	**R 11 745.00**	**R 21 097.50**
Maintenance cost per month	R 3 636.69	R 2 766.03	R 4 229.66
Fixed cost per month	R 6 721.00	R 3 660.00	R 9 430.00
Overhead cost per month	R 458.33	R 458.33	R 458.33
Monthly profit to Owner (scenario 2)	**R 6 801.48**	**R 4 860.64**	**R 6 979.51**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income			
	Option A	*Option B*	*Option C*
	Average income per day	Average income per day	Average income per day
Monday	R 1 436.47	R 1 367.50	R 1 700.00
Tuesday	R 1 454.38	R 1 507.50	R 1 380.00
Wednesday	R 1 264.38	R 885.00	R 1 310.00
Thursday	R 1 592.73	R 1 230.00	R 1 210.00
Friday	R 1 424.00	R 1 440.00	R 1 370.00
Saturday	R 1 508.89	R 1 857.50	R 1 990.00
Sunday	R 1 559.41	R 1 110.00	R 2 280.00
Total weekly income	**R 10 240.25**	**R 9 397.50**	**R 11 240.00**
Average daily income	**R 1 462.89**	**R 1 342.50**	**R 1 605.71**

4. COST CALCULATIONS

4.1. General information

	Option A	*Option B*	*Option C*
General information			
Vehicle type	Quantum 15 Seater	Hi-Ace 14 Seater	Sprinter 22 Seater
Average km driven per day	101 km	111 km	89 km
Cost of fuel	R 14.00 per litre	R 14.00 per litre	R 14.00 per litre
Cost of oil	R 60.00 per 500 ml	R 60.00 per 500 ml	R 60.00 per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil
Operational cost

Usage cost assumptions
These expenses are usually for the driver's account under Scenario 2

Fuel consumption	10	km / litre		7	km / litre		10	km / litre
Oil consumption: one 500ml can of oil every	2	days		2	days		2	days
Fuel and Oil usage per day	**R**	**163.28**		**R**	**247.46**		**R**	**144.48**
Fuel and Oil usage per month	**R**	**4 972.03**		**R**	**7 535.09**		**R**	**4 399.42**

Maintenance cost assumptions
These expenses are always for the owner's account

Main service cost	R	3 500.00		R	1 200.00		R	6 000.00	
Number of main services		2	per year		2	per year		1	per year
Minor service cost	R	1 400.00		R	700.00		R	4 000.00	
Number of minor services		6	per year		6	per year		2	per year
Wheel maintenance cost	R	2 000.00		R	1 200.00		R	5 000.00	
(brake pads, wheel cylinder, etc)									
Number of wheel maintenances		4	per year		4	per year		3	per year
Wheel alignment cost	R	360.00		R	360.00		R	360.00	
Number of wheel alignments		12	per year		12	per year		12	per year
Price of tyres	R	1 350.00	per tyre	R	700.00	per tyre	R	2 500.00	per tyre
Tyre lifespan		30 000.00	km		11 200.00	km		60 000.00	km
Upholstery, cost of replacement	R	2 200.00		R	1 200.00		R	2 200.00	
Number of times upholstery is replaced		2	per year		2	per year		2	per year
Unforeseen cost (average per event)	R	2 300.00		R	2 300.00		R	2 300.00	
(interior, parts, exhaust, auto-electrical, windows, starter, etc)									
Number of times of unforeseen expenses		1	per year		1	per year		1	per year
Cost of cleaning, per event	R	50.00		R	50.00		R	50.00	
Number of times cleaning is done		52	per year		52	per year		52	per year
Maintenance: average cost per day	**R**	**119.43**		**R**	**90.84**		**R**	**138.91**	
Maintenance: average cost per month	**R**	**3 636.69**		**R**	**2 766.03**		**R**	**4 229.66**	

4.3. Fixed cost

Fixed cost *Fixed costs are related to a vehicle, independent of the operations of the vehicle*								
Insurance installment	R	18 000.00	per year	R	9 600.00	per year	R	22 000.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year	R	5 000.00	per year	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year	R	27 780.00	per year	R	83 340.00	per year
Vehicle licence fees cost	R	1 500.00	per year	R	900.00	per year	R	1 700.00	per year
Roadworthy test cost	R	480.00	per year	R	480.00	per year	R	960.00	per year
Operating licence cost, once every 5 years	R	12.00		R	60.00		R	60.00	
Monthly association fee	R	100.00	per year	R	100.00	per year	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**		**R**	**120.20**		**R**	**309.69**	
Fixed cost: average cost per month	**R**	**6 721.00**		**R**	**3 660.00**		**R**	**9 430.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*								
Number of taxis in fleet		3			3			3	
Equipment and tools	*(computers, software, tools)*	R	2 000.00	per year	R	2 000.00	per year	R	2 000.00	per year
Communication	*(landlines, cellphones, internet connections)*	R	2 000.00	per year	R	500.00	per year	R	500.00	per year
Security	*(security, parking fees)*	R	500.00	per year	R	500.00	per year	R	500.00	per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R	1 000.00	per year	R	1 000.00	per year	R	1 000.00	per year
Overhead cost: average cost per day per taxi		**R**	**15.05**		**R**	**15.05**		**R**	**15.05**	
Overhead cost: average cost per month per taxi		**R**	**458.33**		**R**	**458.33**		**R**	**458.33**	

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – BRANDWAG

iSAHA

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ROUTE: **BRANDWAG**
REPORT DATE: **18 October 2017**

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

24 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

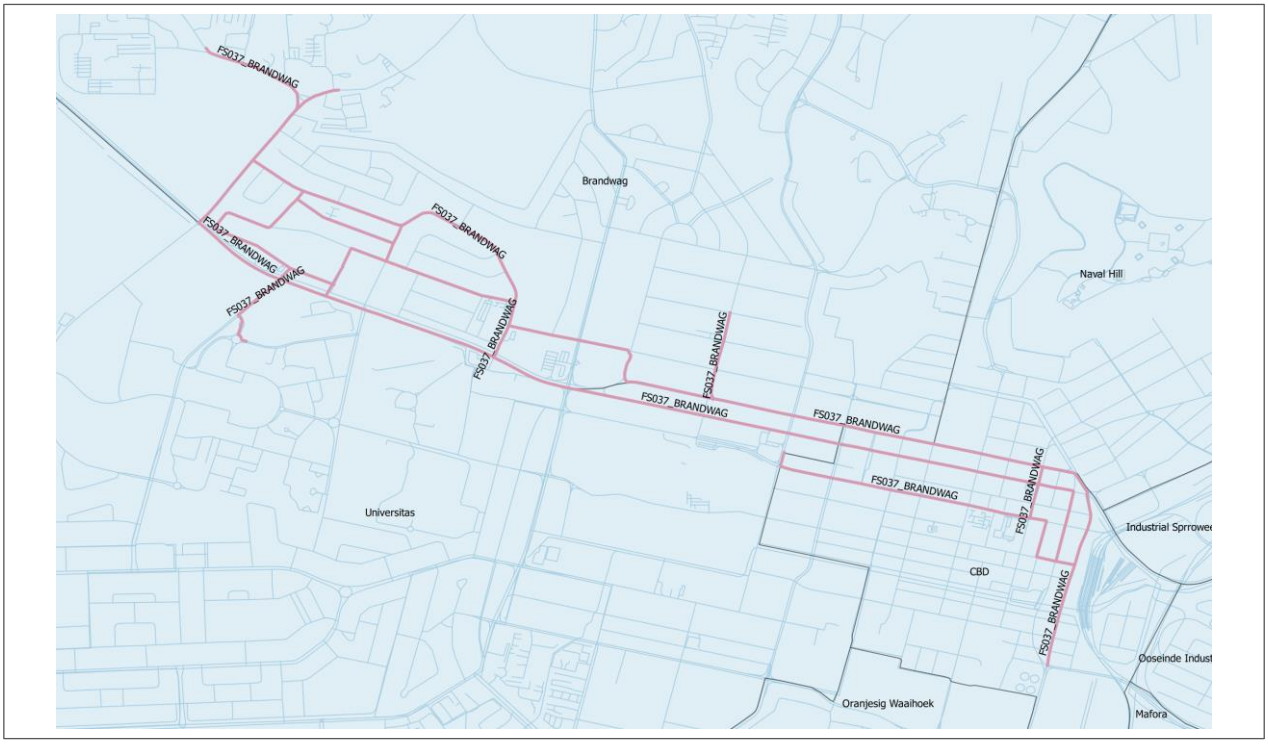
A total of 24 vehicles were surveyed between cycle 1 and cycle 10. 22 vehicles had 6 or more consecutive days of data and 2 vehicles did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 456.13	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 10 192.88	Per week As determined from survey
Average monthly income	R 44 135.16	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R494 354.53	Calculated from weekly result Formula: 48.5 x weekly average

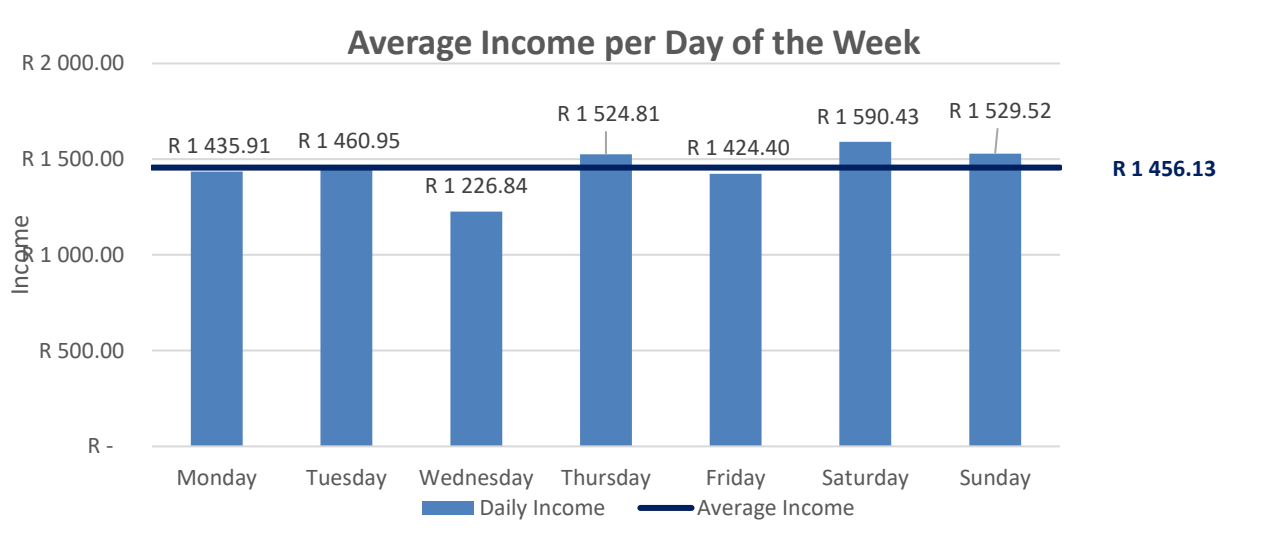


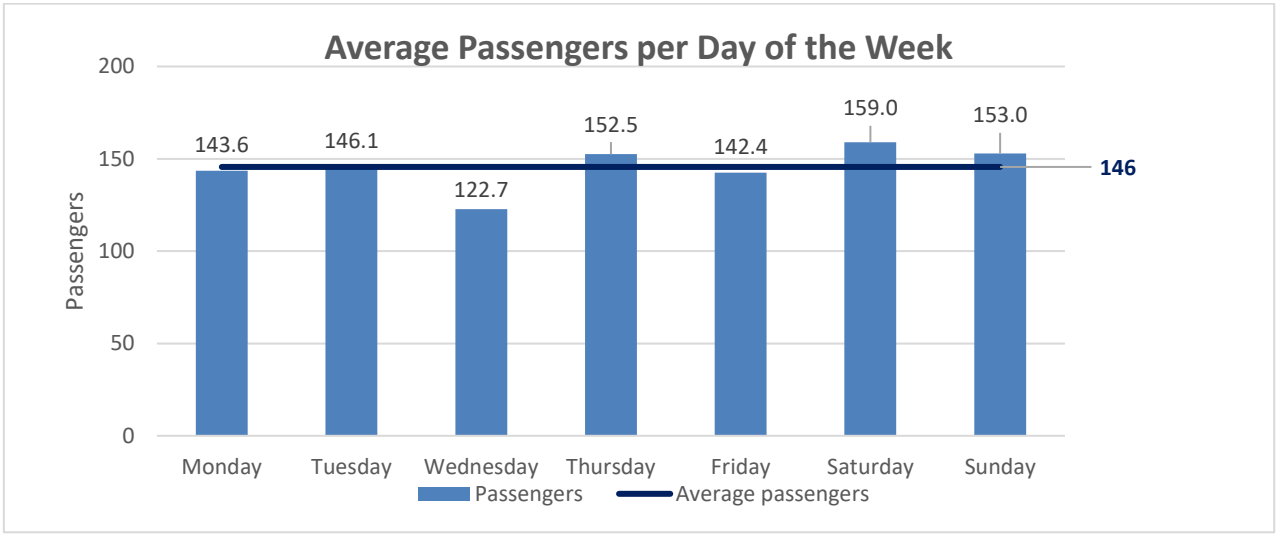
Corridor served by BRANDWAG Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	144	R 10.00	R 1 435.91
Tuesday	146	R 10.00	R 1 460.95
Wednesday	123	R 10.00	R 1 226.84
Thursday	152	R 10.00	R 1 524.81
Friday	142	R 10.00	R 1 424.40
Saturday	159	R 10.00	R 1 590.43
Sunday	153	R 10.00	R 1 529.52
Weekly total	1019		R 10 192.88
Average	146	R 10.00	R 1 456.13
Weekday Avg	141	R 10.00	R 1 414.58

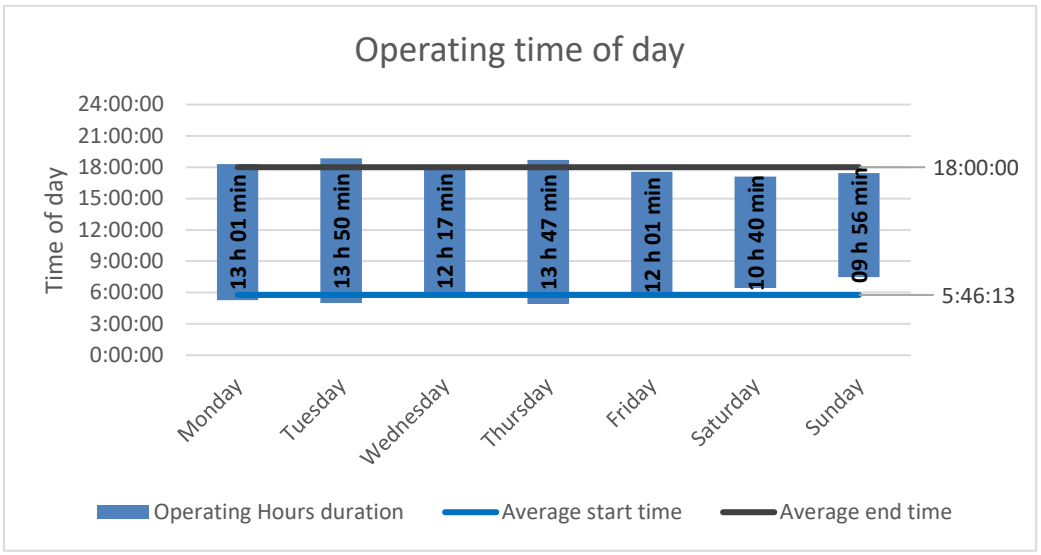




3.3. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	5:46:13	18:00:00	12:13:46
Weekday (Mon-Fri) avg	5:17:45	18:17:30	12:59:45
Monday	5:16:50	18:18:16	13:01:27
Tuesday	4:59:51	18:50:12	13:50:22
Wednesday	5:44:47	18:02:38	12:17:52
Thursday	4:54:34	18:42:27	13:47:52
Friday	5:32:46	17:33:59	12:01:12
Saturday	6:25:35	17:06:22	10:40:47
Sunday	7:29:11	17:26:03	9:56:52


Operating time of day
24:00:00
21:00:00
18:00:00
15:00:00
12:00:00
9:00:00
6:00:00
3:00:00
0:00:00
Time of day
13 h 01 min
13 h 50 min
12 h 17 min
13 h 47 min
12 h 01 min
10 h 40 min
09 h 56 min
18:00:00
5:46:13
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Operating Hours duration
Average start time
Average end time

3.4. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	102	100	R	14.54	38%
Weekday (Mon-Fri) avg	103	100	R	14.12	37%
Monday	109	109	R	13.21	35%
Tuesday	107	107	R	13.65	36%
Wednesday	86	86	R	14.27	36%
Thursday	111	104	R	14.66	39%
Friday	103	95	R	14.95	39%
Saturday	103	103	R	15.48	39%
Sunday	97	97	R	15.73	42%

3.5. Operational analysis

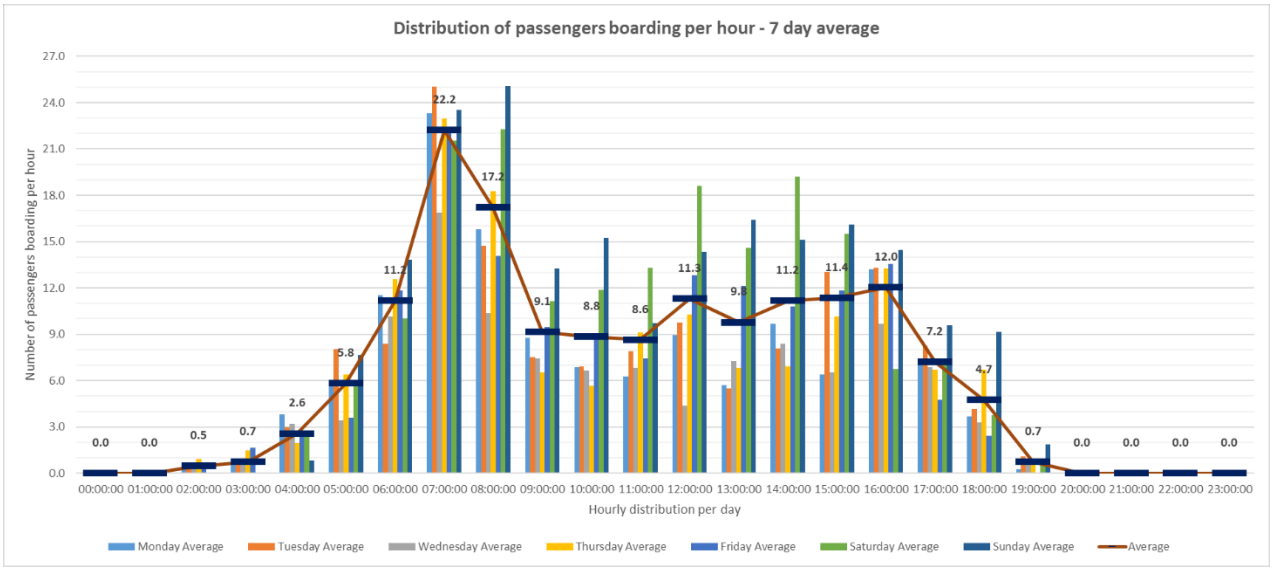
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	100.1	146	0.69	00:08:44	7.7	645.2	1693.8	38%
Weekday (Mon-Fri) avg	100.2	141	0.71	00:09:28	7.7	578.0	1577.9	37%
Monday	108.7	144	0.76	00:08:46	8.5	559.3	1619.5	35%
Tuesday	107.1	146	0.73	00:09:31	7.7	595.9	1662.2	36%
Wednesday	86.0	123	0.70	00:10:37	7.3	479.8	1341.7	36%
Thursday	104.0	152	0.68	00:09:14	7.5	616.6	1601.2	39%
Friday	95.3	142	0.66	00:09:14	7.3	625.6	1623.6	39%
Saturday	102.7	159	0.65	00:07:04	8.3	745.4	1883.5	39%
Sunday	97.2	153	0.64	00:06:45	7.0	886.0	2090.8	42%

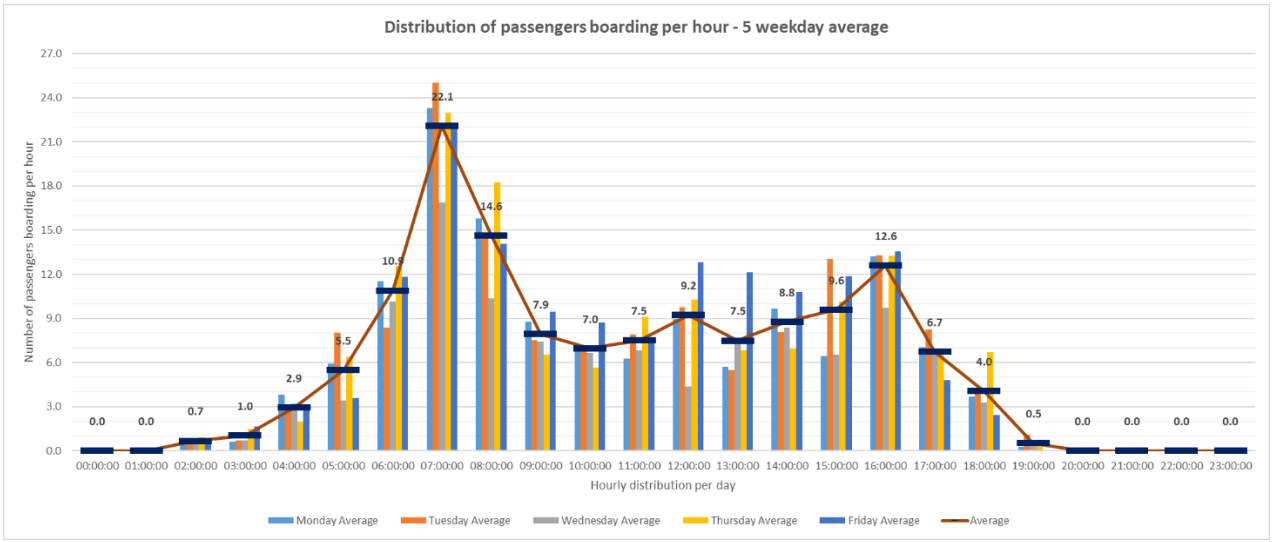
3.6. Fluctuations

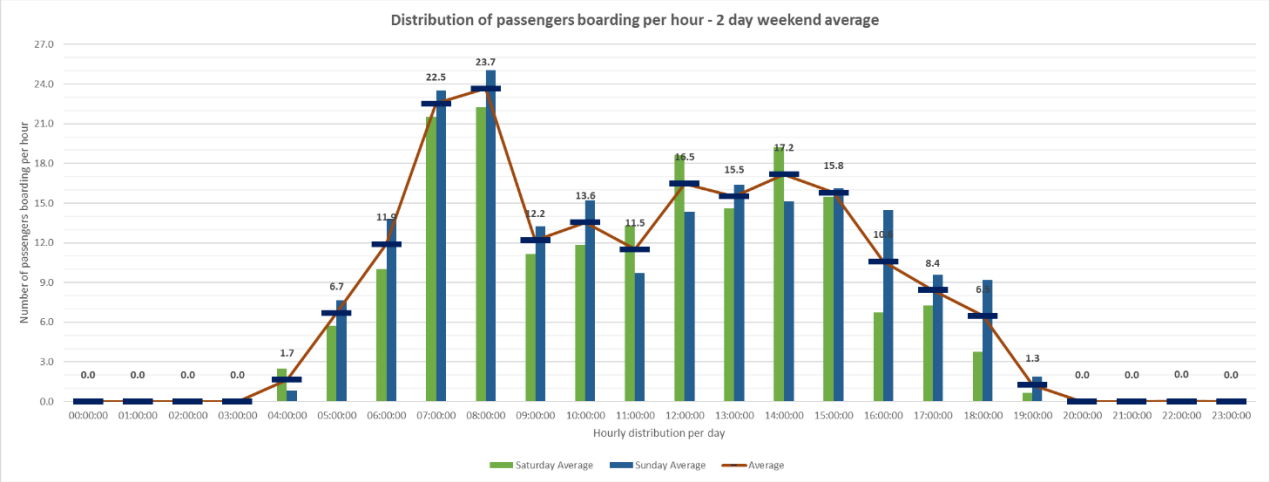
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.0	R -	0%
01:00	01:59	0.0	R -	0%
02:00	02:59	0.5	R 4.81	1%
03:00	03:59	0.7	R 7.35	2%
04:00	04:59	2.6	R 25.69	6%
05:00	05:59	5.8	R 58.24	20%
06:00	06:59	11.2	R 111.82	38%
07:00	07:59	22.2	R 222.18	40%
08:00	08:59	17.2	R 172.15	40%
09:00	09:59	9.1	R 91.48	31%
10:00	10:59	8.8	R 88.41	30%
11:00	11:59	8.6	R 86.47	33%
12:00	12:59	11.3	R 113.05	36%
13:00	13:59	9.8	R 97.79	35%
14:00	14:59	11.2	R 111.72	39%
15:00	15:59	11.4	R 113.66	39%
16:00	16:59	12.0	R 120.30	39%
17:00	17:59	7.2	R 72.08	27%
18:00	18:59	4.7	R 47.41	14%
19:00	19:59	0.7	R 7.36	3%
20:00	20:59	0.0	R -	0%
21:00	21:59	0.0	R -	0%
22:00	22:59	0.0	R 0.06	0%
23:00	23:59	0.0	R -	0%

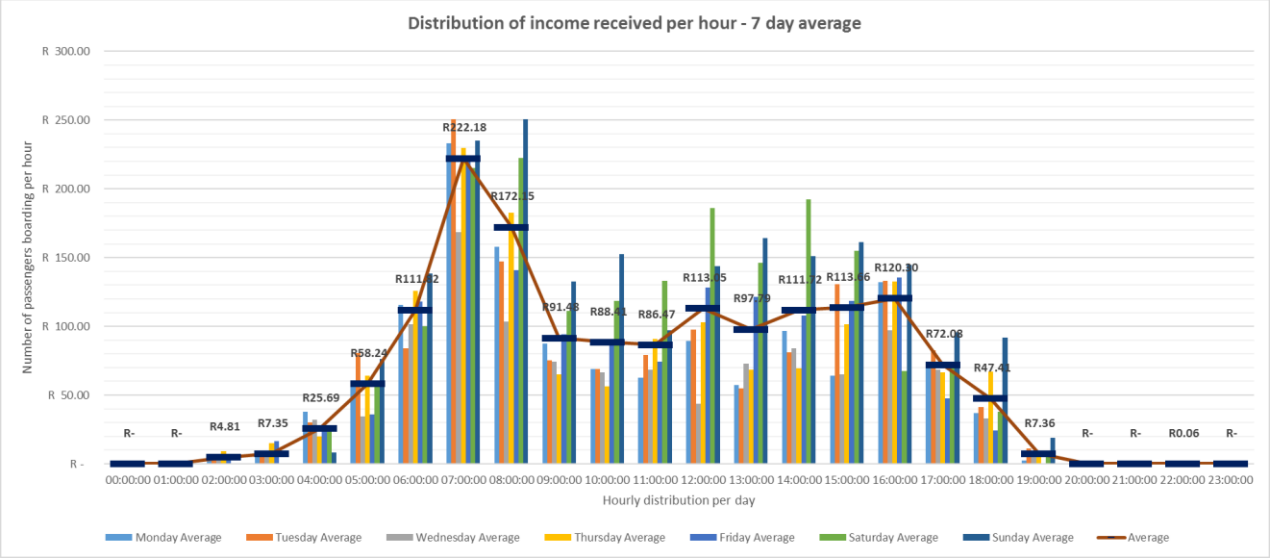
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

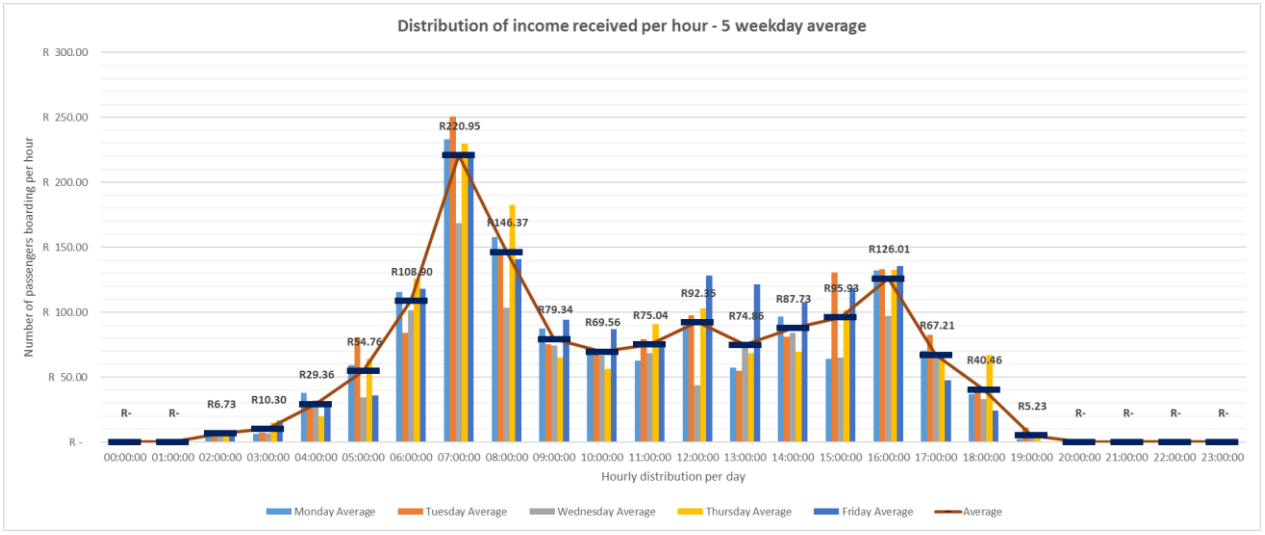


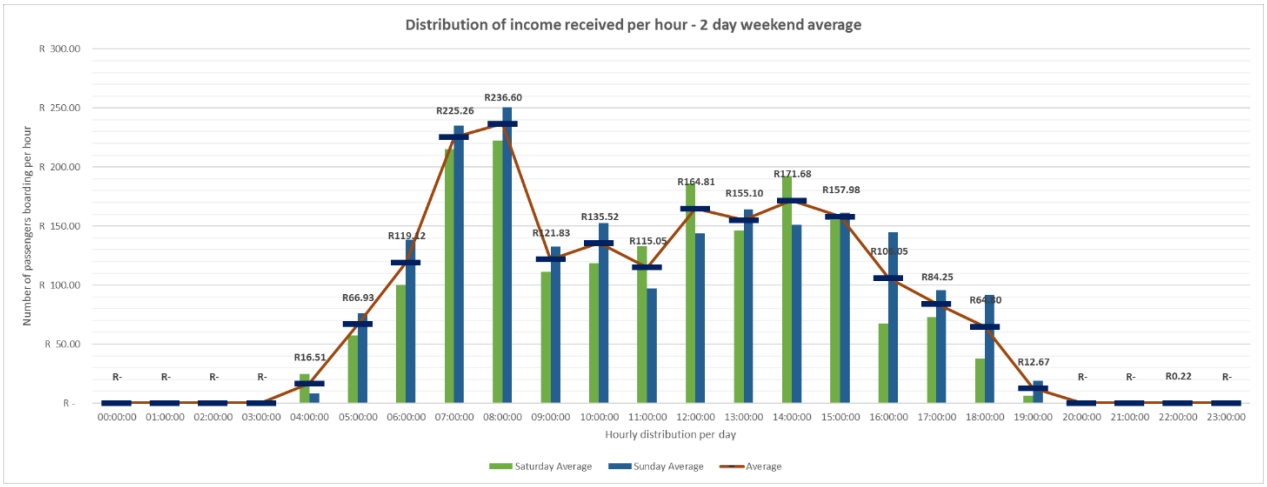




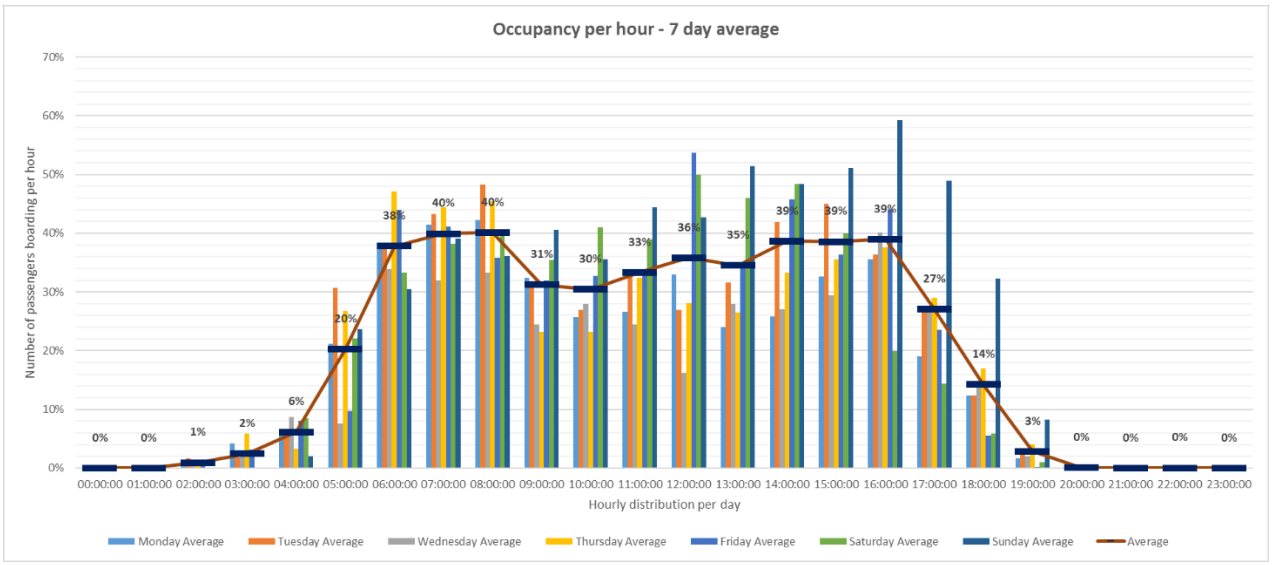
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

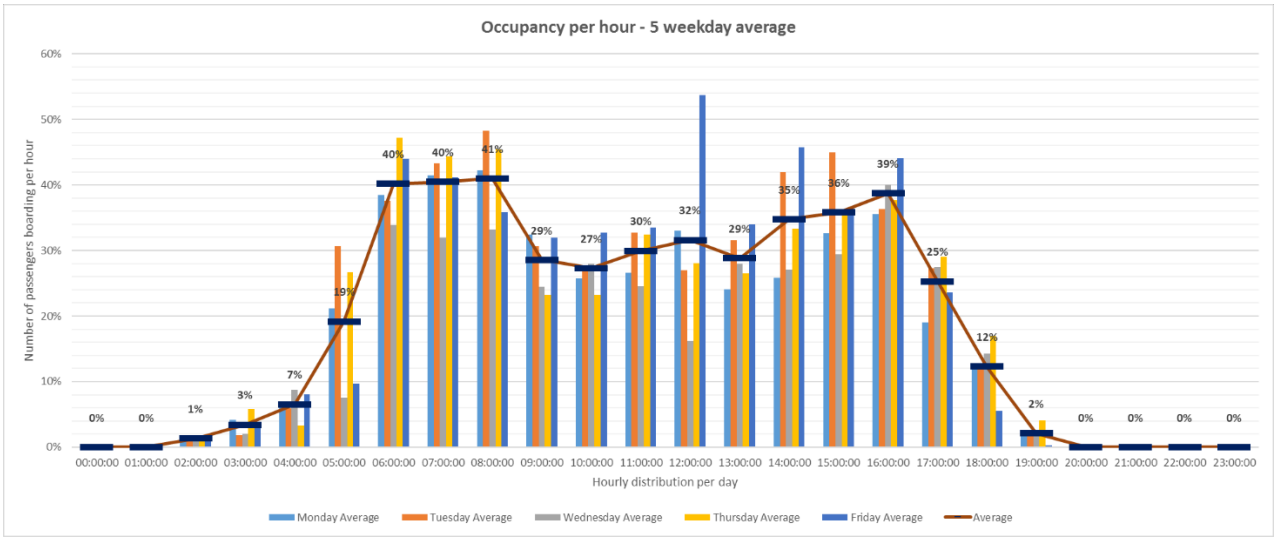


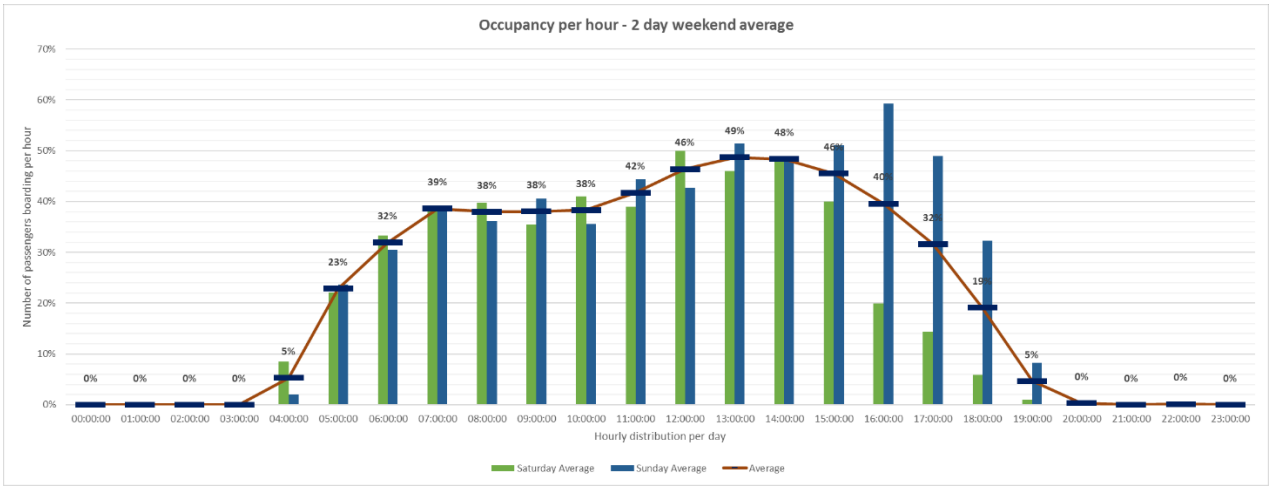

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 300.00
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R- R- R6.73 R10.30 R29.36 R54.76 R108.90 R220.95 R146.37 R79.34 R69.56 R75.04 R92.35 R74.86 R87.73 R95.93 R126.01 R67.21 R40.46 R5.23 R- R- R- R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 300.00
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R- R- R- R- R16.51 R66.93 R119.12 R225.26 R236.60 R121.83 R135.52 R115.05 R164.81 R155.10 R171.68 R157.98 R84.25 R12.67 R- R- R0.22 R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

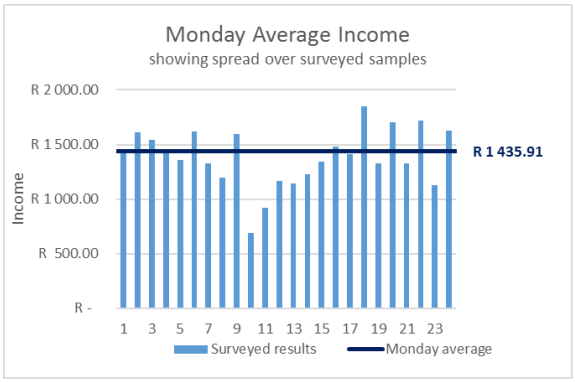


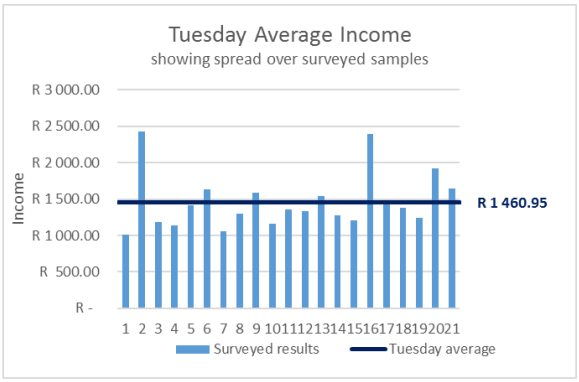


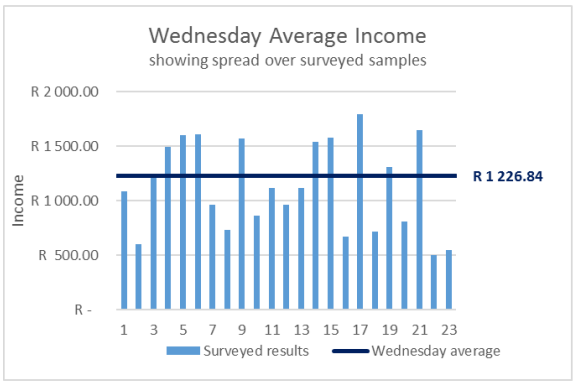

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
70%
60%
50%
40%
30%
20%
10%
0%
0% 0% 0% 0% 5% 23% 32% 39% 38% 38% 38% 42% 46% 49% 48% 46% 40% 32% 19% 5% 0% 0% 0% 0%
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

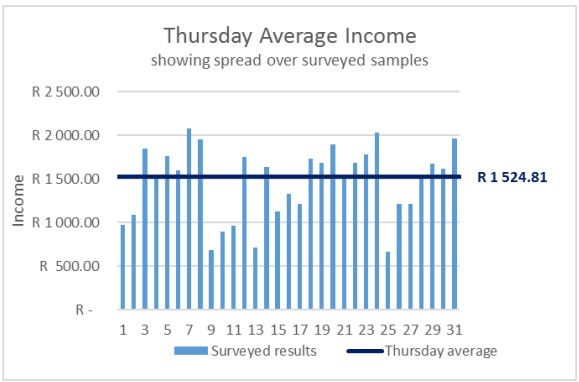
4. DETAILED SURVEY RESULTS

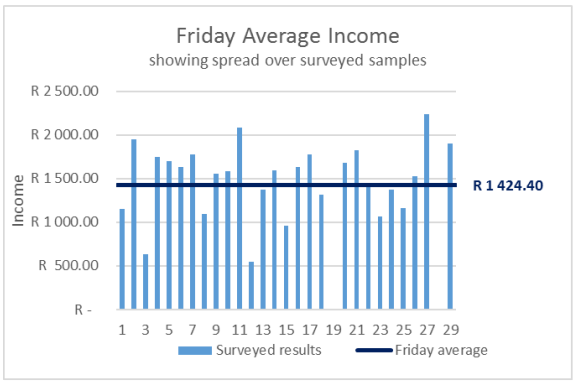
4.1. Income distribution

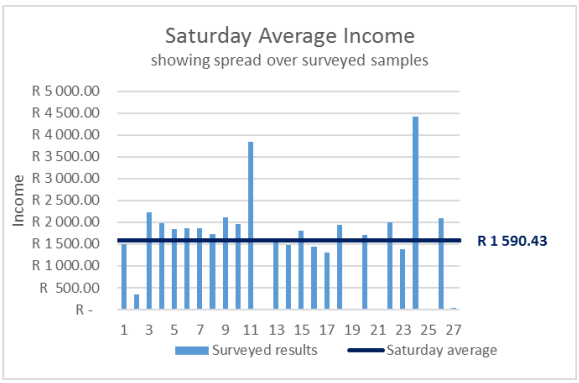


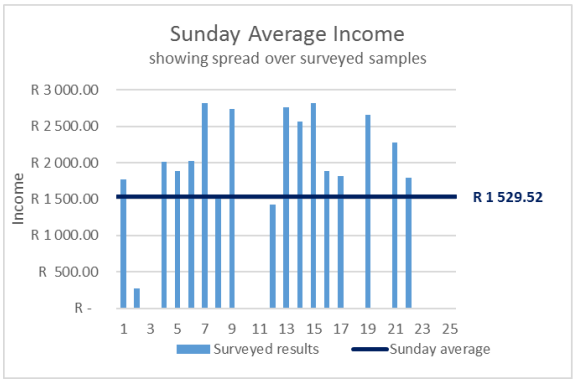




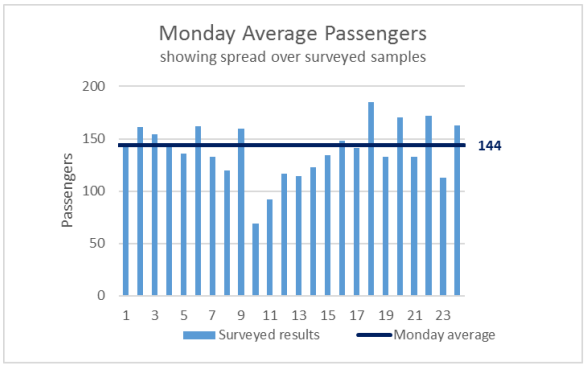


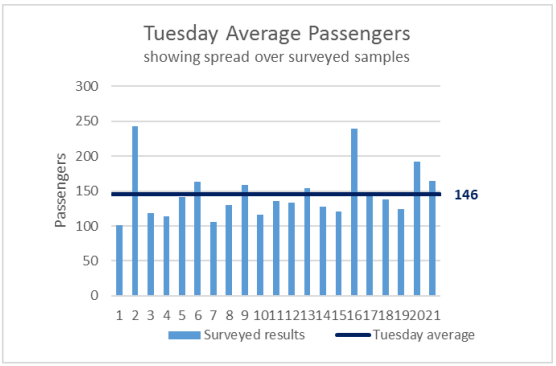


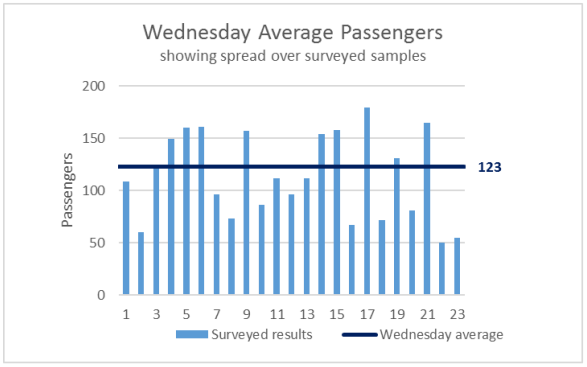


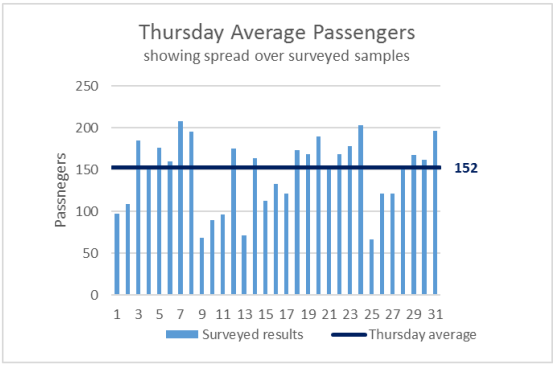


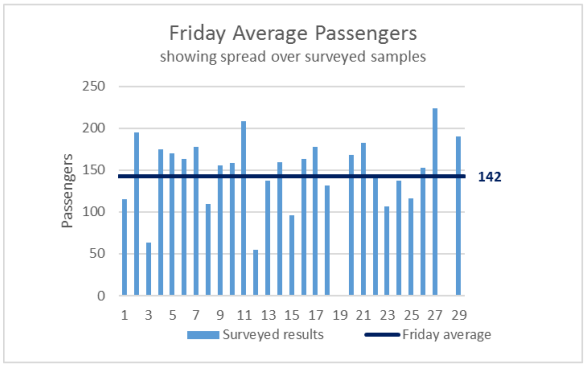
4.2. Passenger number distribution

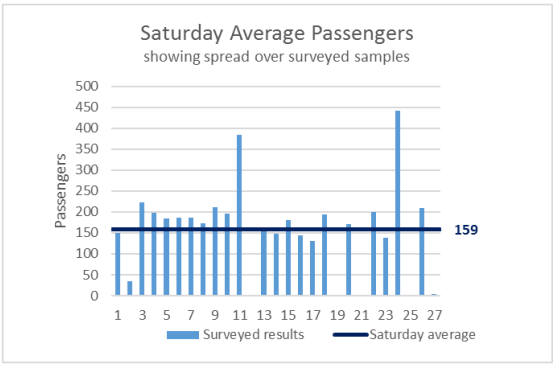


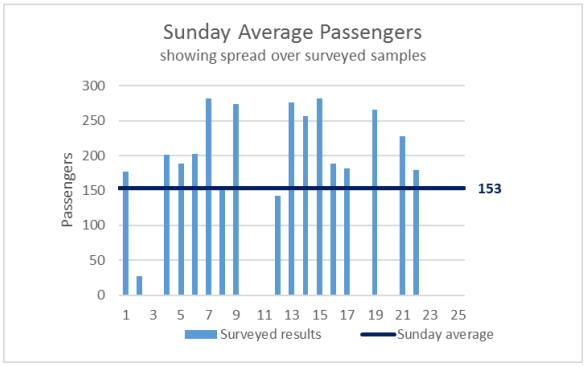










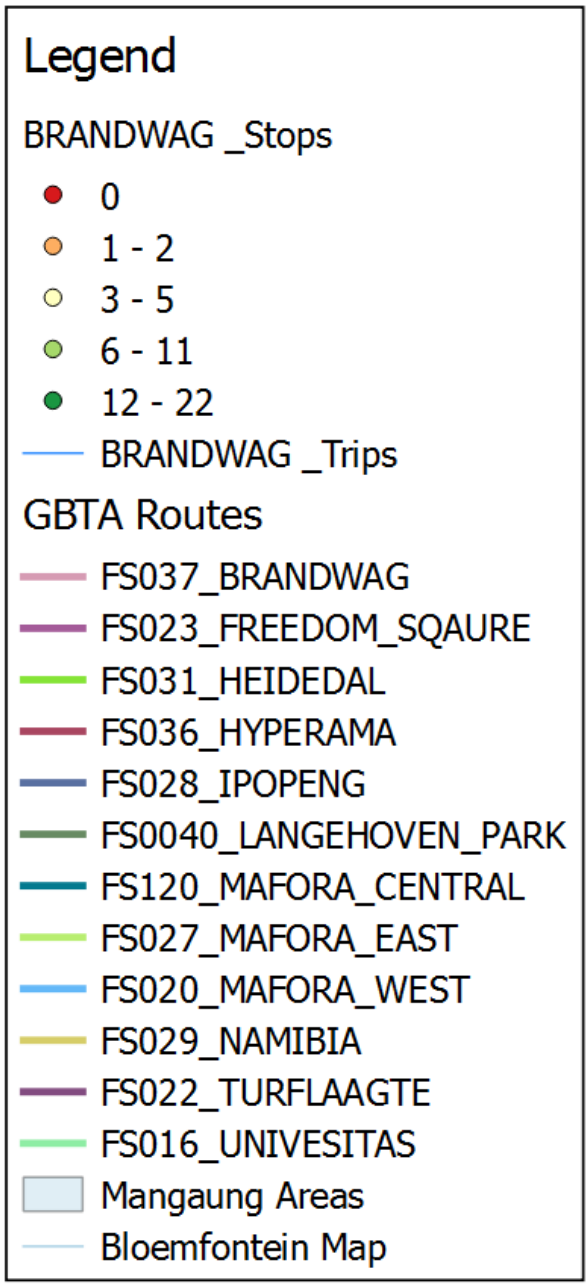


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

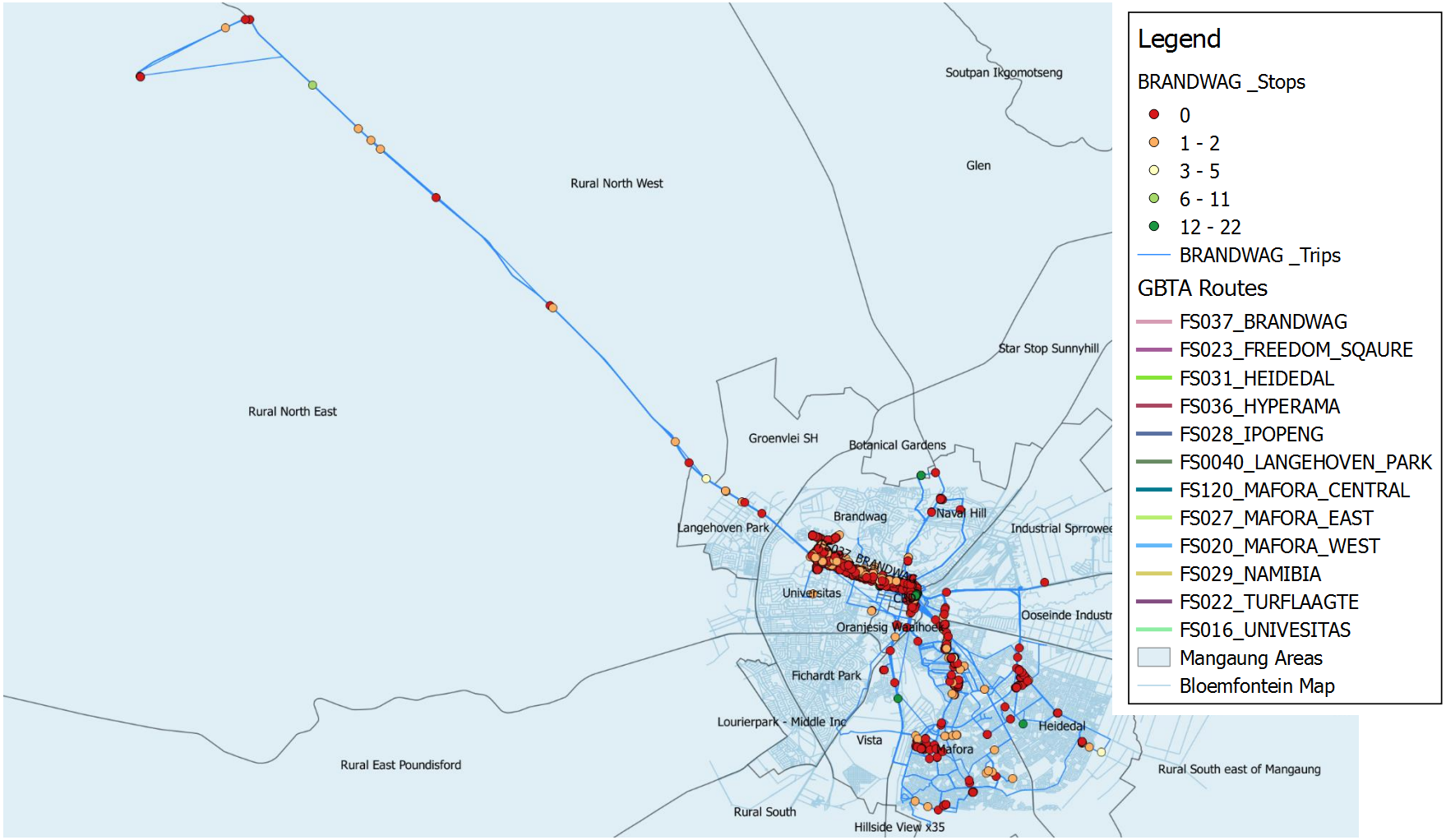


5.1. All surveyed operations

The tracks in blue illustrates the operations of all the surveyed taxis.

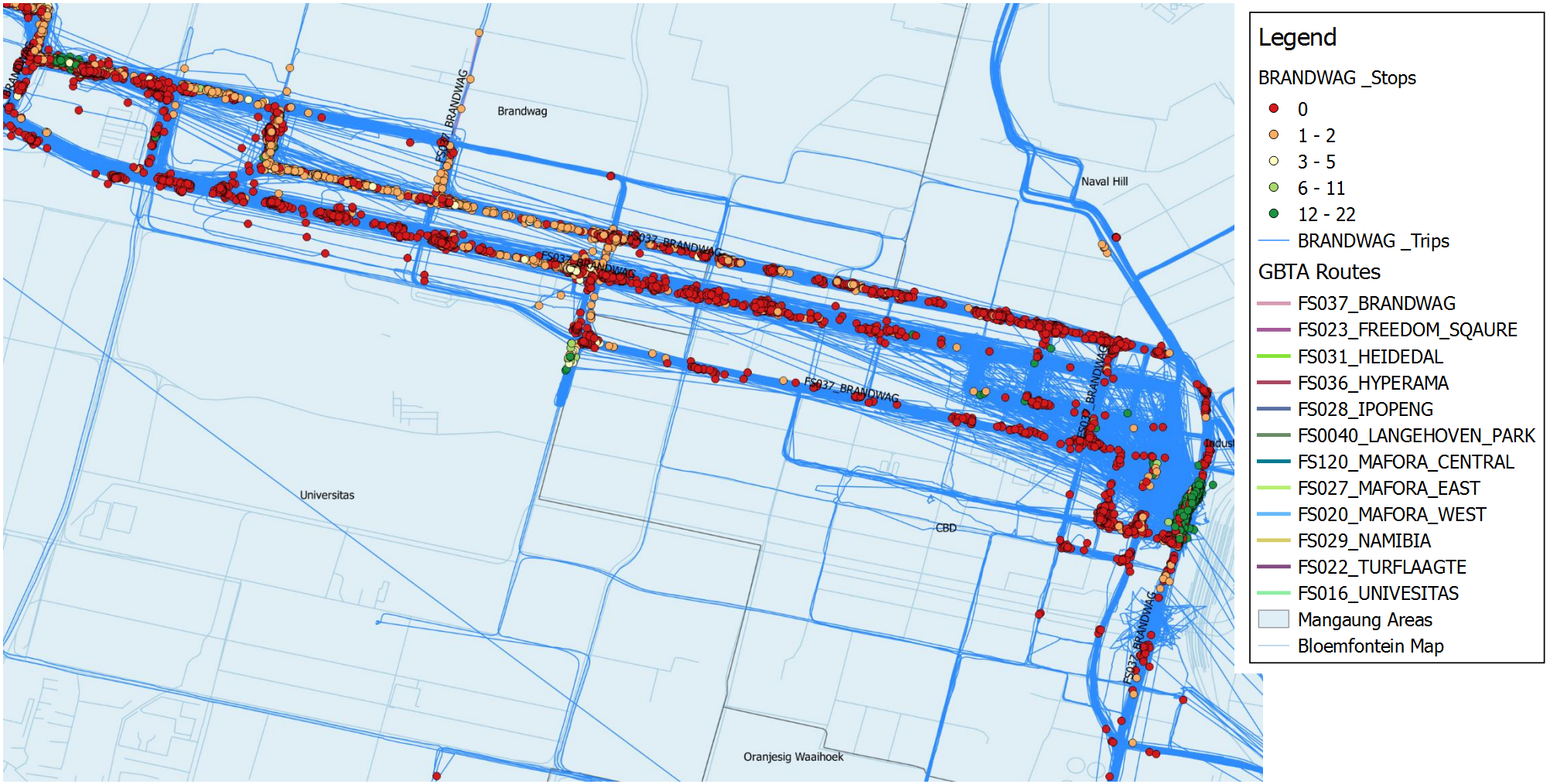
All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

Operations of all surveyed taxis including stops

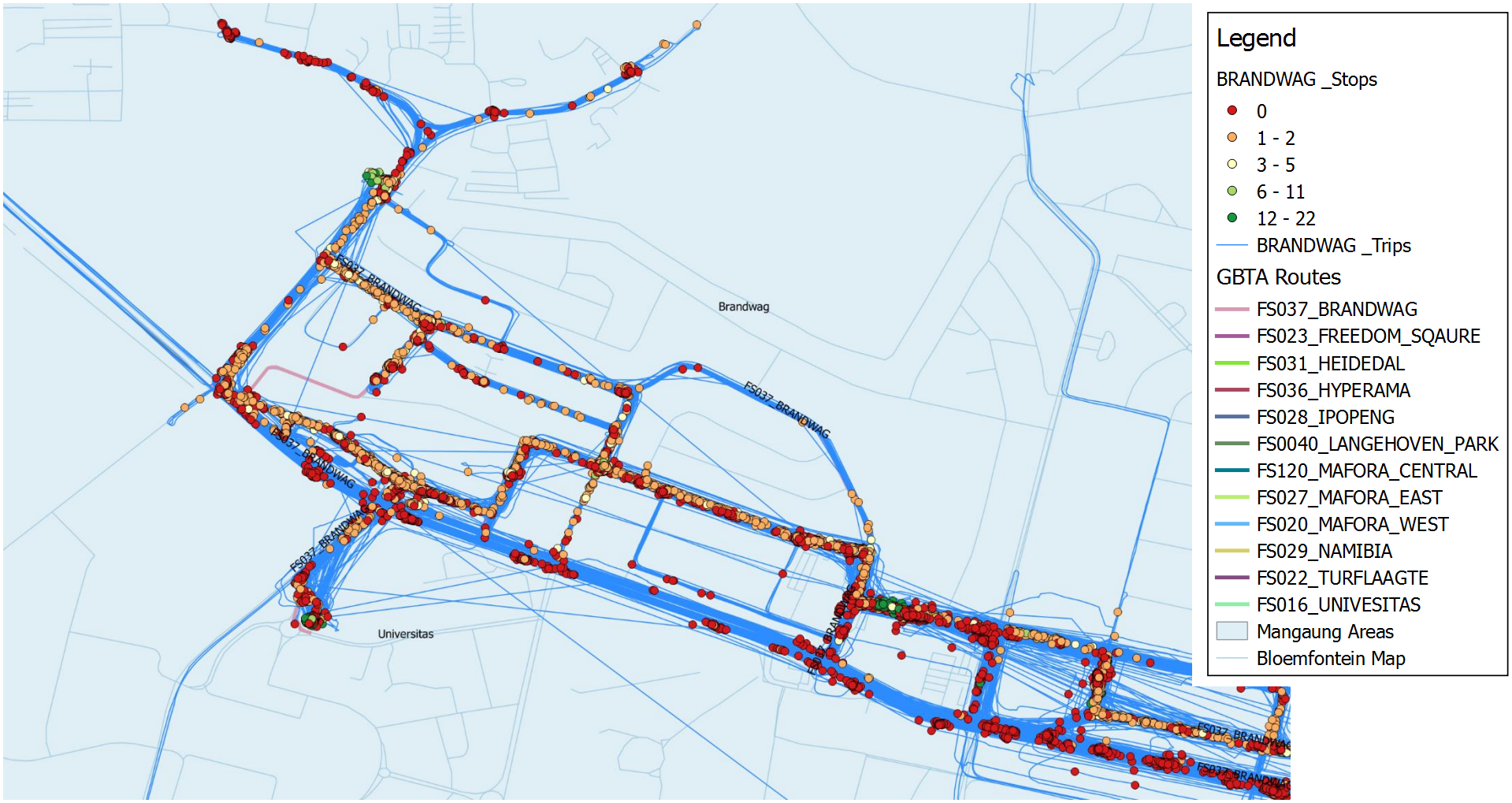


Operations of all surveyed taxis including stops – Focused on the BRANDWAG route

Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the BRANDWAG area

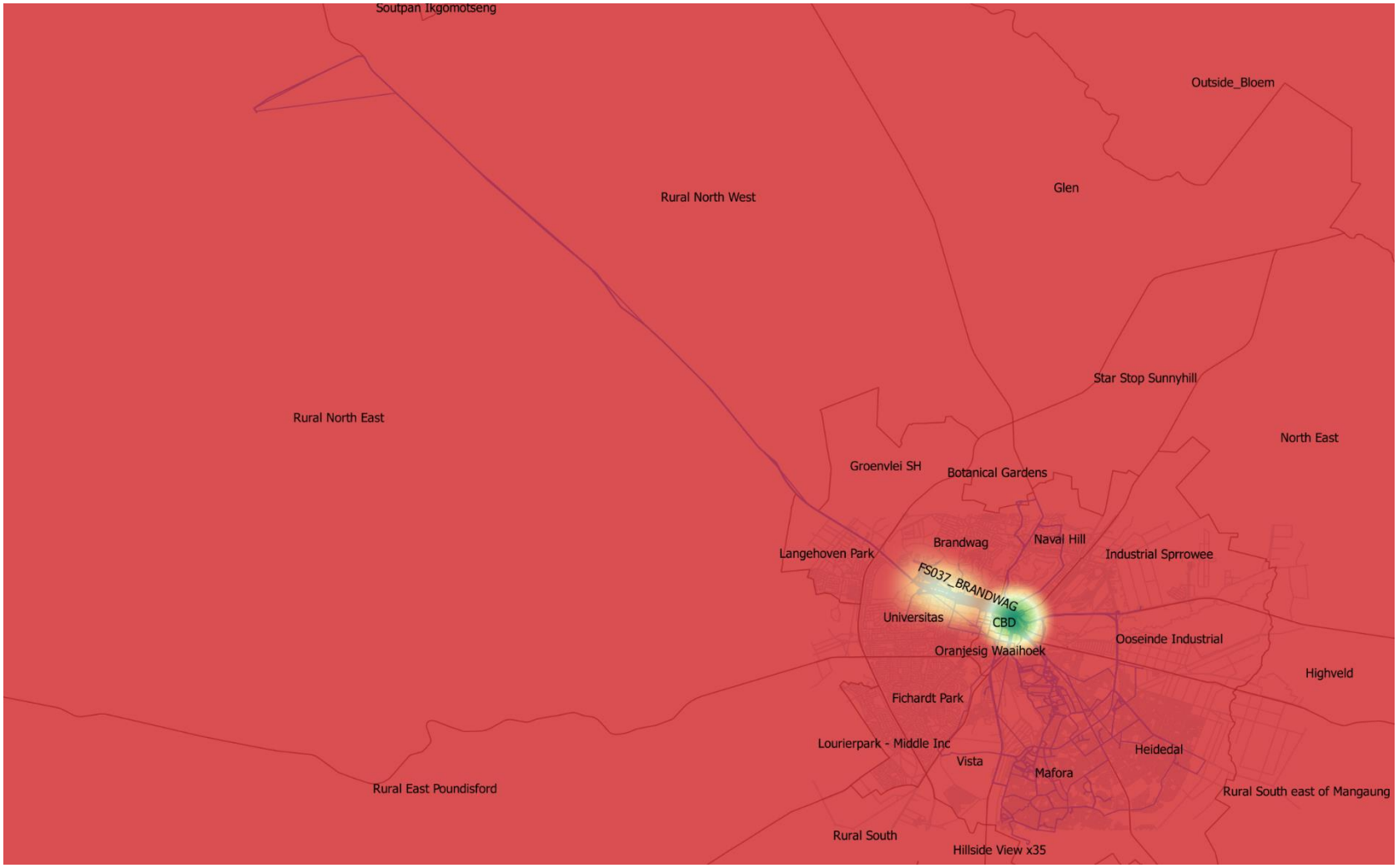


5.2. Heatmaps of taxi operations

The following maps demonstrate the volume of passengers in each area.

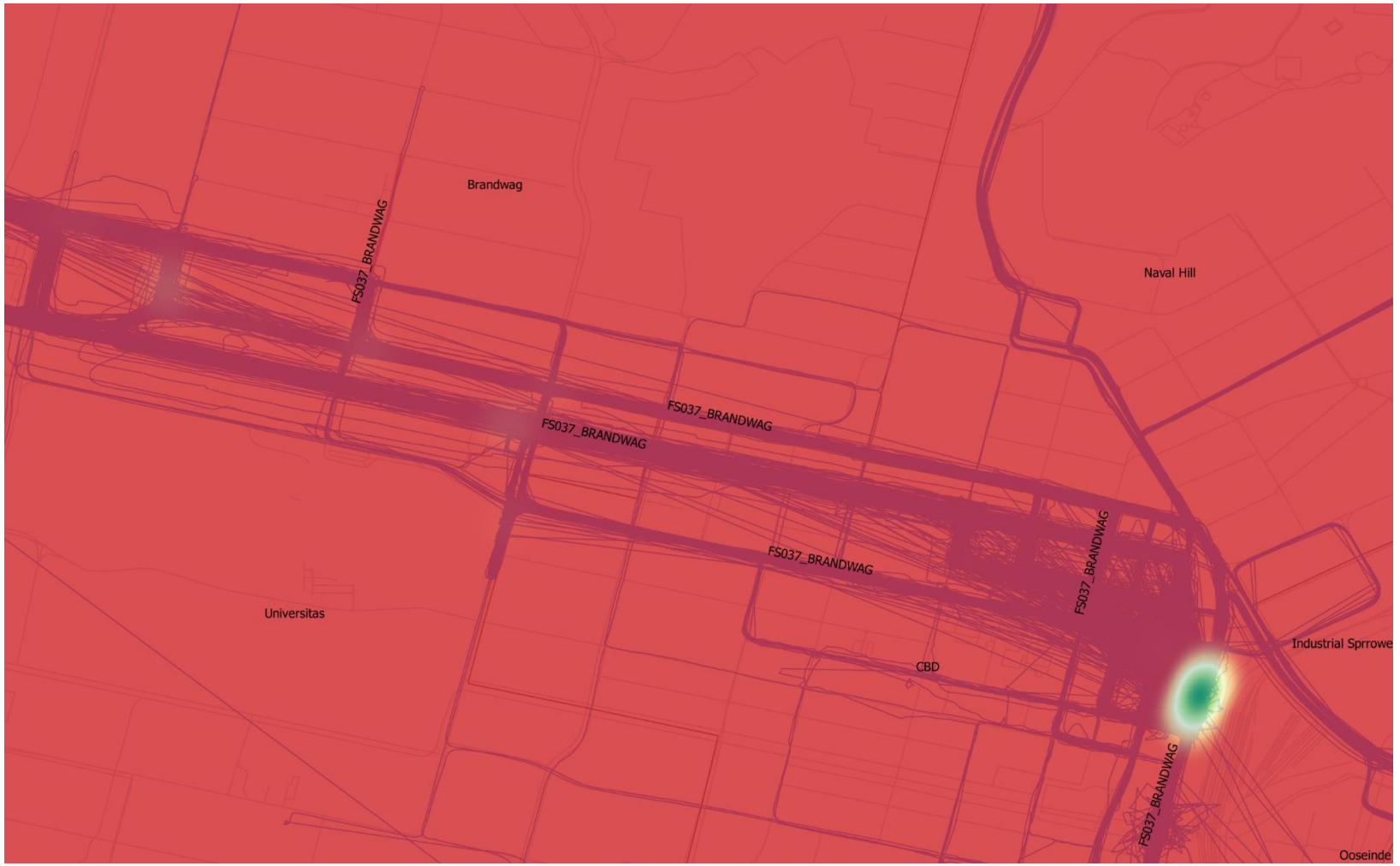
- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

Heatmap of total surveyed area.

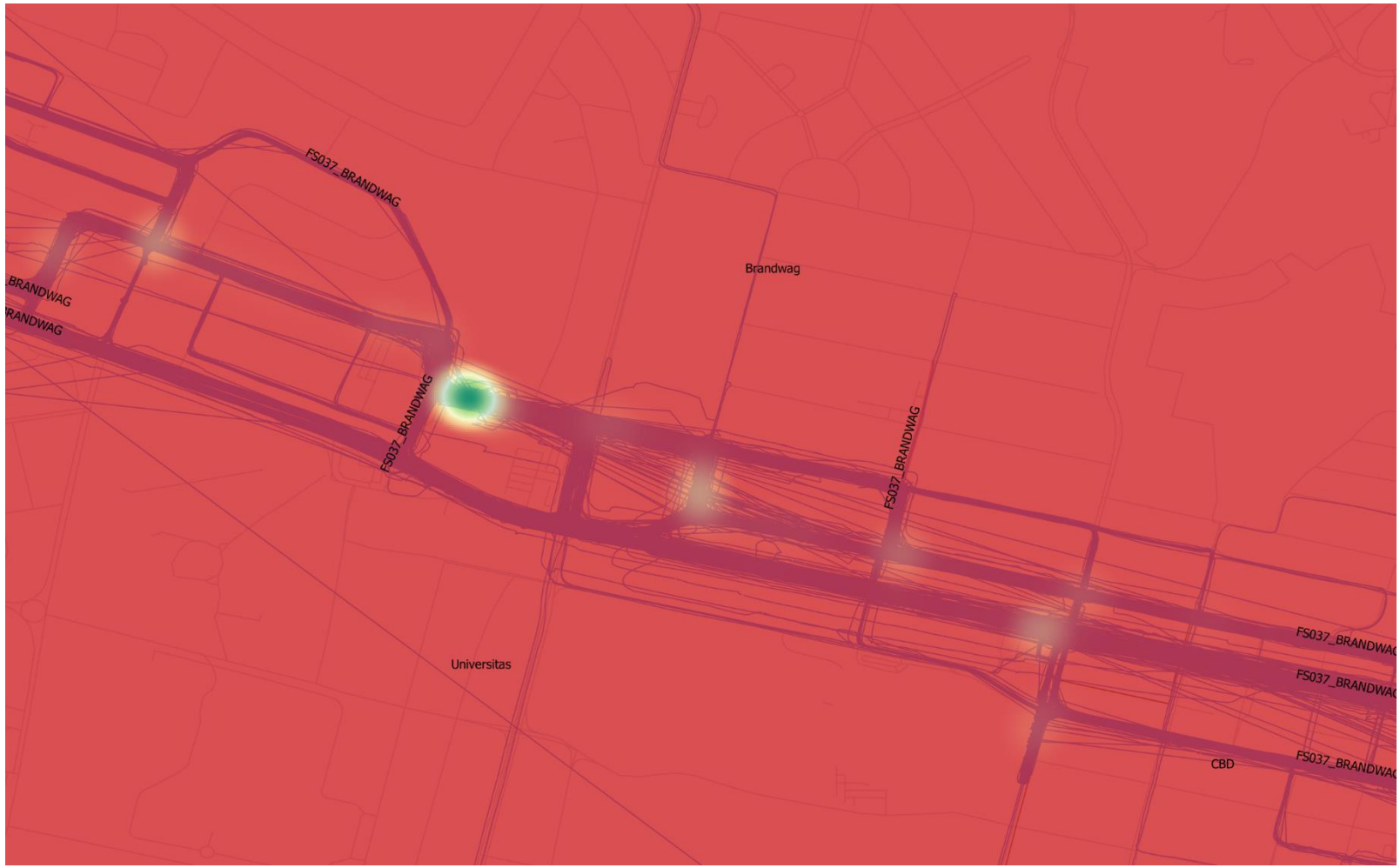


Heatmap of total surveyed area – Focused on the BRANDWAG route

Heatmap of total surveyed area – Focused on the CBD



Heatmap of total surveyed area – Focused on the Mimosa Mall



Heatmap of total surveyed area – Focused on BRANDWAG

ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – FREEDOM SQUARE

iSAHA

Table of Contents

ROUTE: **FREEDOM SQUARE**
REPORT DATE: **24 October 2017**

1. INTRODUCTION

The electronic on-board survey results for Freedom Square Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Freedom Square Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option B*	
Average operating income per month	**R 37 060.53**		**R 32 224.68**	
Average operating income per day		R 1 222.72		R 1 063.17
Cost of operations per month	**R 19 437.04**		**R 17 690.97**	
Cost of operations per day		R 638.33		R 580.98
Operational cost - Fuel & Oil	*R 8 256.57*	*R 271.15*	*R 10 475.77*	*R 344.03*
Operational cost - Maintenance	*R 4 001.14*	*R 131.40*	*R 3 096.86*	*R 101.70*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 3 660.00*	*R 120.20*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 17 623.49**		**R 14 533.72**	
Average daily operating profit *		R 584.39		R 482.19
** Excluding driver salary*				
Excluding payments to owner				

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1				
Driver Salary	**R 5 000.00**		**R 5 000.00**	
Average monthly operating profit	**R 17 623.49**		**R 14 533.72**	
Driver Salary	**R 5 000.00**		**R 5 000.00**	
Monthly profit to Owner	**R 12 623.49**		**R 9 533.72**	

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:				
Total usage fee paid to owner per month	**R**	**17 617.50**	**R**	**11 745.00**
Average operating income per month	**R**	**37 060.53**	**R**	**32 224.68**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**11 745.00**
Usage cost per month (fuel, oil)	**R**	**8 256.57**	**R**	**10 475.77**
Monthly profit to Driver	**R**	**11 186.47**	**R**	**10 003.91**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**11 745.00**
Maintenance cost per month	R	4 001.14	R	3 096.86
Fixed cost per month	R	6 721.00	R	3 660.00
Overhead cost per month	R	458.33	R	458.33
Monthly profit to Owner (scenario 2)	**R**	**6 437.03**	**R**	**4 529.81**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income			
	Option A	*Option B*	*Option C*
	Average income per day	Average income per day	Average income per day
Monday	R 1 250.42	R 1 216.00	R -
Tuesday	R 1 376.36	R 1 088.33	R -
Wednesday	R 1 394.50	R 1 062.86	R -
Thursday	R 1 338.28	R 1 200.00	R -
Friday	R 1 549.62	R 1 495.00	R -
Saturday	R 1 255.77	R 1 070.00	R -
Sunday	R 394.07	R 310.00	R -
Total weekly income	**R 8 559.01**	**R 7 442.19**	**R -**
Average daily income	**R 1 222.72**	**R 1 063.17**	**R -**

4. COST CALCULATIONS

4.1. General information

	Option A			*Option B*		
General information						
Vehicle type	Quantum 15 Seater			Hi-Ace 14 Seater		
Average km driven per day	167		km	155		km
Cost of fuel	R	14.00	per litre	R	14.00	per litre
Cost of oil	R	60.00	per 500 ml	R	60.00	per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil *Operational cost*					
Usage cost assumptions *These expenses are usually for the driver's account under Scenario 2*					
Fuel consumption	10	km / litre		7	km / litre
Oil consumption: one 500ml can of oil every	2	days		2	days
Fuel and Oil usage per day	**R**	**271.15**		**R**	**344.03**
Fuel and Oil usage per month	**R**	**8 256.57**		**R**	**10 475.77**
Maintenance cost assumptions *These expenses are always for the owner's account*					
Main service cost	R	3 500.00		R	1 200.00
Number of main services		2	per year		2 per year
Minor service cost	R	1 400.00		R	700.00
Number of minor services		6	per year		6 per year
Wheel maintenance cost *(brake pads, wheel cylinder, etc)*	R	2 000.00		R	1 200.00
Number of wheel maintenances		4	per year		4 per year
Wheel alignment cost	R	360.00		R	360.00
Number of wheel alignments		12	per year		12 per year
Price of tyres	R	1 350.00	per tyre	R	700.00 per tyre
Tyre lifespan		30 000.00	km		11 200.00 km
Upholstery, cost of replacement	R	2 200.00		R	1 200.00
Number of times upholstery is replaced		2	per year		2 per year
Unforeseen cost (average per event) *(interior, parts, exhaust, auto-electrical, windows, starter, etc)*	R	2 300.00		R	2 300.00
Number of times of unforeseen expenses		1	per year		1 per year
Cost of cleaning, per event	R	50.00		R	50.00
Number of times cleaning is done		52	per year		52 per year
Maintenance: average cost per day	**R**	**131.40**		**R**	**101.70**
Maintenance: average cost per month	**R**	**4 001.14**		**R**	**3 096.86**

4.3. Fixed cost

Fixed cost						
	Fixed costs are related to a vehicle, independent of the operations of the vehicle					
Insurance installment	R	18 000.00	per year	R	9 600.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year	R	27 780.00	per year
Vehicle licence fees cost	R	1 500.00	per year	R	900.00	per year
Roadworthy test cost	R	480.00	per year	R	480.00	per year
Operating licence cost, once every 5 years	R	12.00		R	60.00	
Monthly association fee	R	100.00	per year	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**		**R**	**120.20**	
Fixed cost: average cost per month	**R**	**6 721.00**		**R**	**3 660.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*							
Number of taxis in fleet			3			3		
Equipment and tools	*(computers, software, tools)*	R	2 000.00	per year	R	2 000.00	per year	
Communication	*(landlines, cellphones, internet connections)*	R	2 000.00	per year	R	500.00	per year	
Security	*(security, parking fees)*	R	500.00	per year	R	500.00	per year	
Bank cost	*(monthly bank account fees, cash deposit fees)*	R	1 000.00	per year	R	1 000.00	per year	
Overhead cost: average cost per day per taxi		**R**	**15.05**		**R**	**15.05**		
Overhead cost: average cost per month per taxi		**R**	**458.33**		**R**	**458.33**		

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – FREEDOM SQUARE

iSAHA

Table of Contents

ROUTE: **FREEDOM SQUARE**
REPORT DATE: **24 October 2017**

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

31 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

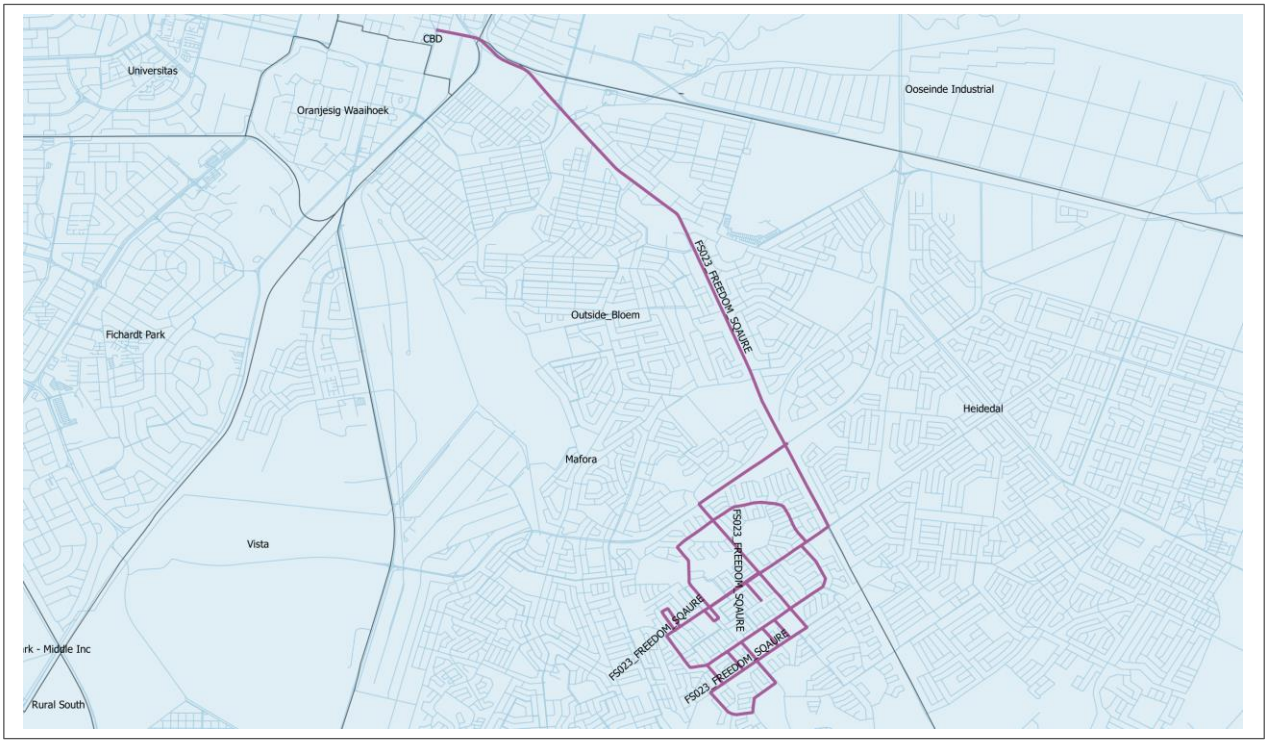
A total of 31 vehicles were surveyed between cycle 1 and cycle 10. 27 vehicles had 6 or more consecutive days of data and 4 vehicles did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 190.18	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 8 331.29	Per week As determined from survey
Average monthly income	R 36 074.50	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R404 067.70	Calculated from weekly result Formula: 48.5 x weekly average

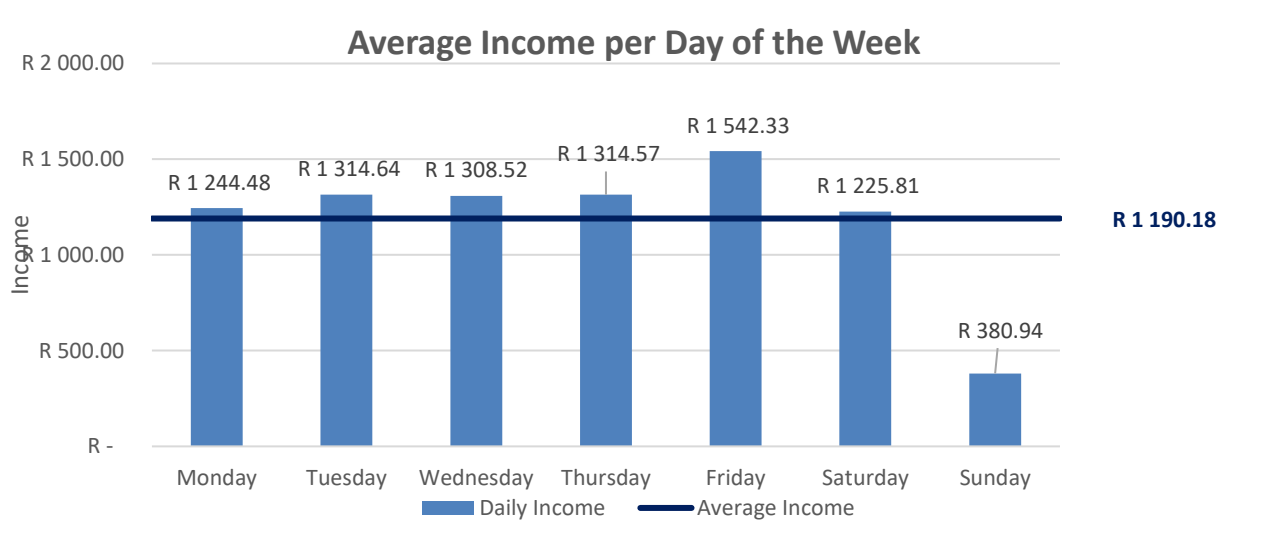


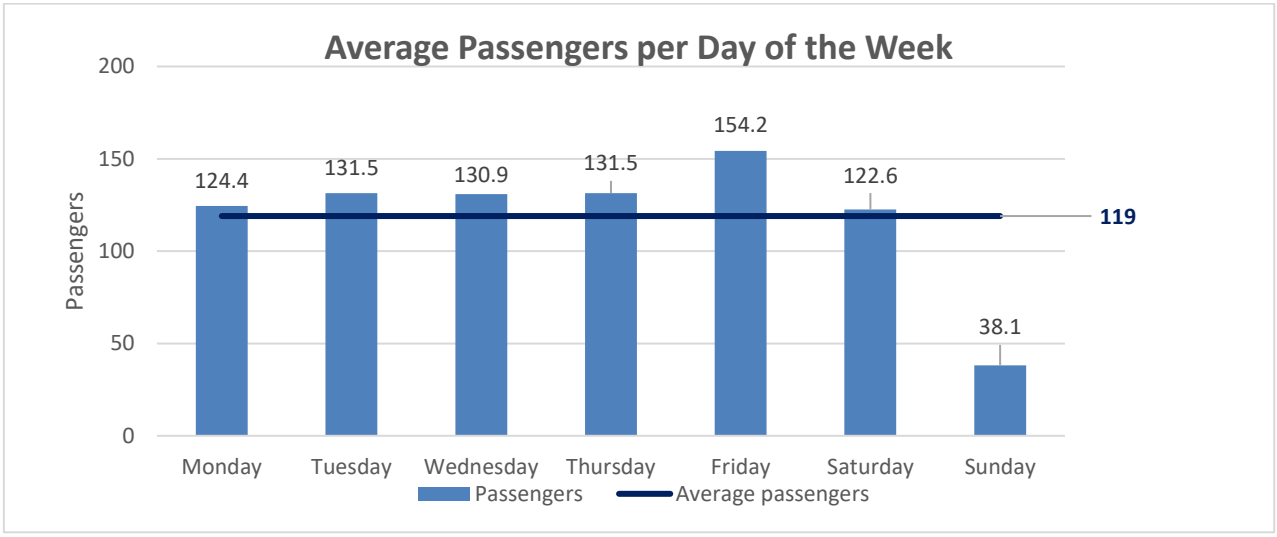
Corridor served by FREEDOM SQUARE Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	124	R 10.38	R 1 291.34
Tuesday	131	R 10.44	R 1 372.00
Wednesday	131	R 10.49	R 1 372.89
Thursday	131	R 10.25	R 1 347.51
Friday	154	R 10.23	R 1 577.73
Saturday	123	R 10.36	R 1 269.84
Sunday	38	R 10.41	R 396.44
Weekly total	833	R 10.00	R 8 331.29
Average	119	R 10.00	R 1 190.18
Weekday Avg	134	R 10.00	R 1 344.91

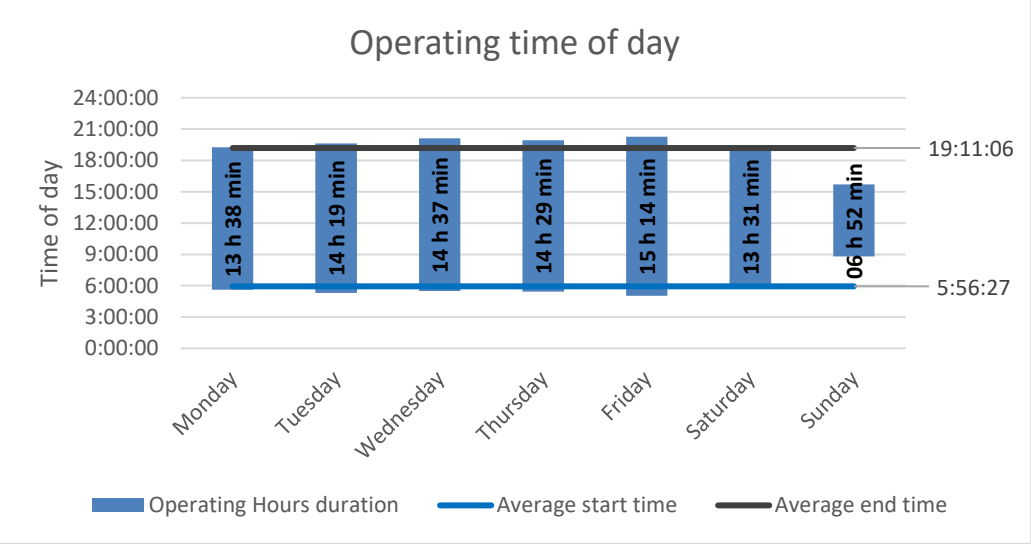



Average Passengers per Day of the Week
200
150
100
50
0
Passengers
124.4
131.5
130.9
131.5
154.2
122.6
38.1
119
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.4. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	5:56:27	19:11:06	13:14:40
Weekday (Mon-Fri) avg	5:22:53	19:50:37	14:27:44
Monday	5:37:37	19:15:57	13:38:20
Tuesday	5:18:27	19:38:02	14:19:35
Wednesday	5:30:27	20:07:34	14:37:07
Thursday	5:26:00	19:55:09	14:29:09
Friday	5:01:56	20:16:24	15:14:28
Saturday	5:51:59	19:23:02	13:31:03
Sunday	8:48:40	15:41:35	6:52:55



3.5. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	165	162	R	7.35	41%
Weekday (Mon-Fri) avg	181	180	R	7.48	41%
Monday	161	161	R	7.73	42%
Tuesday	175	175	R	7.52	41%
Wednesday	184	181	R	7.22	39%
Thursday	174	174	R	7.57	41%
Friday	211	208	R	7.42	41%
Saturday	182	172	R	7.13	41%
Sunday	67	63	R	6.01	38%

3.6. Operational analysis

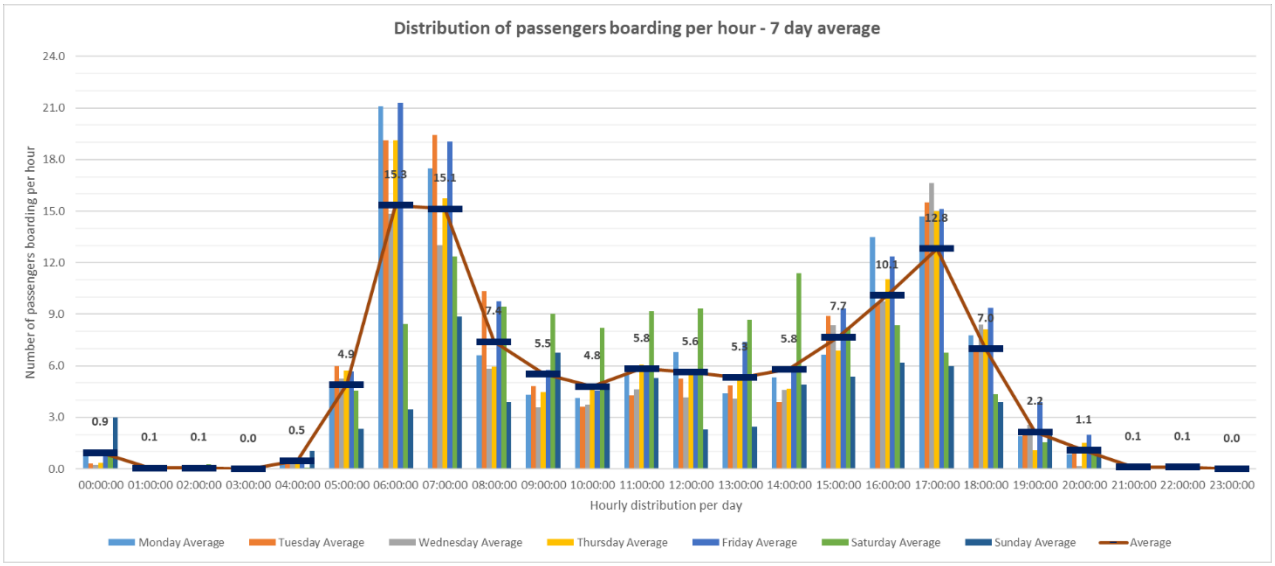
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	162.0	119	1.36	00:07:18	11.6	1114.5	2766.1	41%
Weekday (Mon-Fri) avg	179.7	134	1.33	00:06:41	12.5	1118.9	2773.5	41%
Monday	161.0	124	1.29	00:06:58	11.3	1097.3	2673.7	42%
Tuesday	174.8	131	1.33	00:06:44	12.7	1105.7	2704.1	41%
Wednesday	181.2	131	1.38	00:06:47	12.4	1009.9	2590.4	39%
Thursday	173.7	131	1.32	00:06:47	12.2	1061.0	2610.4	41%
Friday	207.8	154	1.34	00:06:07	13.9	1290.1	3205.3	41%
Saturday	172.0	123	1.39	00:07:01	13.1	1175.7	2876.1	41%
Sunday	63.4	38	1.62	00:10:41	5.9	887.3	2363.2	38%

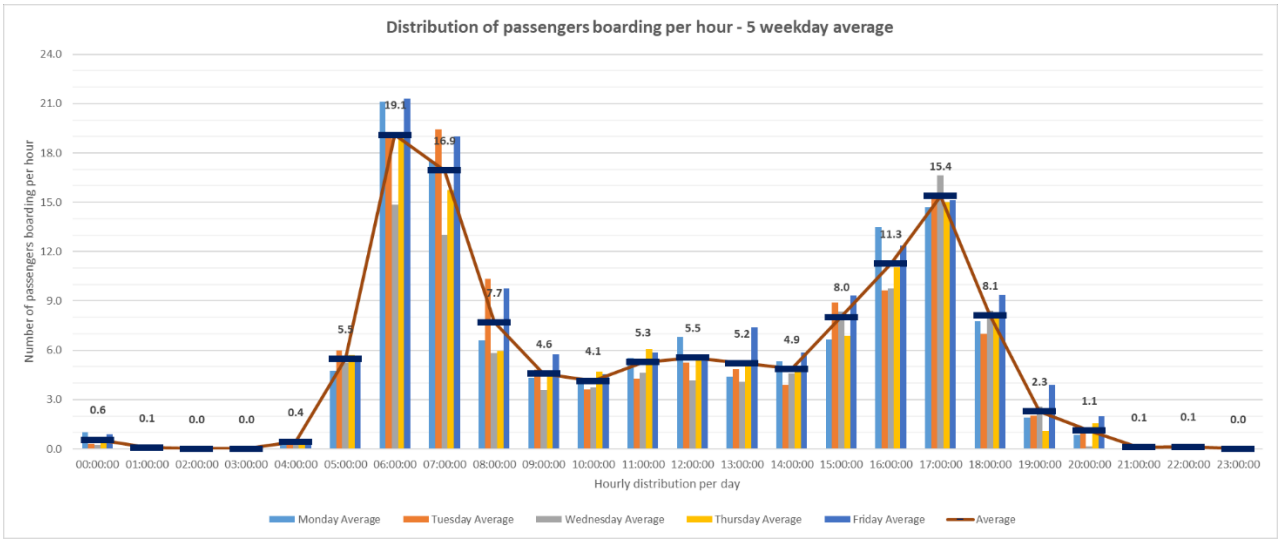
3.7. Fluctuations

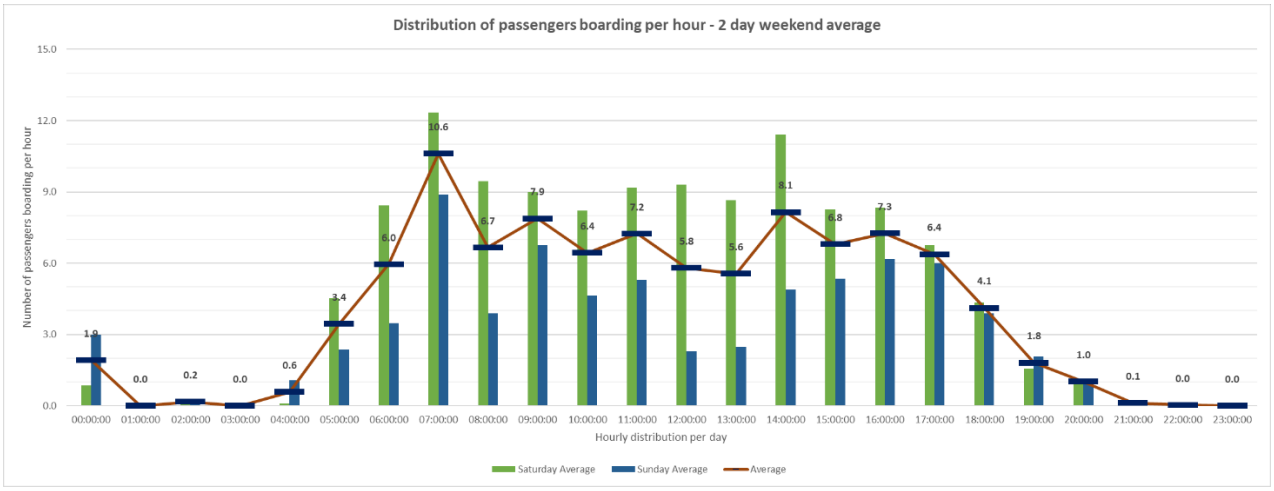
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.9	R 9.46	5%
01:00	01:59	0.1	R 0.60	2%
02:00	02:59	0.1	R 0.53	1%
03:00	03:59	0.0	R -	1%
04:00	04:59	0.5	R 4.73	1%
05:00	05:59	4.9	R 49.01	11%
06:00	06:59	15.3	R 153.47	29%
07:00	07:59	15.1	R 151.32	36%
08:00	08:59	7.4	R 74.03	18%
09:00	09:59	5.5	R 55.27	17%
10:00	10:59	4.8	R 47.92	17%
11:00	11:59	5.8	R 58.36	27%
12:00	12:59	5.6	R 56.21	29%
13:00	13:59	5.3	R 53.13	26%
14:00	14:59	5.8	R 58.02	28%
15:00	15:59	7.7	R 76.75	39%
16:00	16:59	10.1	R 101.15	49%
17:00	17:59	12.8	R 128.15	43%
18:00	18:59	7.0	R 69.83	38%
19:00	19:59	2.2	R 21.55	16%
20:00	20:59	1.1	R 10.88	7%
21:00	21:59	0.1	R 1.12	1%
22:00	22:59	0.1	R 1.03	1%
23:00	23:59	0.0	R -	0%

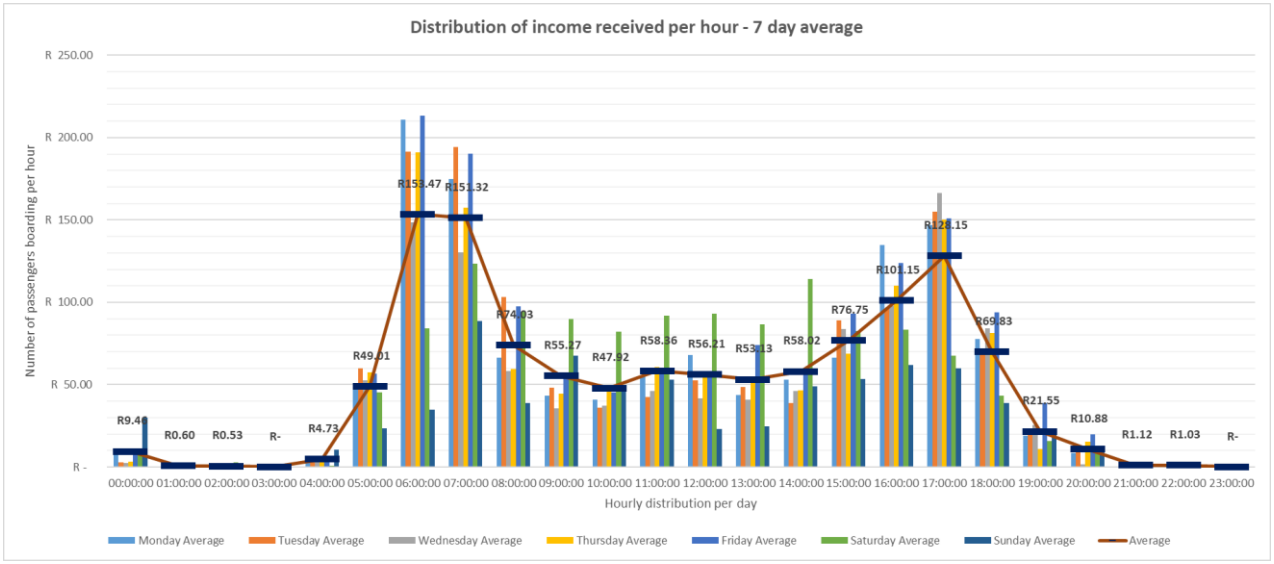
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

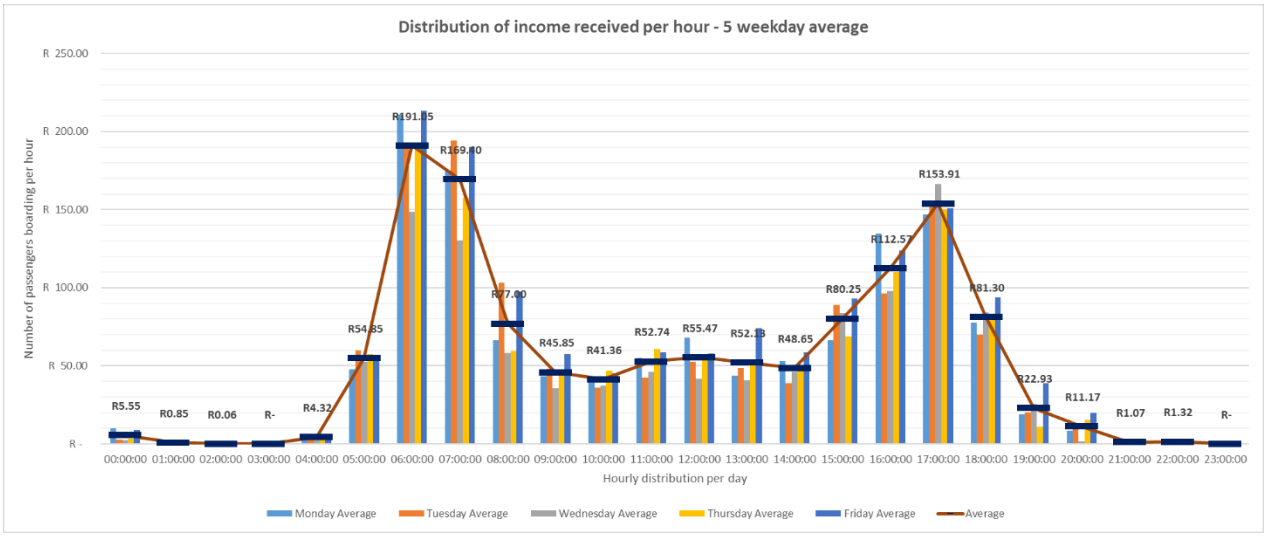


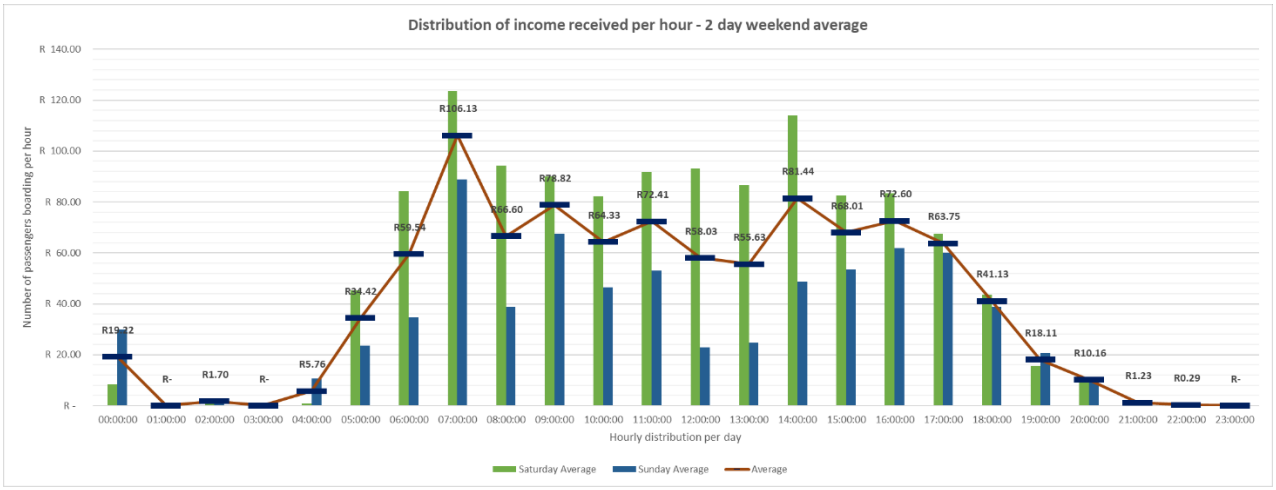




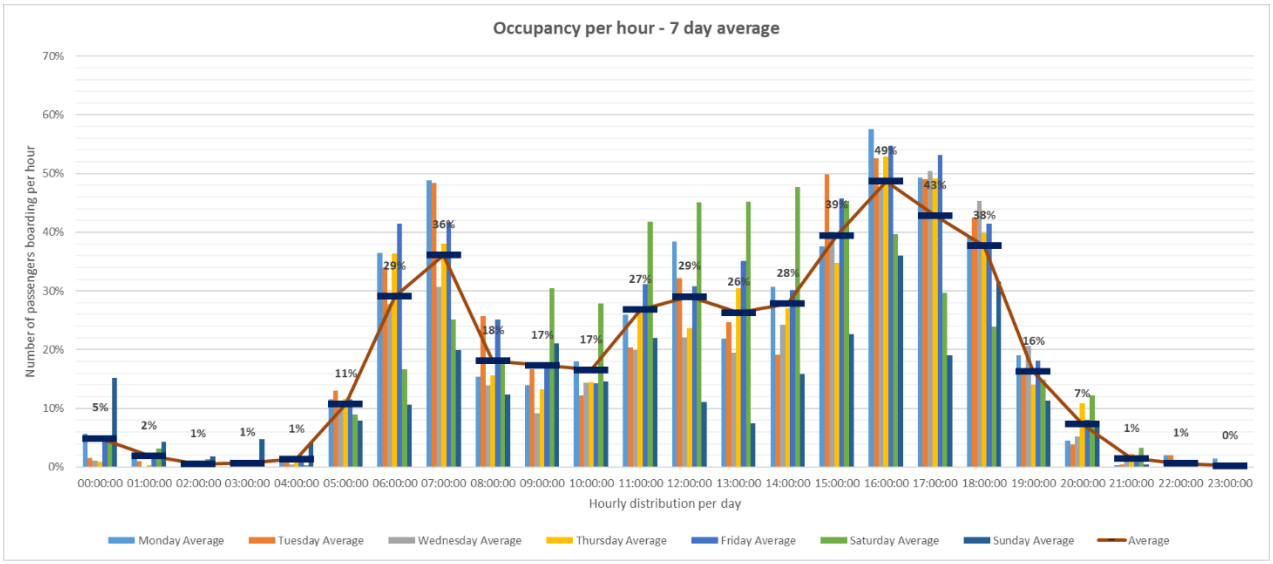
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

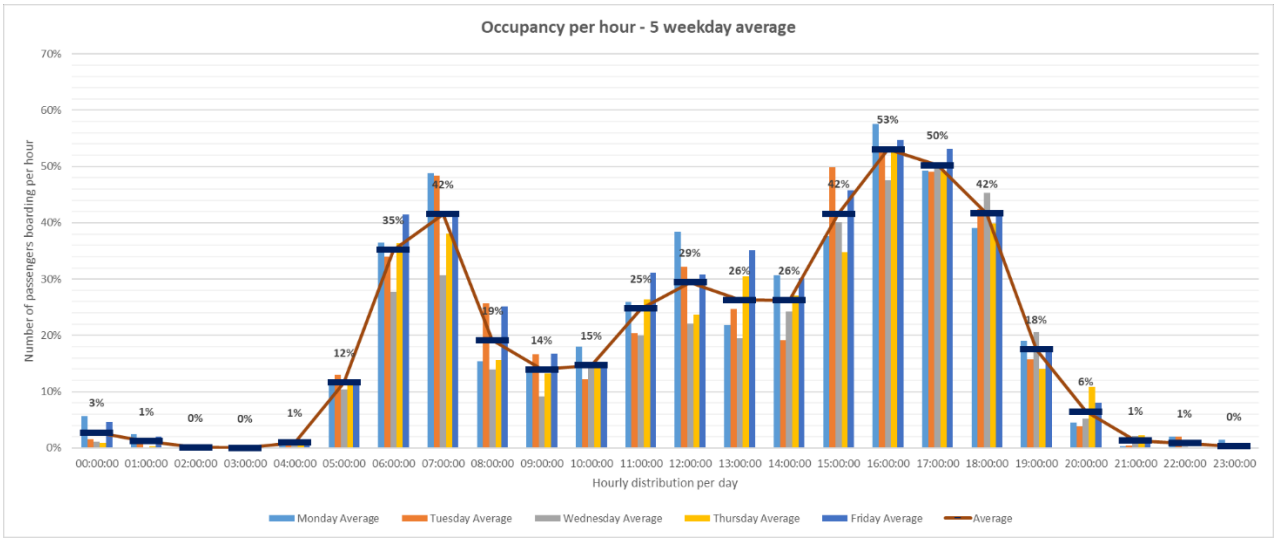


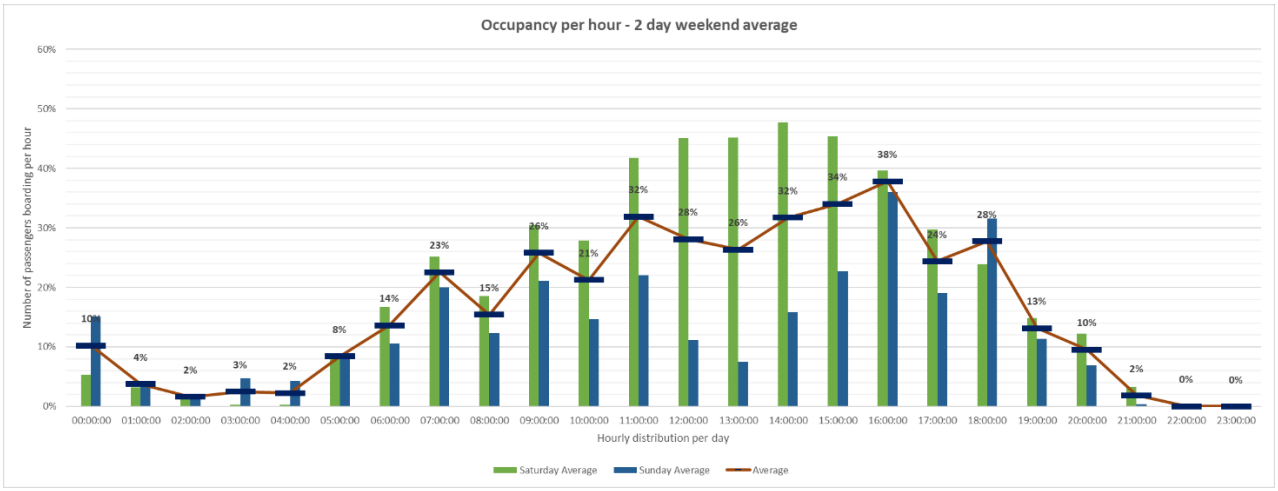

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R5.55
R0.85
R0.06
R-
R4.32
R54.85
R191.85
R169.80
R77.00
R45.85
R41.36
R52.74
R55.47
R52.13
R48.65
R80.25
R112.57
R153.91
R81.30
R22.93
R11.17
R1.07
R1.32
R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 140.00
R 120.00
R 100.00
R 80.00
R 60.00
R 40.00
R 20.00
R -
R19.32
R-
R1.70
R-
R5.76
R34.42
R59.54
R106.13
R66.60
R78.82
R64.33
R72.41
R58.03
R55.63
R81.44
R68.01
R72.60
R63.75
R41.13
R18.11
R10.16
R1.23
R0.29
R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

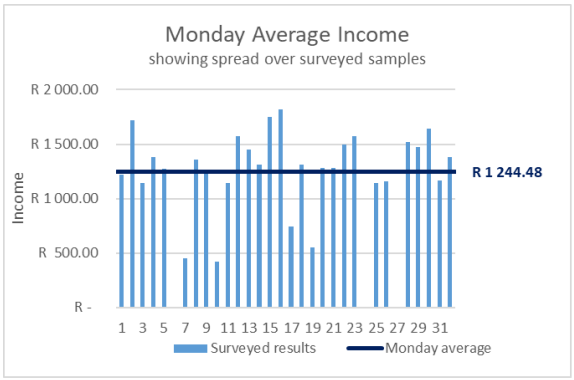


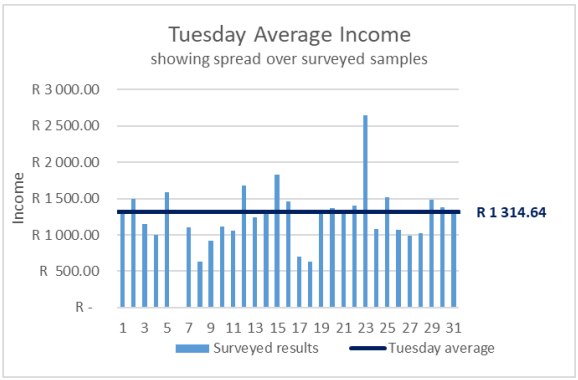


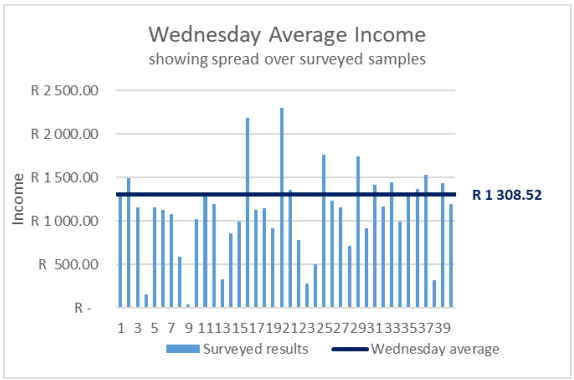

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
60%
50%
40%
30%
20%
10%
0%
10%
4%
2%
3%
2%
8%
14%
23%
15%
26%
21%
32%
28%
26%
32%
34%
38%
24%
28%
13%
10%
2%
0%
0%
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

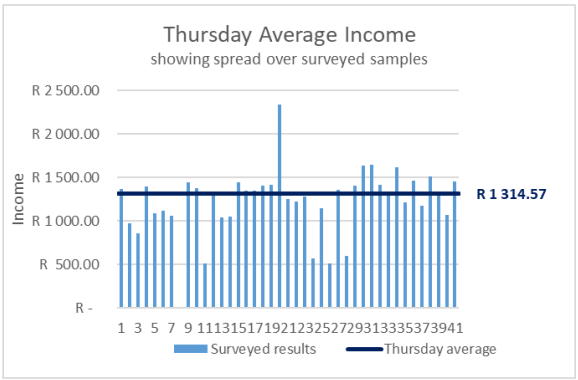
4. DETAILED SURVEY RESULTS

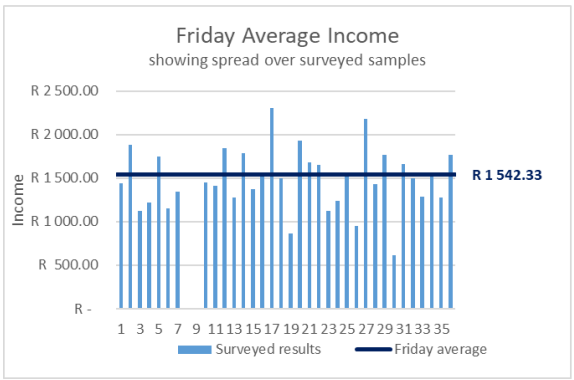
4.1. Income distribution

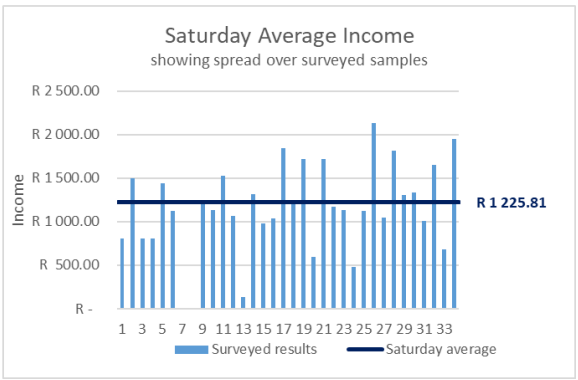


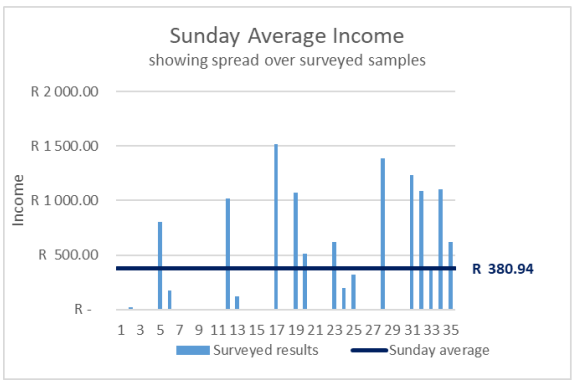




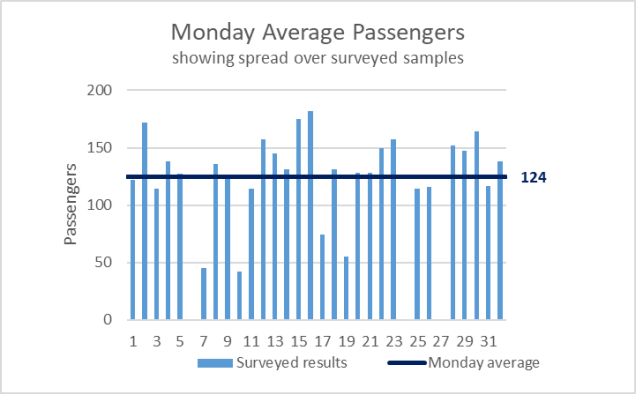


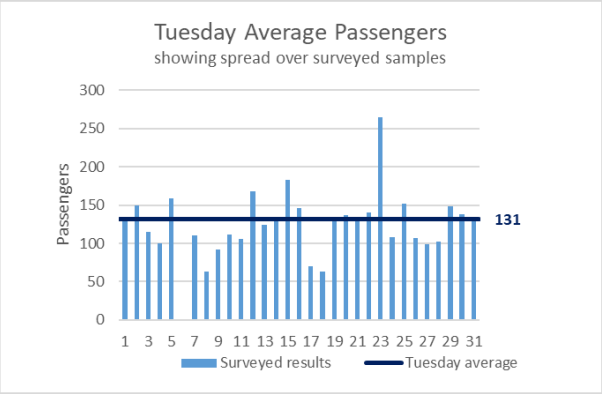


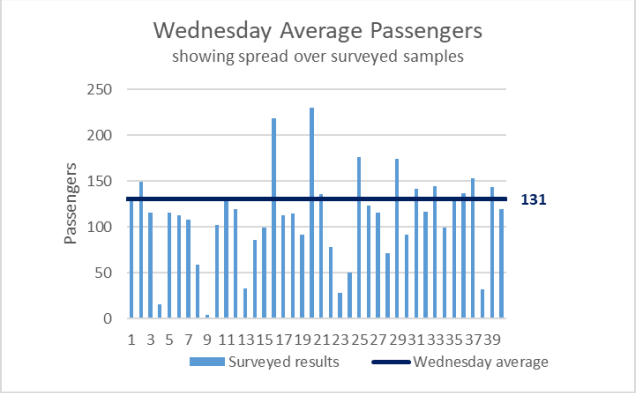


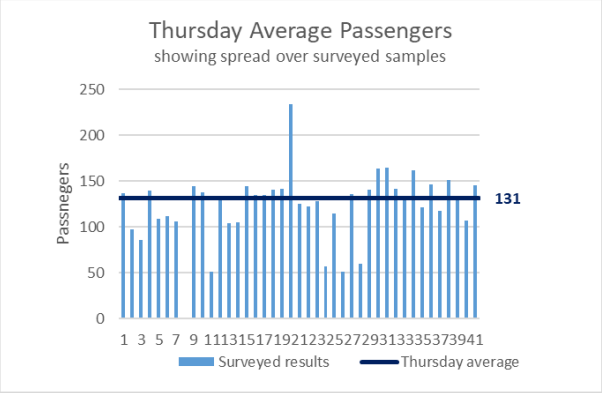


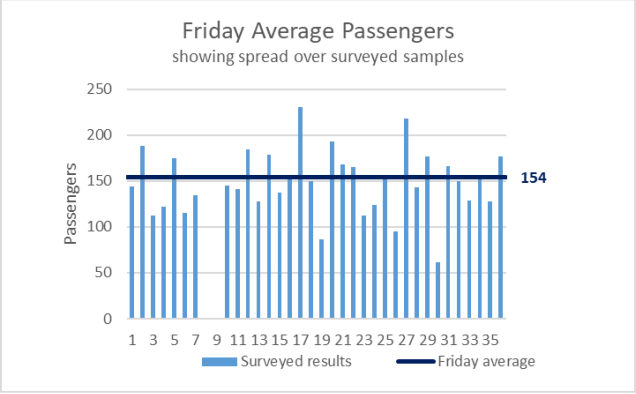
4.2. Passenger number distribution

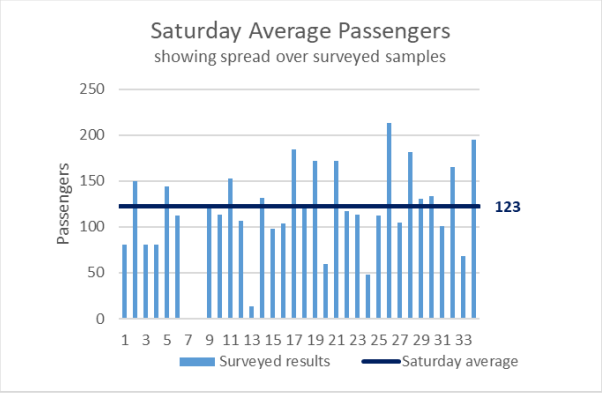


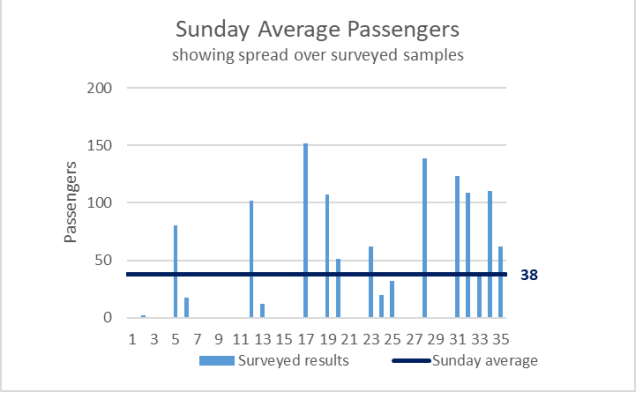










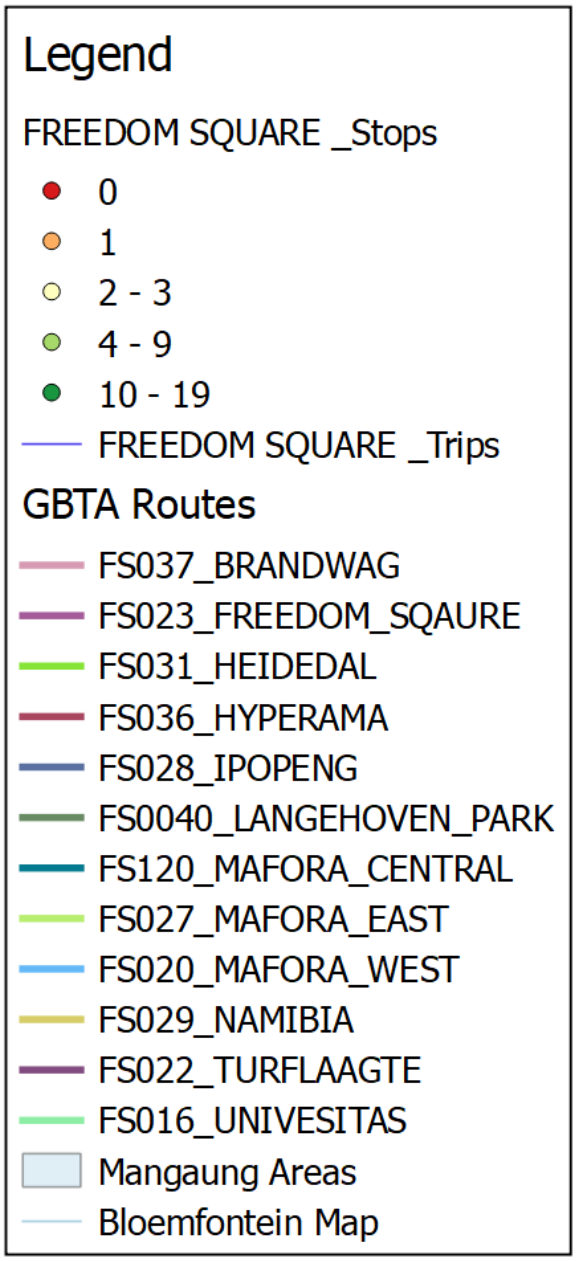


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

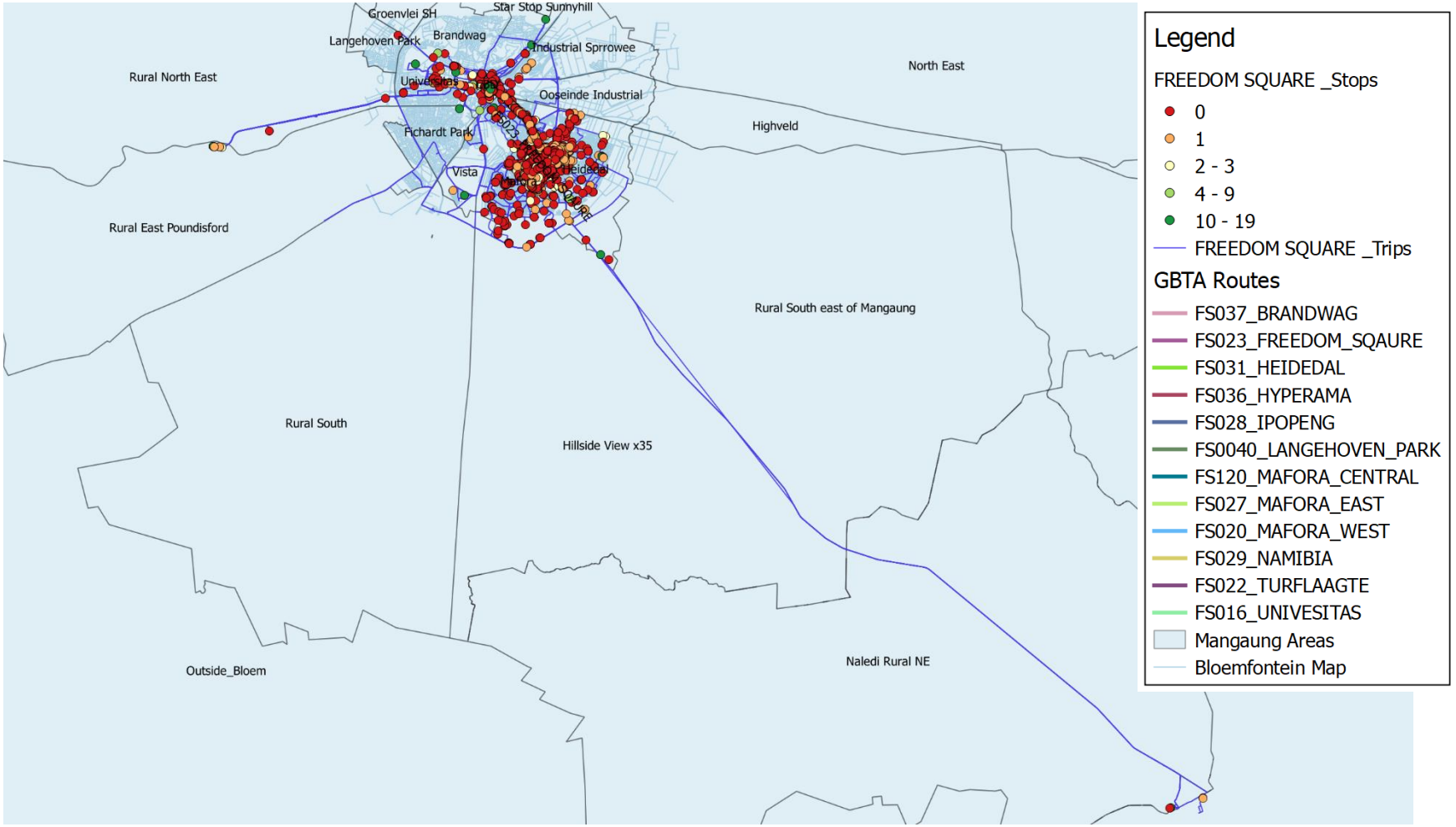


5.1. All surveyed operations

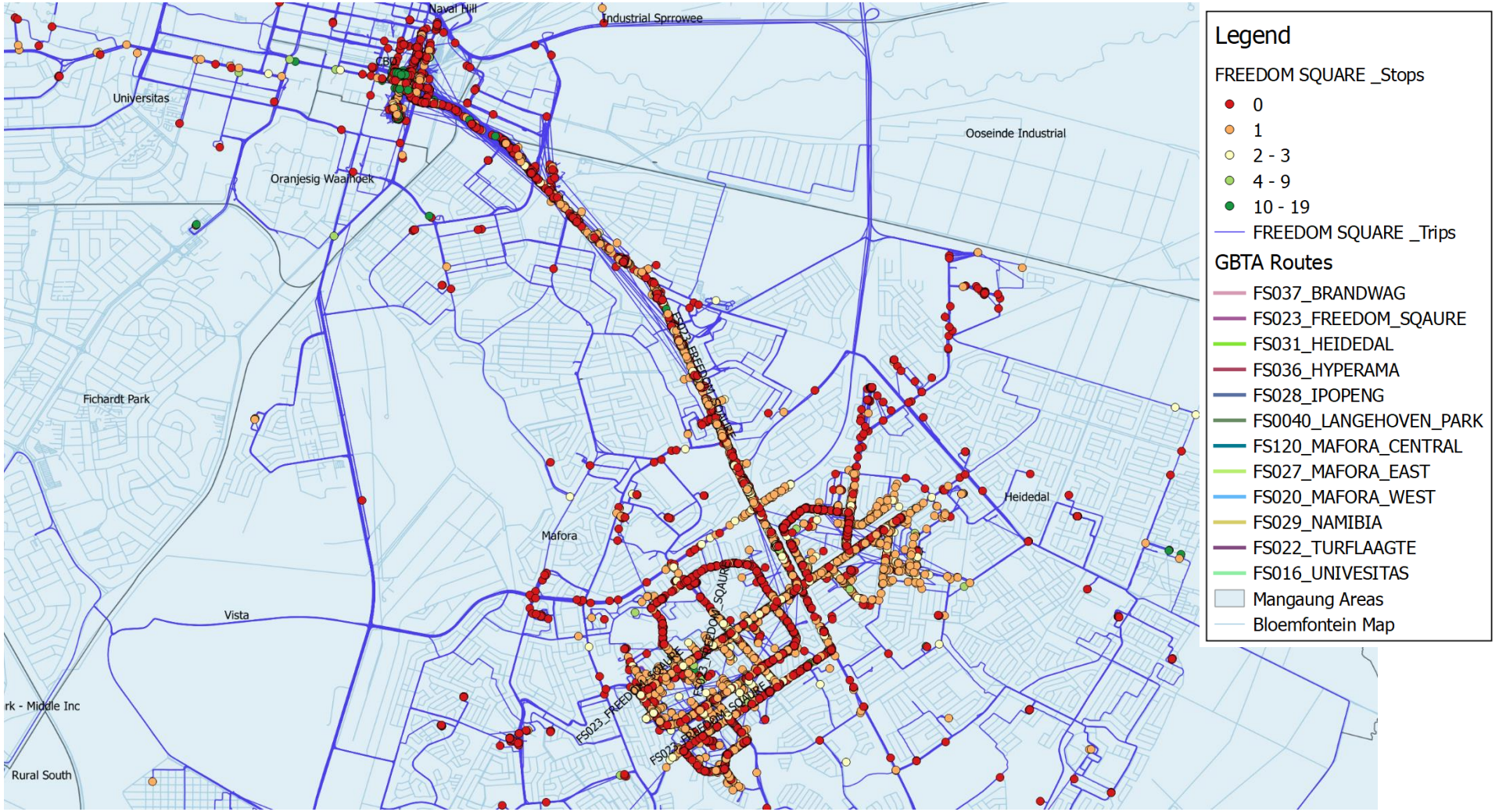
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

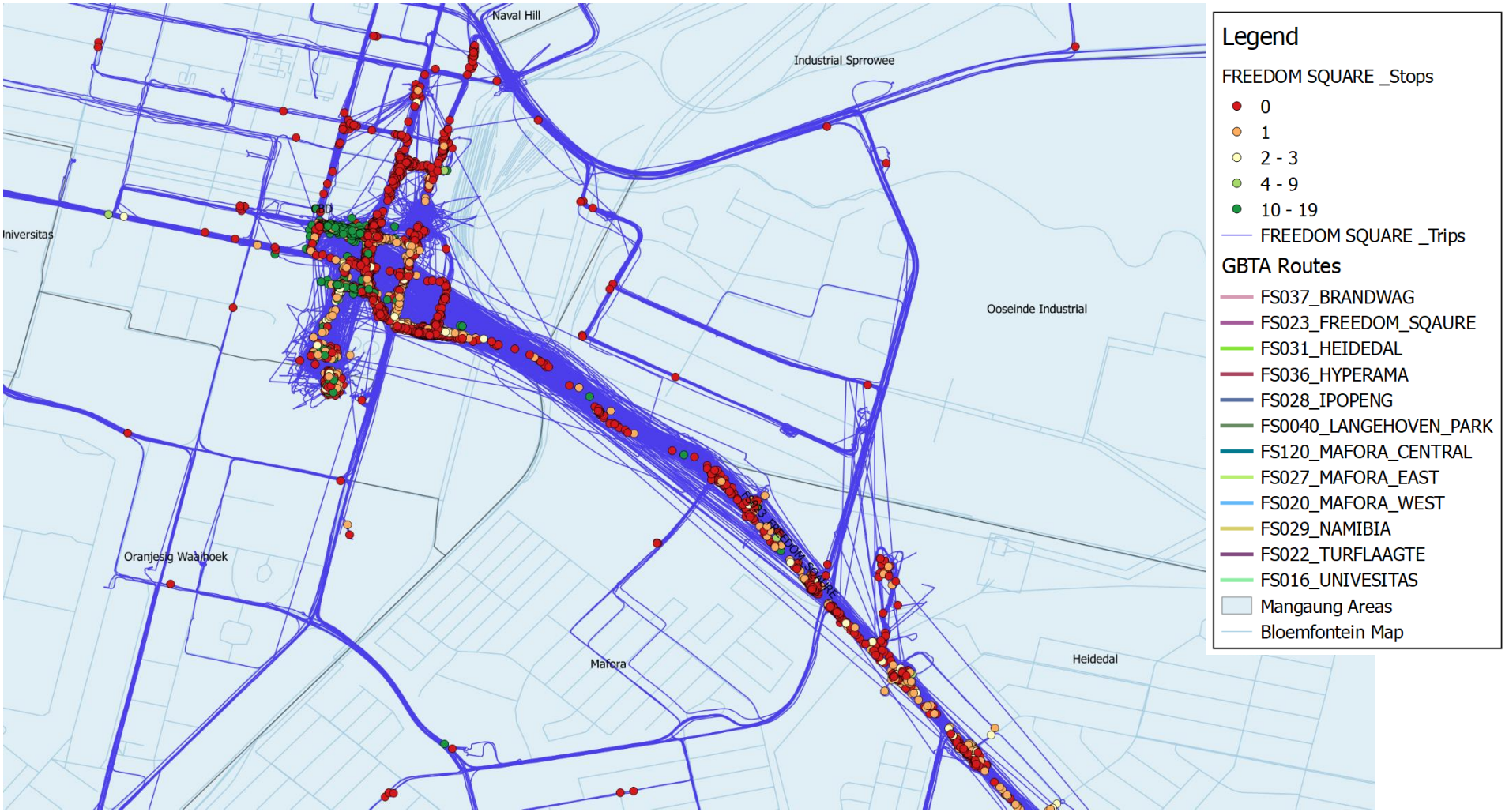
Operations of all surveyed taxis including stops



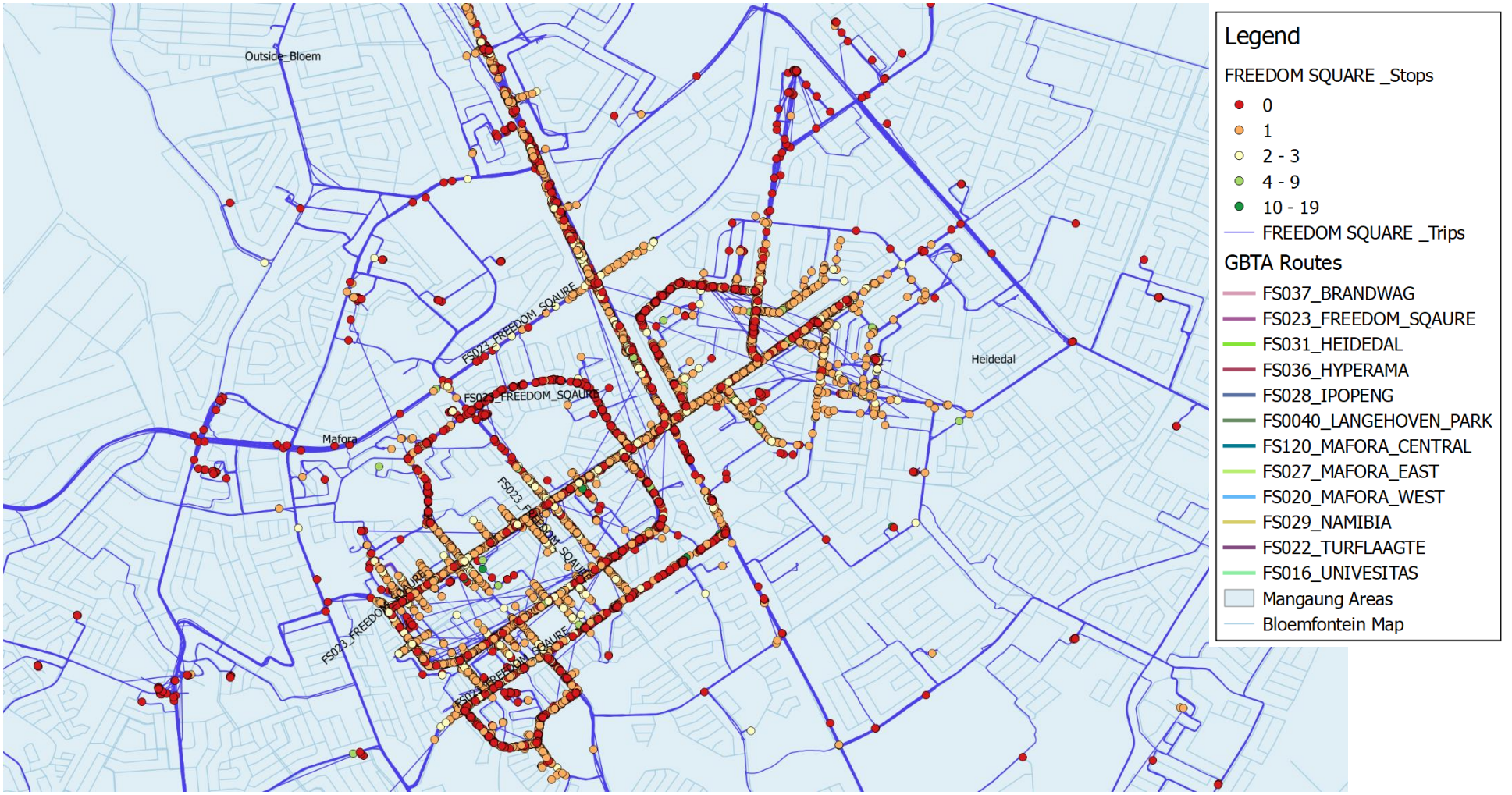
Operations of all surveyed taxis including stops – Focused on the FREEDOM SQUARE route



Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the FREEDOM SQUARE area

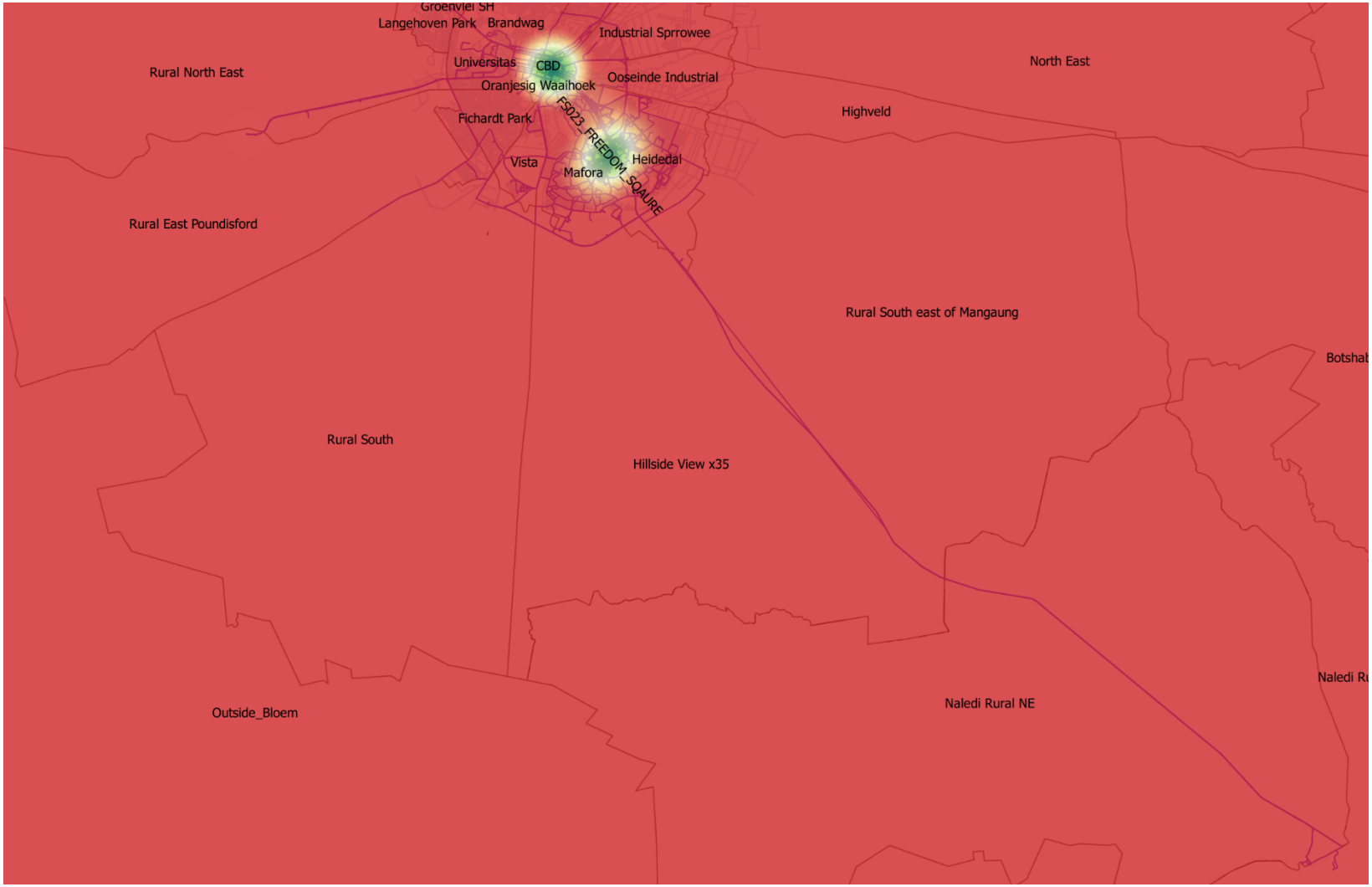


5.2. Heatmaps of taxi operations

The following maps demonstrate the volume of passengers in each area.

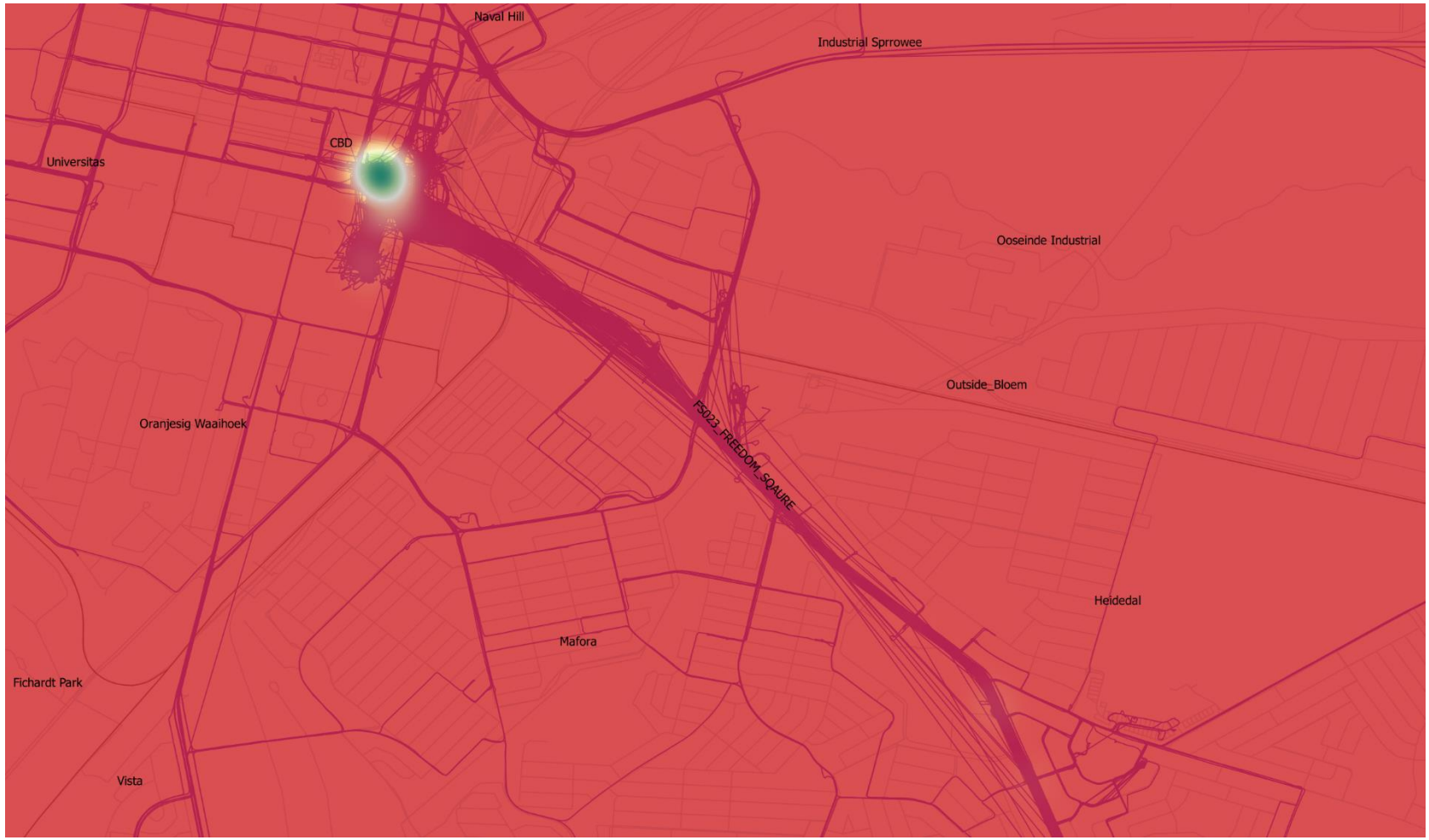
- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

Heatmap of total surveyed area.



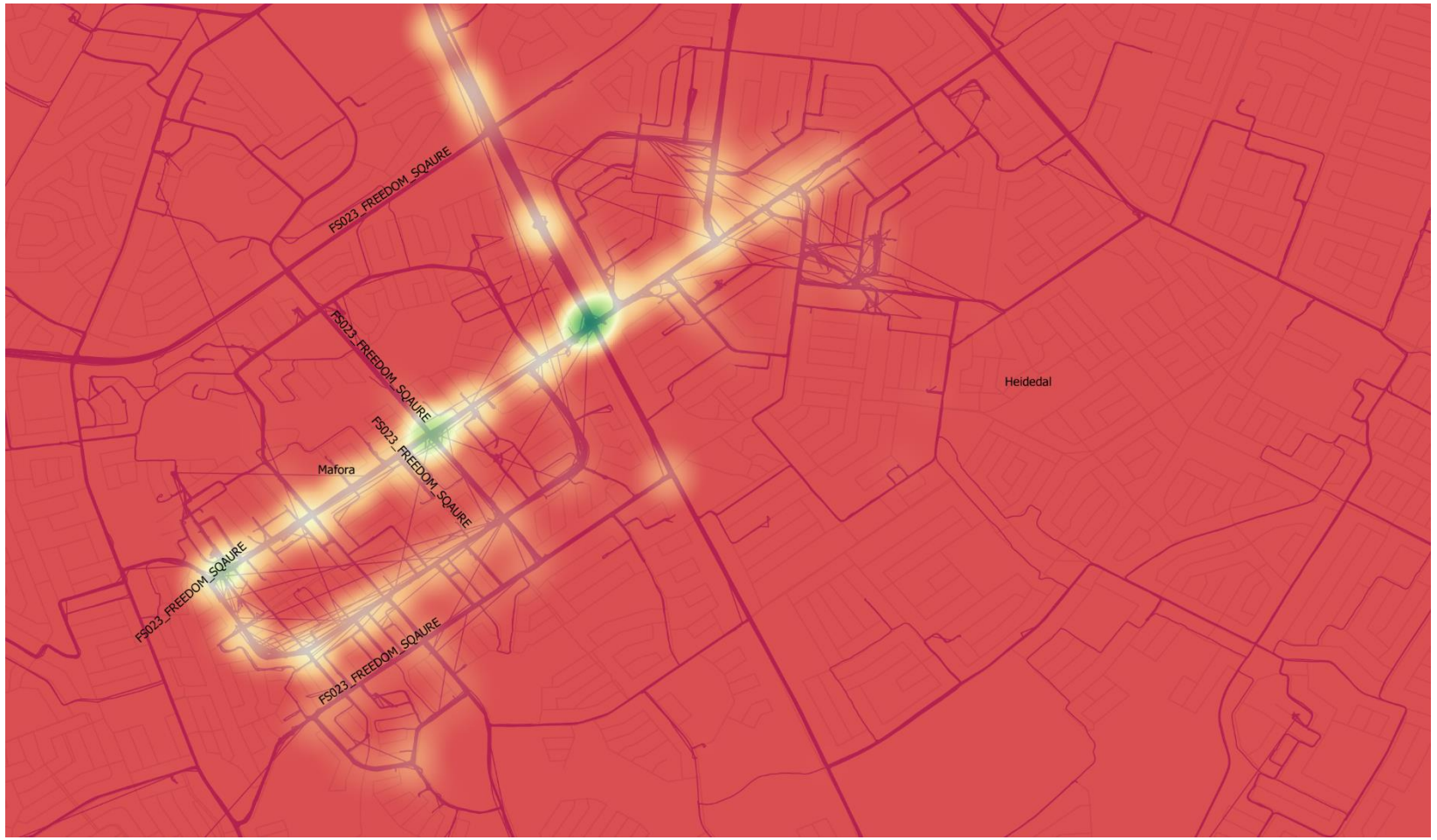
Heatmap of total surveyed area – Focused on the FREEDOM SQUARE route

Heatmap of total surveyed area – Focused on the CBD



Heatmap of total surveyed area – Focused on the Pelonomi Academic Hospital

Heatmap of total surveyed area – Focused on FREEDOM SQUARE



ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – HEIDEDAL

iSAHA

Table of Contents

ROUTE: **HEIDEDAL**
REPORT DATE: **20 November 2017**

1. INTRODUCTION

The electronic on-board survey results for Heidedal Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Heidedal Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option B*		*Option C*	
Average operating income per month	**R 43 793.36**		**R 35 116.30**		**R 43 700.53**	
Average operating income per day		R 1 444.85		R 1 158.57		R 1 441.79
Cost of operations per month	**R 21 125.26**		**R 19 150.12**		**R 23 609.51**	
Cost of operations per day		R 693.77		R 628.90		R 775.35
Operational cost - Fuel & Oil	*R 9 776.18*	*R 321.06*	*R 11 787.37*	*R 387.11*	*R 8 811.56*	*R 289.38*
Operational cost - Maintenance	*R 4 169.75*	*R 136.94*	*R 3 244.41*	*R 106.55*	*R 4 909.61*	*R 161.24*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 3 660.00*	*R 120.20*	*R 9 430.00*	*R 309.69*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 22 668.09**		**R 15 966.18**		**R 20 091.01**	
Average daily operating profit *		R 751.08		R 529.67		R 666.43

** Excluding driver salary*
Excluding payments to owner

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1			
Driver Salary	**R 5 000.00**	**R 5 000.00**	**R 5 000.00**
Average monthly operating profit	**R 22 668.09**	**R 15 966.18**	**R 20 091.01**
Driver Salary	**R 5 000.00**	**R 5 000.00**	**R 5 000.00**
Monthly profit to Owner	**R 17 668.09**	**R 10 966.18**	**R 15 091.01**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:							
Total usage fee paid to owner per month	**R**	**17 617.50**		**R**	**11 745.00**		**R**	**21 097.50**
Average operating income per month	**R**	**43 793.36**		**R**	**35 116.30**		**R**	**43 700.53**
Monthly usage fee to Owner	**R**	**17 617.50**		**R**	**11 745.00**		**R**	**21 097.50**
Usage cost per month (fuel, oil)	**R**	**9 776.18**		**R**	**11 787.37**		**R**	**8 811.56**
Monthly profit to Driver	**R**	**16 399.68**		**R**	**11 583.93**		**R**	**13 791.46**
Monthly usage fee to Owner	**R**	**17 617.50**		**R**	**11 745.00**		**R**	**21 097.50**
Maintenance cost per month	R	4 169.75		R	3 244.41		R	4 909.61
Fixed cost per month	R	6 721.00		R	3 660.00		R	9 430.00
Overhead cost per month	R	458.33		R	458.33		R	458.33
Monthly profit to Owner (scenario 2)	**R**	**6 268.41**		**R**	**4 382.25**		**R**	**6 299.55**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income						
	Option A		*Option B*		*Option C*	
	Average income per day		Average income per day		Average income per day	
Monday	R	1 661.43	R	1 365.00	R	1 865.00
Tuesday	R	1 437.50	R	1 285.00	R	1 947.50
Wednesday	R	1 563.91	R	1 227.50	R	1 515.00
Thursday	R	1 640.00	R	1 330.00	R	1 545.00
Friday	R	1 766.54	R	1 480.00	R	1 750.00
Saturday	R	1 351.11	R	817.50	R	1 147.50
Sunday	R	693.45	R	605.00	R	322.50
Total weekly income	**R**	**10 113.94**	**R**	**8 110.00**	**R**	**10 092.50**
Average daily income	**R**	**1 444.85**	**R**	**1 158.57**	**R**	**1 441.79**

4. COST CALCULATIONS

4.1. General information

	Option A	*Option B*	*Option C*
General information			
Vehicle type	Quantum 15 Seater	Hi-Ace 14 Seater	Sprinter 22 Seater
Average km driven per day	198 km	174 km	178 km
Cost of fuel	R 14.00 per litre	R 14.00 per litre	R 14.00 per litre
Cost of oil	R 60.00 per 500 ml	R 60.00 per 500 ml	R 60.00 per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil
Operational cost

Usage cost assumptions
These expenses are usually for the driver's account under Scenario 2

Fuel consumption	10	km / litre		7	km / litre		10	km / litre
Oil consumption: one 500ml can of oil every	2	days		2	days		2	days
Fuel and Oil usage per day	**R**	**321.06**		**R**	**387.11**		**R**	**289.38**	
Fuel and Oil usage per month	**R**	**9 776.18**		**R**	**11 787.37**		**R**	**8 811.56**	

Maintenance cost assumptions
These expenses are always for the owner's account

Main service cost	R	3 500.00		R	1 200.00		R	6 000.00	
Number of main services		2	per year		2	per year		1	per year
Minor service cost	R	1 400.00		R	700.00		R	4 000.00	
Number of minor services		6	per year		6	per year		2	per year
Wheel maintenance cost	R	2 000.00		R	1 200.00		R	5 000.00	
(brake pads, wheel cylinder, etc)									
Number of wheel maintenances		4	per year		4	per year		3	per year
Wheel alignment cost	R	360.00		R	360.00		R	360.00	
Number of wheel alignments		12	per year		12	per year		12	per year
Price of tyres	R	1 350.00	per tyre	R	700.00	per tyre	R	2 500.00	per tyre
Tyre lifespan		30 000.00	km		11 200.00	km		60 000.00	km
Upholstery, cost of replacement	R	2 200.00		R	1 200.00		R	2 200.00	
Number of times upholstery is replaced		2	per year		2	per year		2	per year
Unforeseen cost (average per event)	R	2 300.00		R	2 300.00		R	2 300.00	
(interior, parts, exhaust, auto-electrical, windows, starter, etc)									
Number of times of unforeseen expenses		1	per year		1	per year		1	per year
Cost of cleaning, per event	R	50.00		R	50.00		R	50.00	
Number of times cleaning is done		52	per year		52	per year		52	per year
Maintenance: average cost per day	**R**	**136.94**		**R**	**106.55**		**R**	**161.24**	
Maintenance: average cost per month	**R**	**4 169.75**		**R**	**3 244.41**		**R**	**4 909.61**	

4.3. Fixed cost

Fixed cost *Fixed costs are related to a vehicle, independent of the operations of the vehicle*			
Insurance installment	R 18 000.00 per year	R 9 600.00 per year	R 22 000.00 per year
Insurance excess amount in case of a claim	R 5 000.00 per year	R 5 000.00 per year	R 5 000.00 per year
Monthly vehicle installments (financing)	R 55 560.00 per year	R 27 780.00 per year	R 83 340.00 per year
Vehicle licence fees cost	R 1 500.00 per year	R 900.00 per year	R 1 700.00 per year
Roadworthy test cost	R 480.00 per year	R 480.00 per year	R 960.00 per year
Operating licence cost, once every 5 years	R 12.00	R 60.00	R 60.00
Monthly association fee	R 100.00 per year	R 100.00 per year	R 100.00 per year
Fixed cost: average cost per day	**R 220.72**	**R 120.20**	**R 309.69**
Fixed cost: average cost per month	**R 6 721.00**	**R 3 660.00**	**R 9 430.00**

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*								
Number of taxis in fleet		3			3			3	
Equipment and tools	*(computers, software, tools)*	R	2 000.00	per year	R	2 000.00	per year	R	2 000.00	per year
Communication	*(landlines, cellphones, internet connections)*	R	2 000.00	per year	R	500.00	per year	R	500.00	per year
Security	*(security, parking fees)*	R	500.00	per year	R	500.00	per year	R	500.00	per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R	1 000.00	per year	R	1 000.00	per year	R	1 000.00	per year
Overhead cost: average cost per day per taxi		**R**	**15.05**		**R**	**15.05**		**R**	**15.05**	
Overhead cost: average cost per month per taxi		**R**	**458.33**		**R**	**458.33**		**R**	**458.33**	

ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Long term survey results for

Taxi Route – HEIDEDAL

iSAHA

Table of Contents

ROUTE: **HEIDEDAL (Long Term)**
REPORT DATE: **18 December 2017**

1. INTRODUCTION

The electronic on-board survey results for Heidedal Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Heidedal Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

		Option A		
Average operating income per month	**R**	**47 889.35**		
Average operating income per day			R	1 579.99
Cost of operations per month	**R**	**26 968.35**		
Cost of operations per day			R	885.66
Operational cost - Fuel & Oil	*R*	*15 035.68*	*R*	*493.78*
Operational cost - Maintenance	*R*	*4 753.34*	*R*	*156.10*
Fixed cost	*R*	*6 721.00*	*R*	*220.72*
Overhead cost	*R*	*458.33*	*R*	*15.05*
Average monthly operating profit*	**R**	**20 921.00**		
Average daily operating profit *			R	694.32
** Excluding driver salary*				
Excluding payments to owner				

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1

Driver Salary	**R**	**5 000.00**
Average monthly operating profit	**R**	**20 921.00**
Driver Salary	**R**	**5 000.00**
Monthly profit to Owner	**R**	**15 921.00**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:		
Total usage fee paid to owner per month	**R**	**17 617.50**
Average operating income per month	**R**	**47 889.35**
Monthly usage fee to Owner	**R**	**17 617.50**
Usage cost per month (fuel, oil)	**R**	**15 035.68**
Monthly profit to Driver	**R**	**15 236.17**
Monthly usage fee to Owner	**R**	**17 617.50**
Maintenance cost per month	R	4 753.34
Fixed cost per month	R	6 721.00
Overhead cost per month	R	458.33
Monthly profit to Owner (scenario 2)	**R**	**5 684.82**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income			
	Option A	*Option B*	*Option C*
	Average income per day	Average income per day	Average income per day
Monday	R 1 872.35	R -	R -
Tuesday	R 1 917.06	R -	R -
Wednesday	R 1 687.89	R -	R -
Thursday	R 1 562.50	R -	R -
Friday	R 1 826.88	R -	R -
Saturday	R 1 170.71	R -	R -
Sunday	R 1 022.50	R -	R -
Total weekly income	**R 11 059.90**	**R -**	**R -**
Average daily income	**R 1 579.99**	**R -**	**R -**

4. COST CALCULATIONS

4.1. General information

	Option A		
General information			
Vehicle type	Quantum 15 Seater		
Average km driven per day		304	km
Cost of fuel	R	14.00	per litre
Cost of oil	R	60.00	per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil	
Operational cost	

Usage cost assumptions			
Scenario 2			
Fuel consumption		10	km / litre
Oil consumption: one 500ml can of oil every		2	days
Fuel and Oil usage per day	**R**	**493.78**	
Fuel and Oil usage per month	**R**	**15 035.68**	

Maintenance cost assumptions			
These expenses are always for the owner's account			
Main service cost	R	3 500.00	
Number of main services		2	per year
Minor service cost	R	1 400.00	
Number of minor services		6	per year
Wheel maintenance cost	R	2 000.00	
(brake pads, wheel cylinder, etc)			
Number of wheel maintenances		4	per year
Wheel alignment cost	R	360.00	
Number of wheel alignments		12	per year
Price of tyres	R	1 350.00	per tyre
Tyre lifespan		30 000.00	km
Upholstery, cost of replacement	R	2 200.00	
Number of times upholstery is replaced		2	per year
Unforeseen cost (average per event)	R	2 300.00	
(interior, parts, exhaust, auto-electrical, windows, starter, etc)			
Number of times of unforeseen expenses		1	per year
Cost of cleaning, per event	R	50.00	
Number of times cleaning is done		52	per year
Maintenance: average cost per day	**R**	**156.10**	
Maintenance: average cost per month	**R**	**4 753.34**	

4.3. Fixed cost

Fixed cost	
	operations of the vehicle

Insurance installment	R	18 000.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year
Vehicle licence fees cost	R	1 500.00	per year
Roadworthy test cost	R	480.00	per year
Operating licence cost, once every 5 years	R	12.00	
Monthly association fee	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**	
Fixed cost: average cost per month	**R**	**6 721.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*			
Number of taxis in fleet			3	
Equipment and tools	*(computers, software, tools)*	R	2 000.00	per year
Communication	*(landlines, cellphones, internet connections)*	R	2 000.00	per year
Security	*(security, parking fees)*	R	500.00	per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R	1 000.00	per year
Overhead cost: average cost per day per taxi		**R**	**15.05**	
Overhead cost: average cost per month per taxi		**R**	**458.33**	

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Long term survey results for

Taxi Route – HEIDEDAL

iSAHA

Table of Contents

ROUTE: **HEIDEDAL (Long Term)**
REPORT DATE: **18 December 2017**

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

1 taxis and 115 days were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 15 August 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

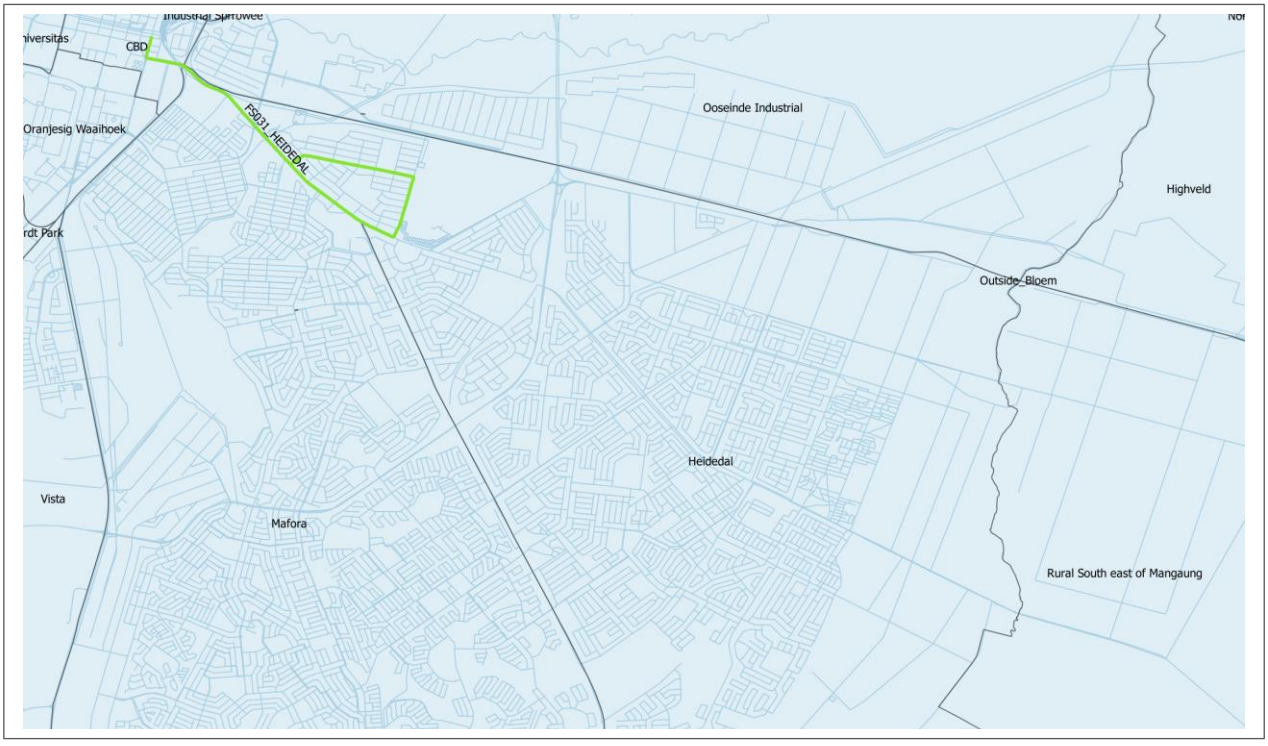
1 long term vehicle was surveyed for 115 days between cycle 1 and cycle 11.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 579.99	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 11 059.90	Per week As determined from survey
Average monthly income	R 47 889.35	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R536 404.95	Calculated from weekly result Formula: 48.5 x weekly average

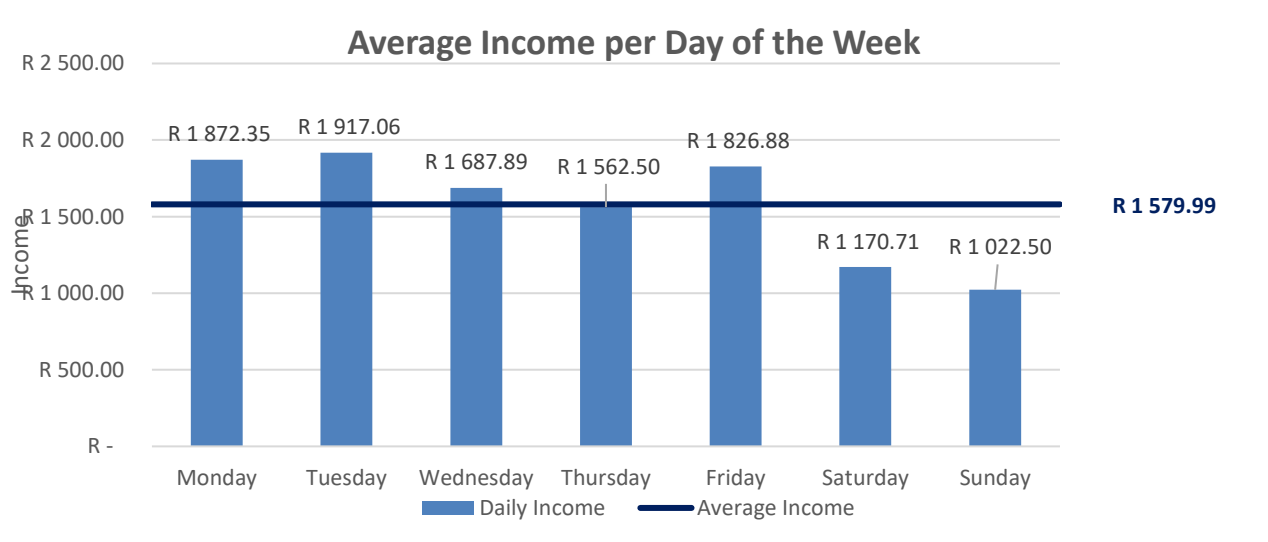


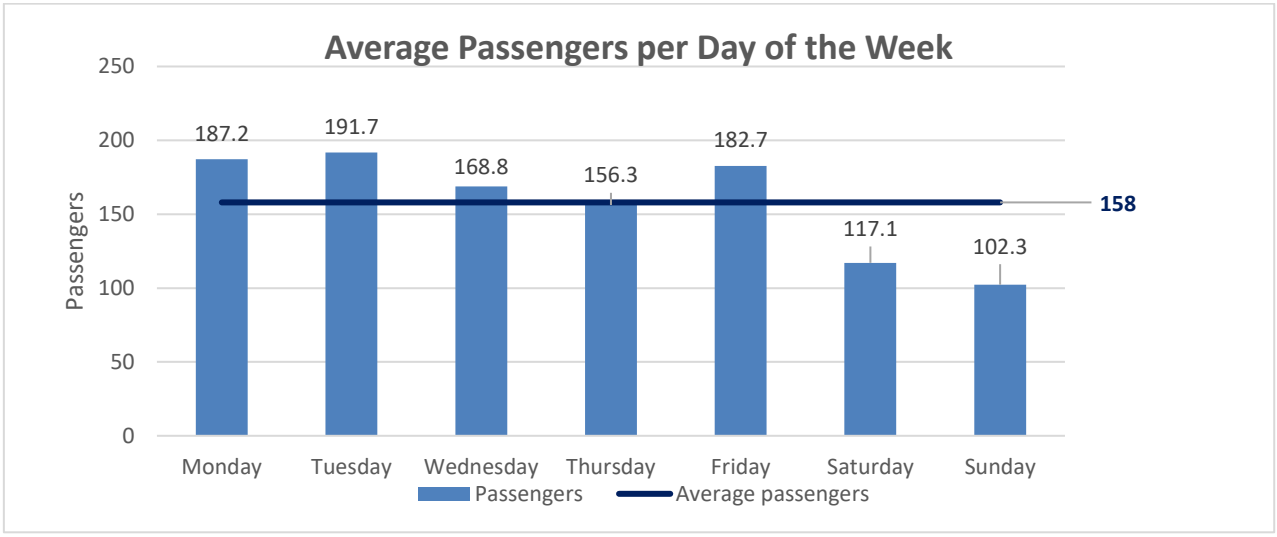
Corridor served by HEIDEDAL Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	187	R 10.00	R 1 872.35
Tuesday	192	R 10.00	R 1 917.06
Wednesday	169	R 10.00	R 1 687.89
Thursday	156	R 10.00	R 1 562.50
Friday	183	R 10.00	R 1 826.88
Saturday	117	R 10.00	R 1 170.71
Sunday	102	R 10.00	R 1 022.50
Weekly total	1106		R 11 059.90
Average	158	R 10.00	R 1 579.99
Weekday Avg	177	R 10.00	R 1 773.34

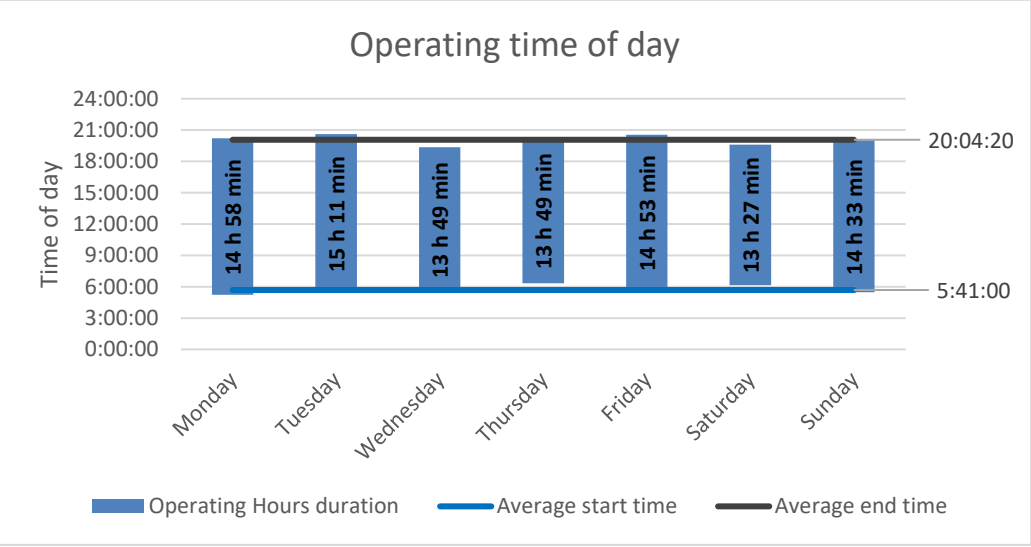



Average Passengers per Day of the Week
250
200
150
100
50
0
Passengers
187.2
191.7
168.8
156.3
182.7
117.1
102.3
158
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.4. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	5:41:00	20:04:20	14:23:20
Weekday (Mon-Fri) avg	5:37:59	20:10:29	14:32:29
Monday	5:13:49	20:12:35	14:58:45
Tuesday	5:25:10	20:36:48	15:11:38
Wednesday	5:31:17	19:20:40	13:49:23
Thursday	6:19:46	20:08:46	13:49:00
Friday	5:39:55	20:33:35	14:53:39
Saturday	6:08:54	19:36:48	13:27:54
Sunday	5:28:07	20:01:08	14:33:01



3.5. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	304	251	R	6.28	38%
Weekday (Mon-Fri) avg	292	277	R	6.41	39%
Monday	285	285	R	6.57	40%
Tuesday	300	300	R	6.38	37%
Wednesday	264	256	R	6.60	39%
Thursday	257	257	R	6.08	38%
Friday	355	285	R	6.40	39%
Saturday	324	212	R	5.53	38%
Sunday	345	165	R	6.20	37%

3.6. Operational analysis

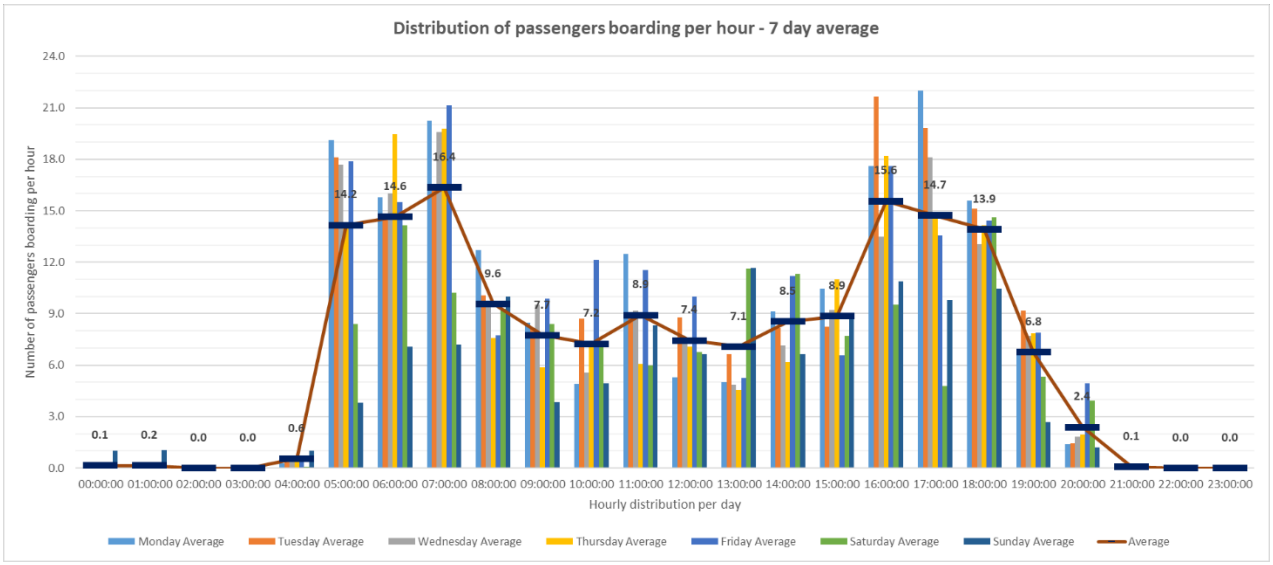
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	251.5	158	1.55	00:06:30	17.2	1715.5	4511.8	38%
Weekday (Mon-Fri) avg	276.8	177	1.55	00:05:51	19.0	1747.6	4576.5	39%
Monday	285.2	187	1.52	00:05:47	19.0	1788.8	4538.2	40%
Tuesday	300.4	192	1.57	00:05:28	19.6	1725.1	4748.3	37%
Wednesday	255.8	169	1.50	00:05:55	18.7	1674.1	4331.2	39%
Thursday	257.0	156	1.65	00:06:22	18.2	1678.1	4453.2	38%
Friday	285.4	183	1.52	00:05:45	19.7	1858.7	4764.7	39%
Saturday	211.5	117	1.63	00:07:12	13.9	1889.6	4998.8	38%
Sunday	164.9	102	1.50	00:09:04	11.0	1222.4	3344.1	37%

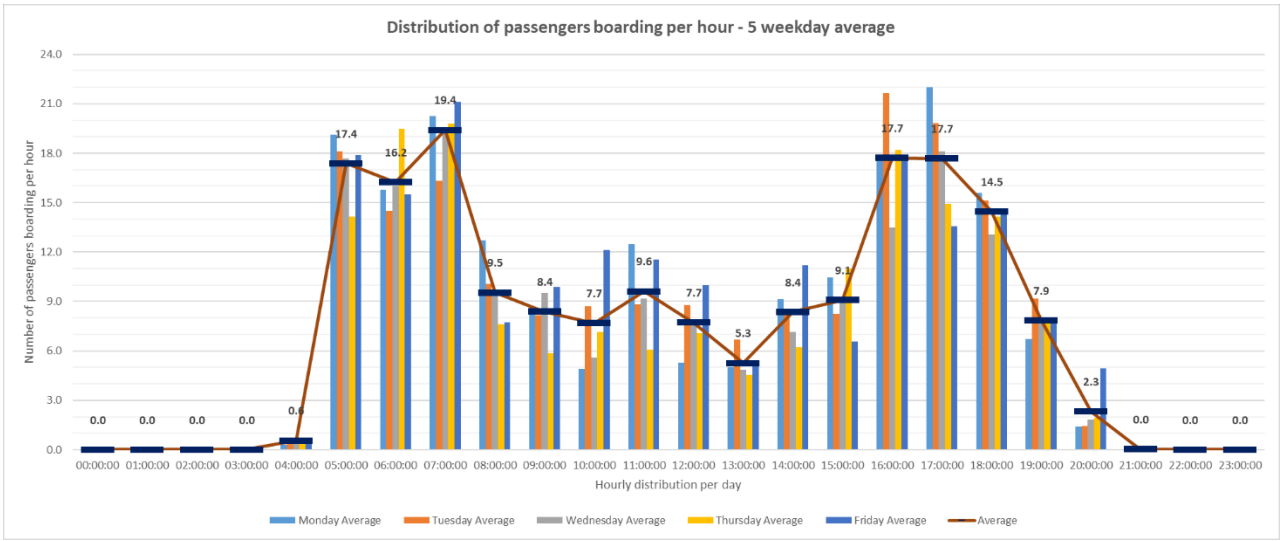
3.7. Fluctuations

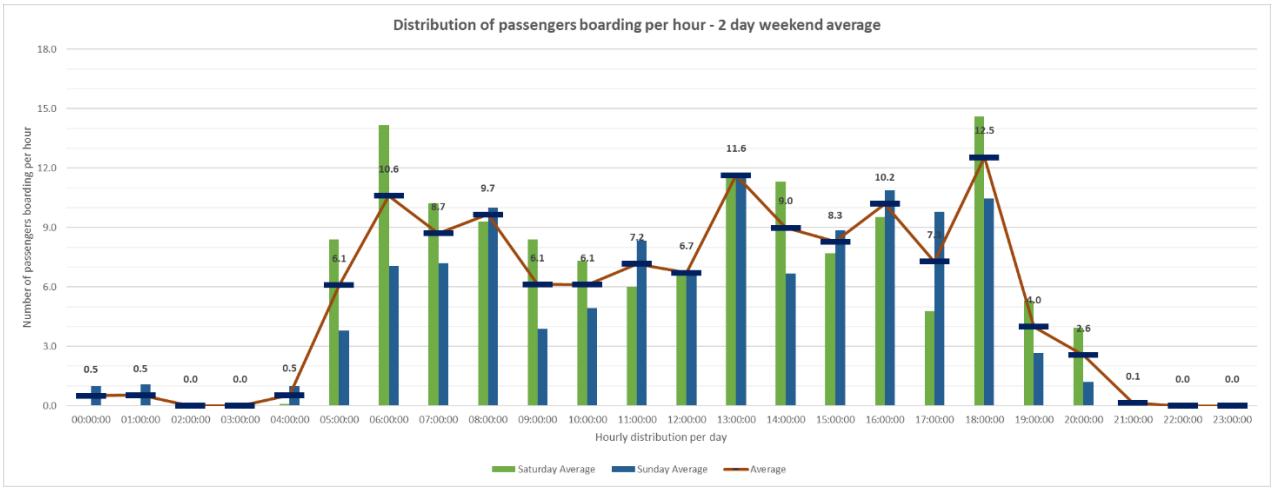
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.1	R 1.43	0%
01:00	01:59	0.2	R 1.52	0%
02:00	02:59	0.0	R -	0%
03:00	03:59	0.0	R -	0%
04:00	04:59	0.6	R 5.54	2%
05:00	05:59	14.2	R 141.58	23%
06:00	06:59	14.6	R 146.36	25%
07:00	07:59	16.4	R 163.58	35%
08:00	08:59	9.6	R 95.71	25%
09:00	09:59	7.7	R 77.37	21%
10:00	10:59	7.2	R 72.40	22%
11:00	11:59	8.9	R 89.18	30%
12:00	12:59	7.4	R 74.43	32%
13:00	13:59	7.1	R 70.82	32%
14:00	14:59	8.5	R 85.43	35%
15:00	15:59	8.9	R 88.61	37%
16:00	16:59	15.6	R 155.66	51%
17:00	17:59	14.7	R 147.15	43%
18:00	18:59	13.9	R 139.15	41%
19:00	19:59	6.8	R 67.53	25%
20:00	20:59	2.4	R 23.85	9%
21:00	21:59	0.1	R 0.67	1%
22:00	22:59	0.0	R -	0%
23:00	23:59	0.0	R -	0%

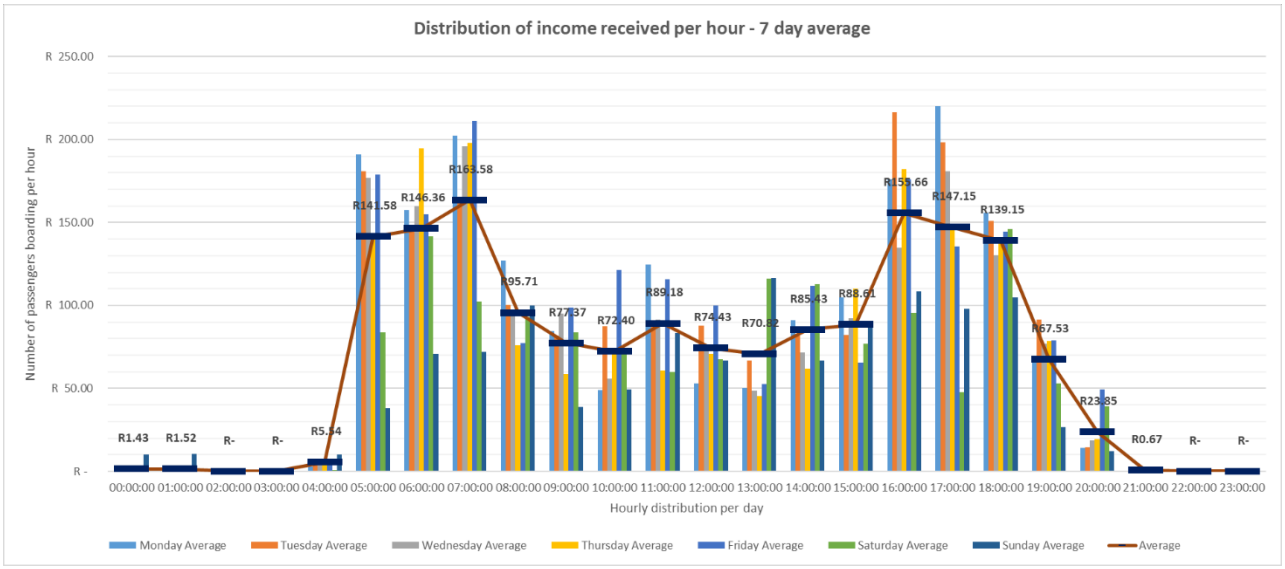
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

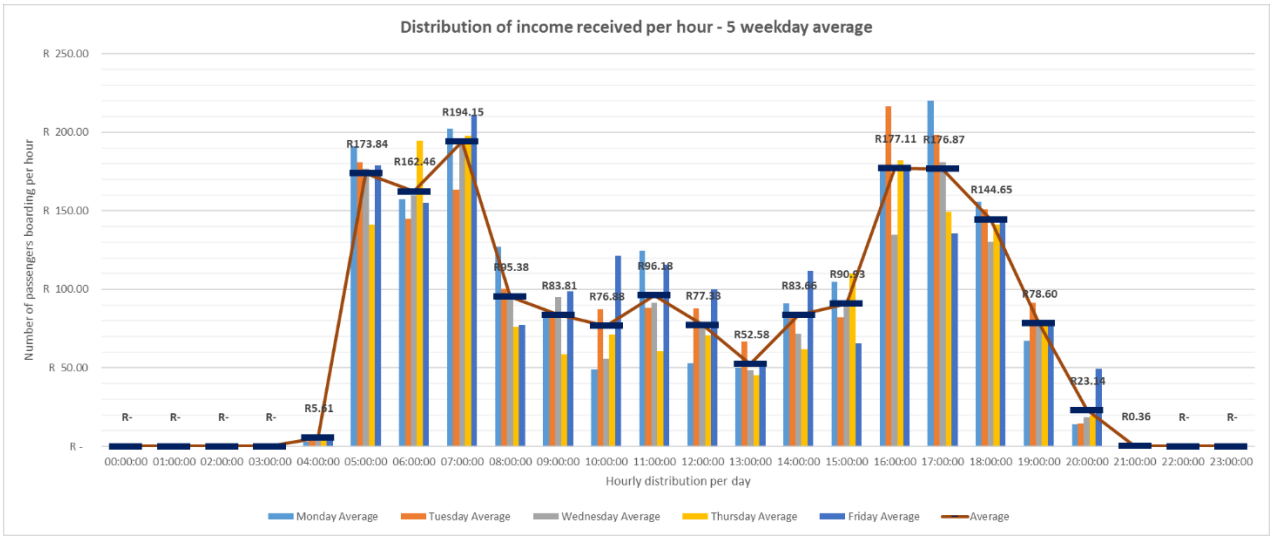


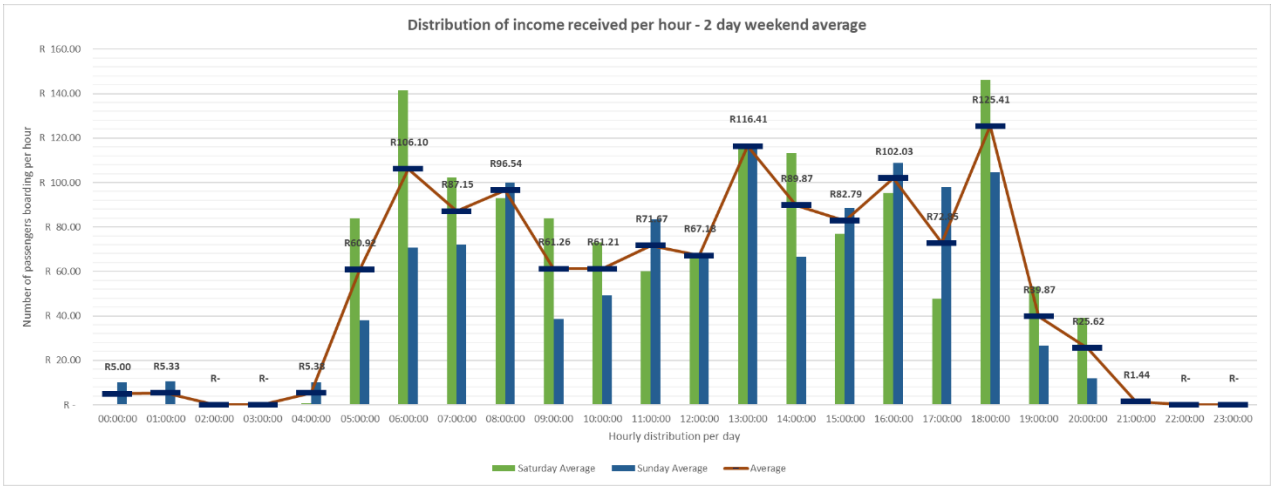




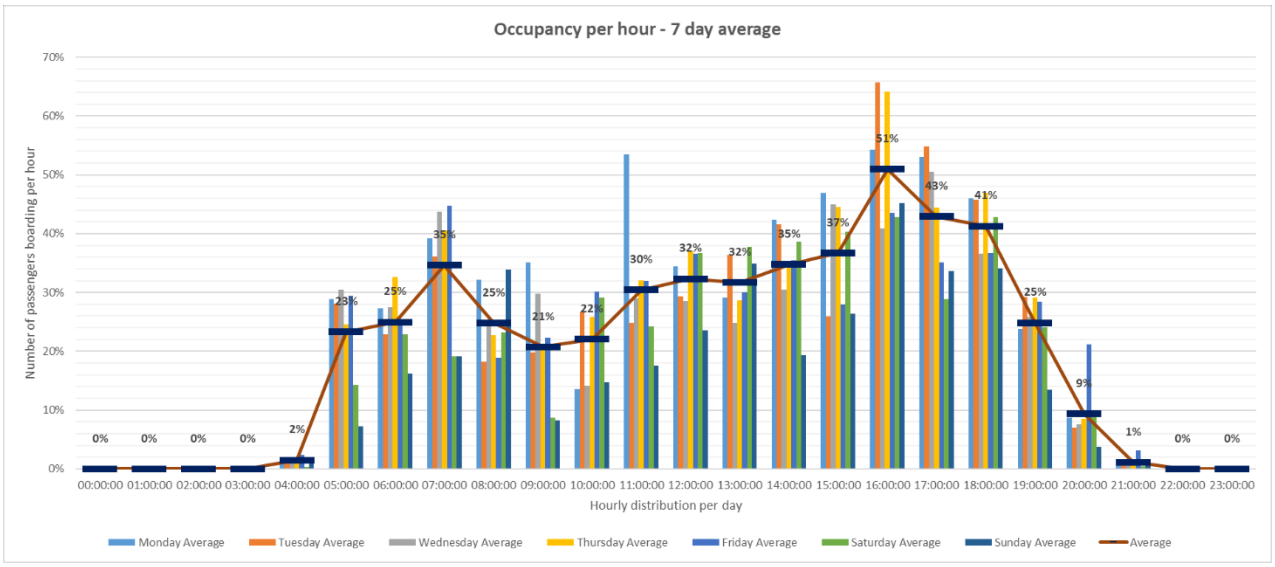
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

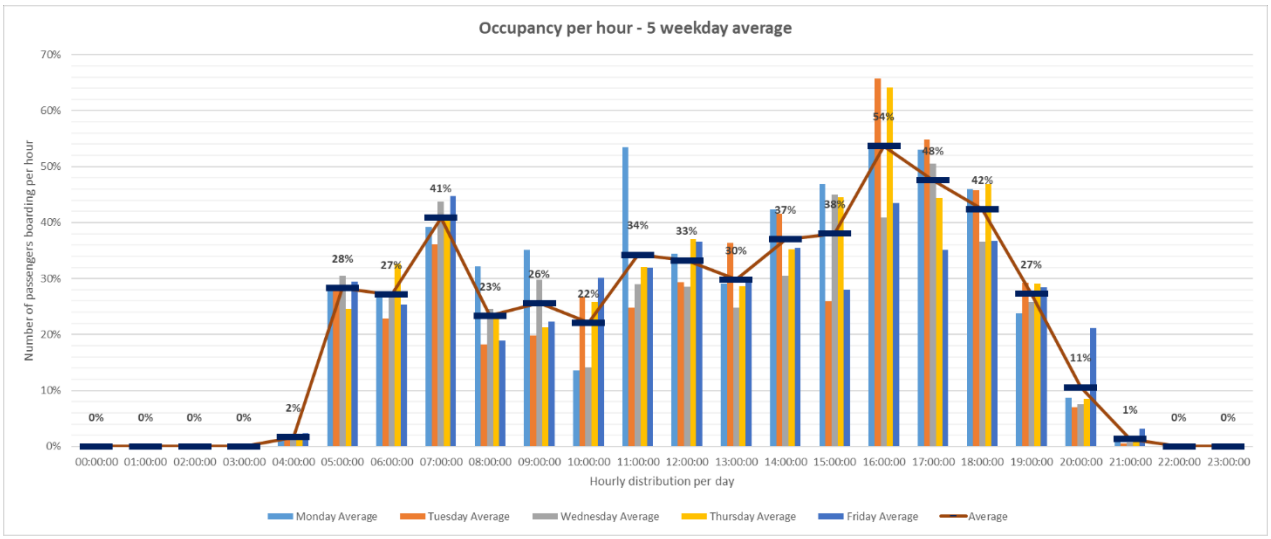


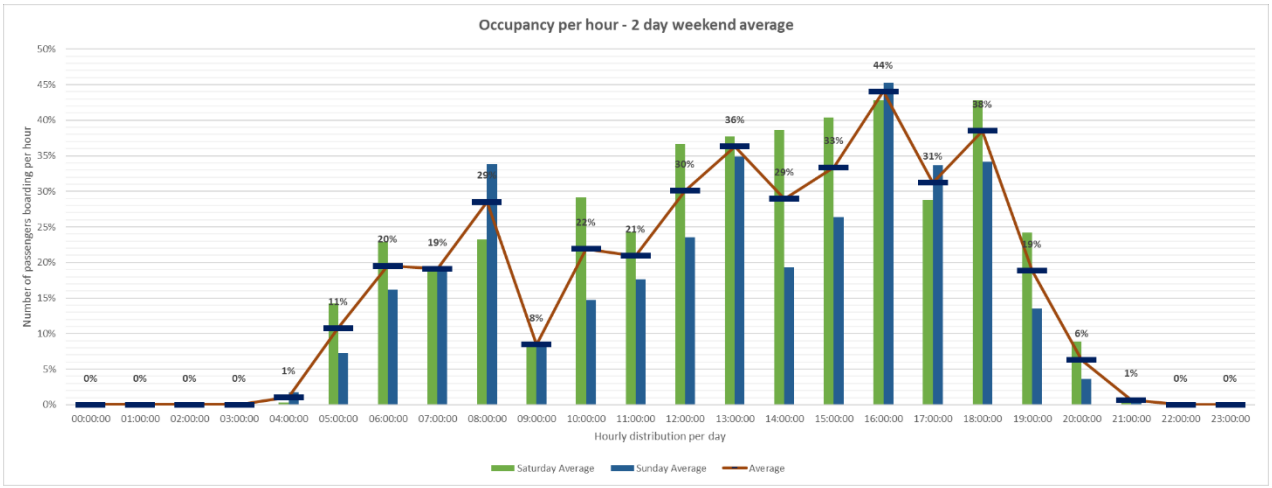

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R- R- R- R- R5.61 R173.84 R162.46 R194.15 R95.38 R83.81 R76.88 R96.18 R77.33 R52.58 R83.66 R90.93 R177.11 R176.87 R144.65 R78.60 R23.14 R0.36 R- R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 160.00
R 140.00
R 120.00
R 100.00
R 80.00
R 60.00
R 40.00
R 20.00
R -
R5.00 R5.33 R- R- R5.33 R60.93 R106.10 R87.15 R96.54 R61.26 R61.21 R71.67 R67.13 R116.41 R89.87 R82.79 R102.03 R72.25 R125.41 R39.87 R25.62 R1.44 R- R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

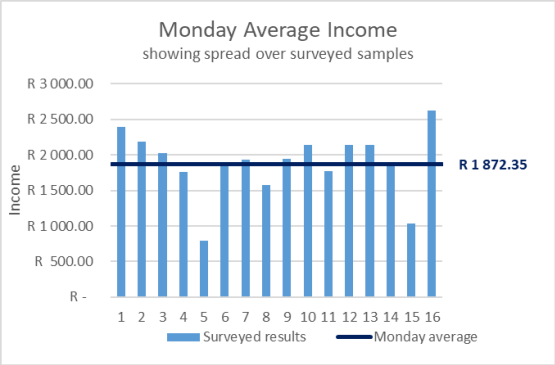


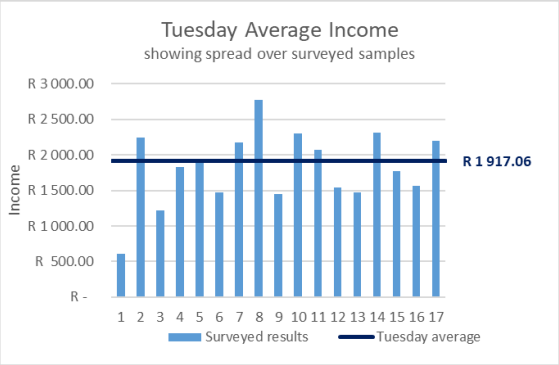


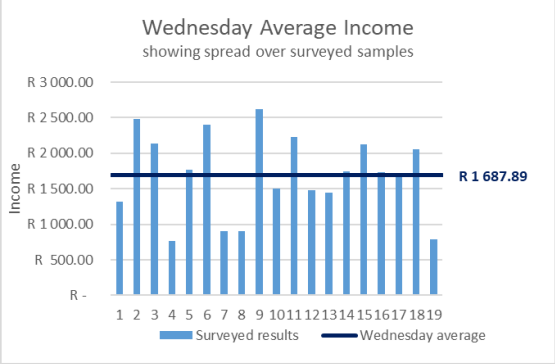

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
0% 0% 0% 0% 1% 11% 20% 19% 29% 8% 22% 21% 30% 36% 29% 33% 44% 31% 38% 19% 6% 1% 0% 0%
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

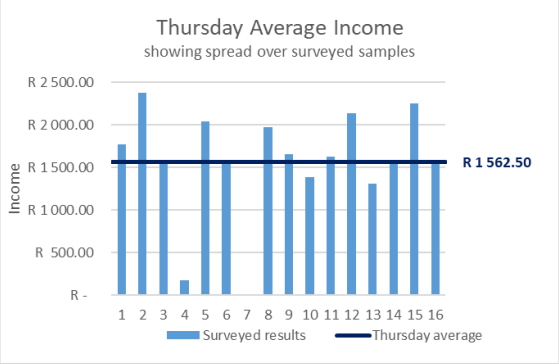
4. DETAILED SURVEY RESULTS

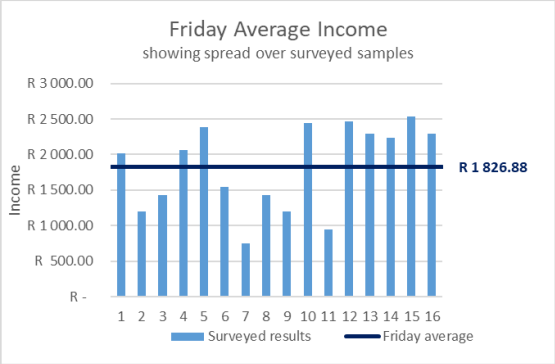
4.1. Income distribution

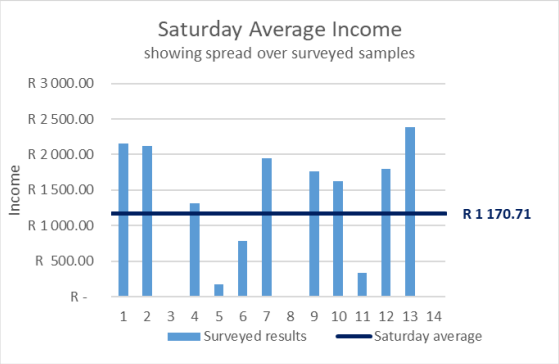


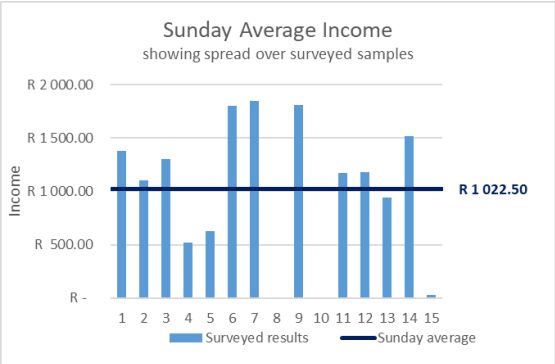




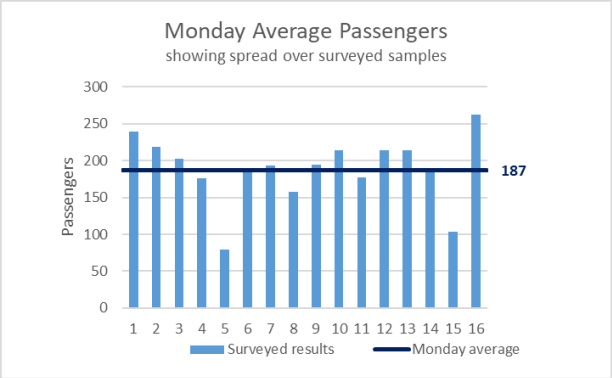


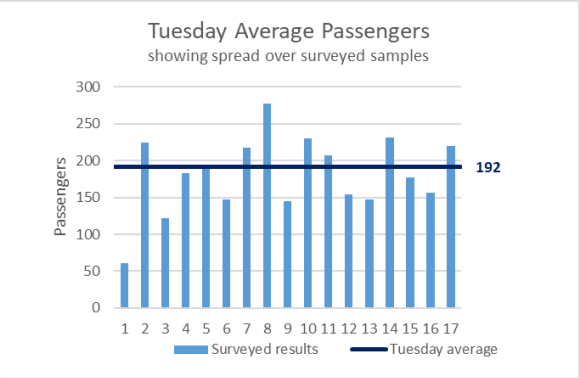


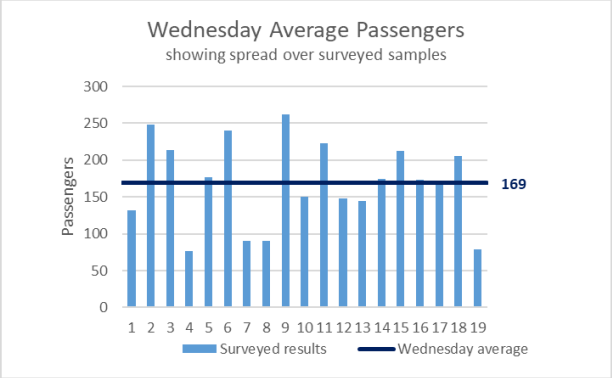


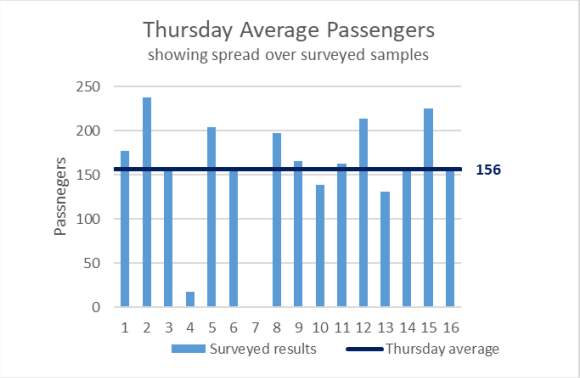


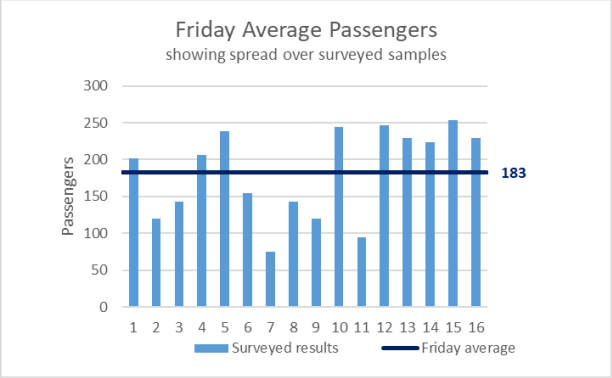
4.2. Passenger number distribution

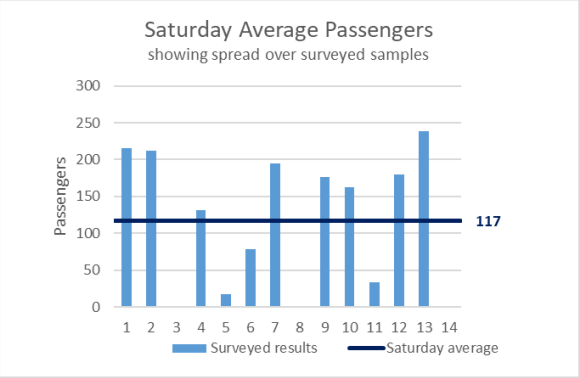


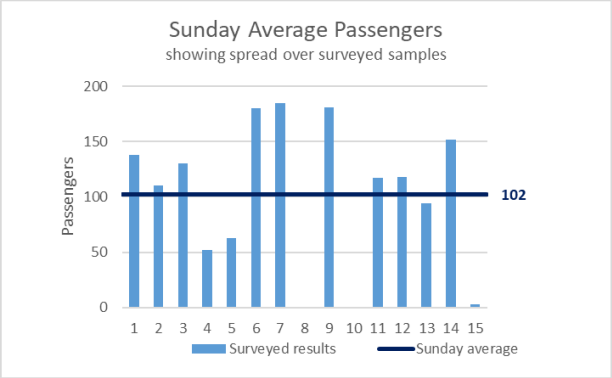










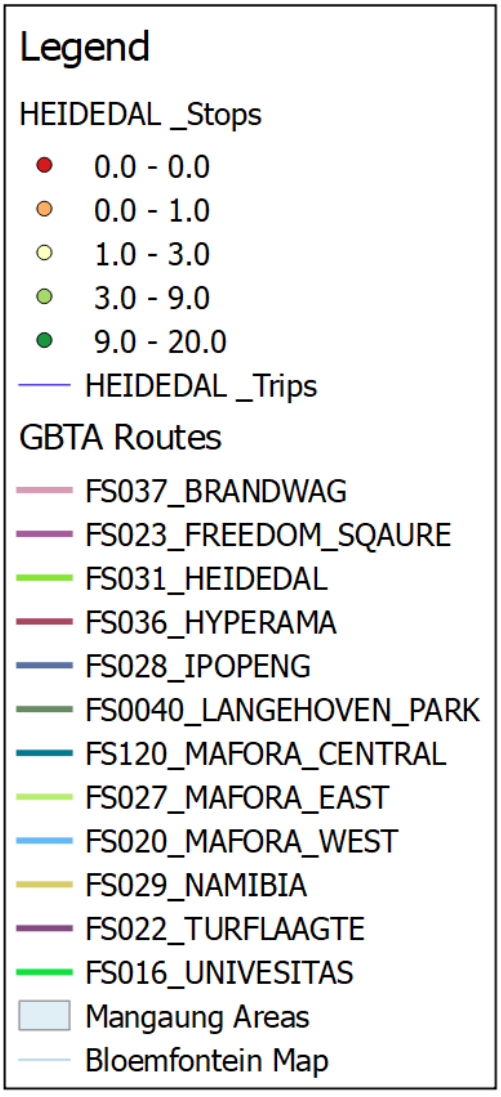


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

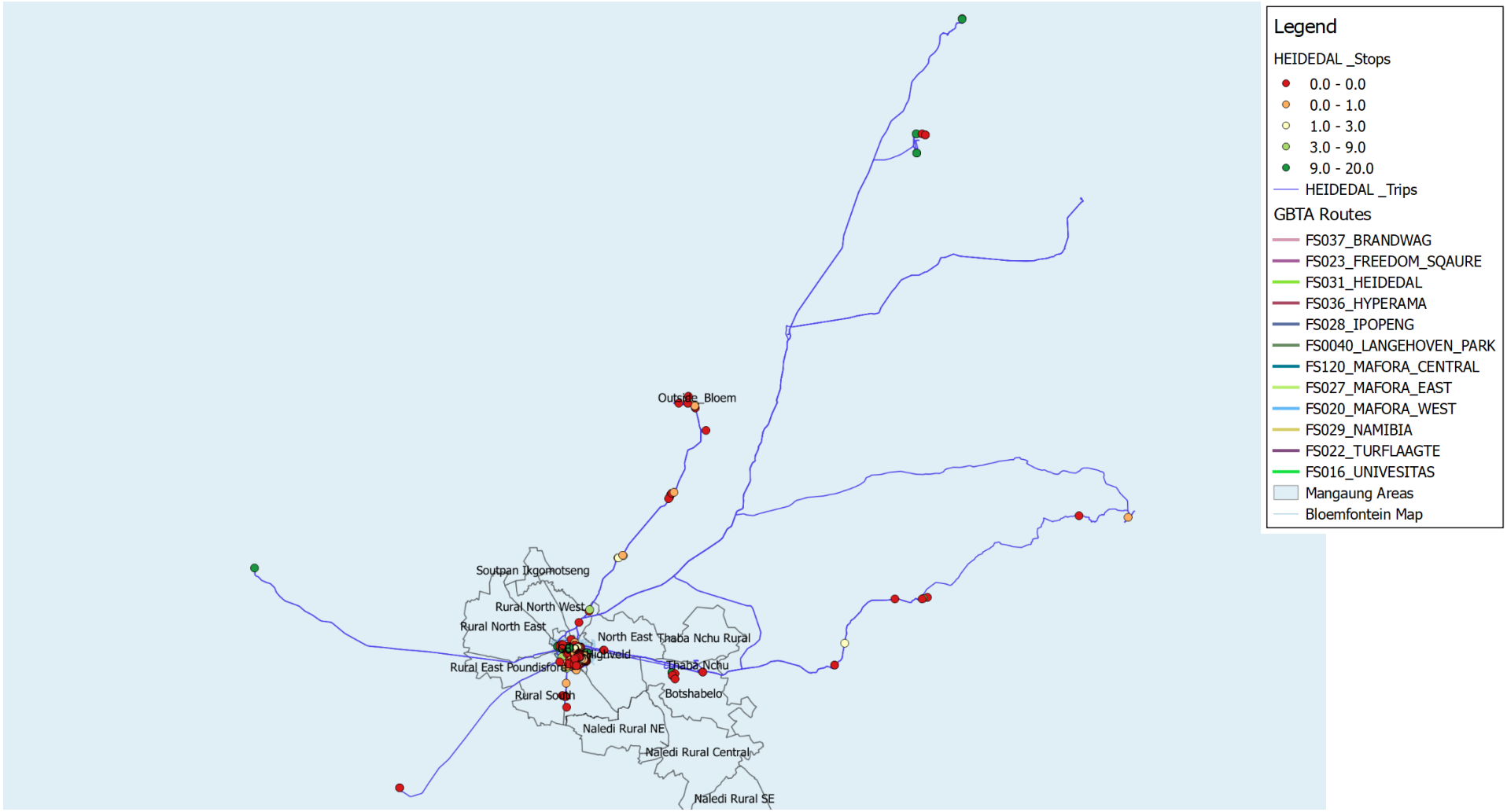


5.1. All surveyed operations

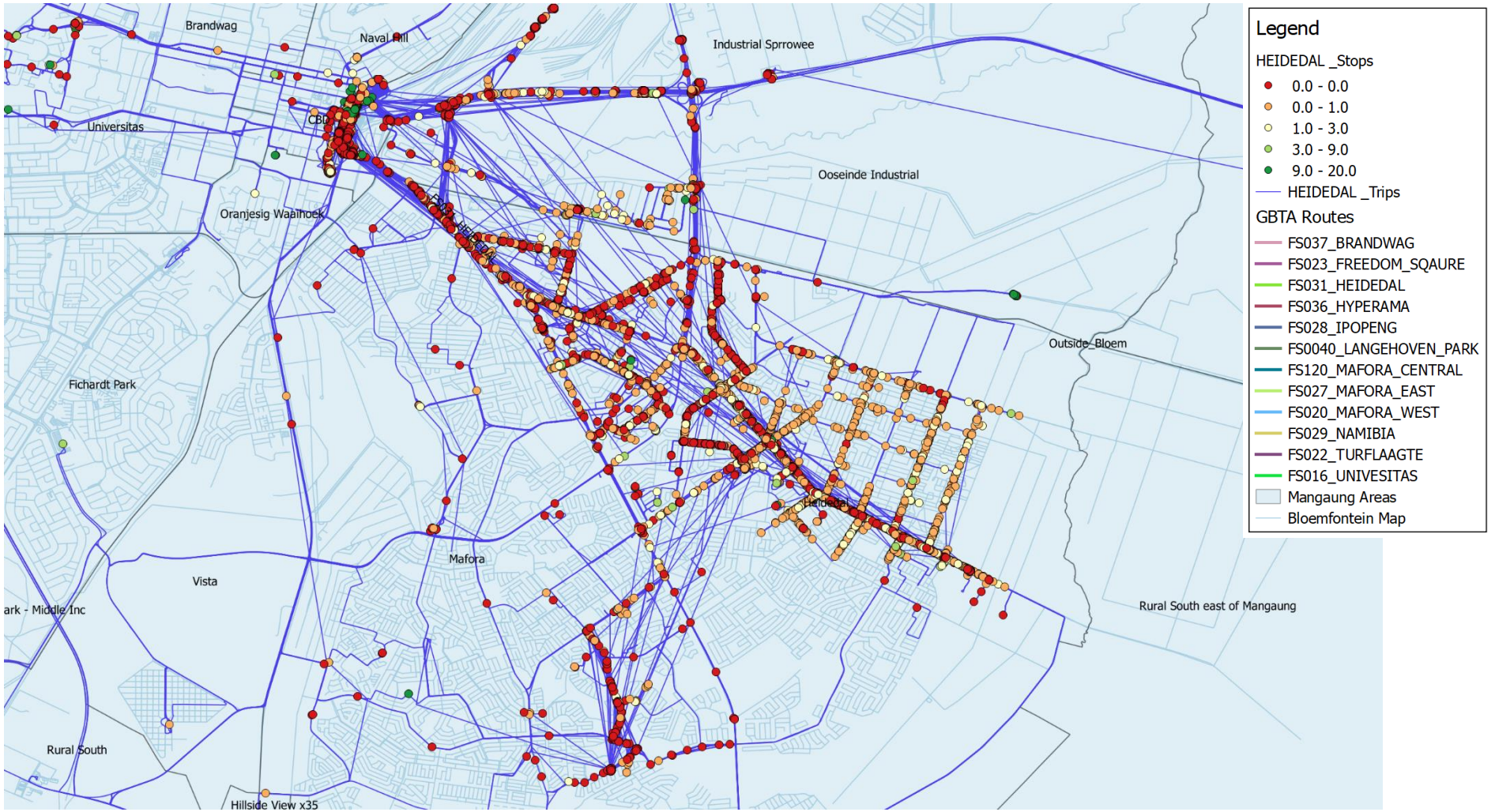
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

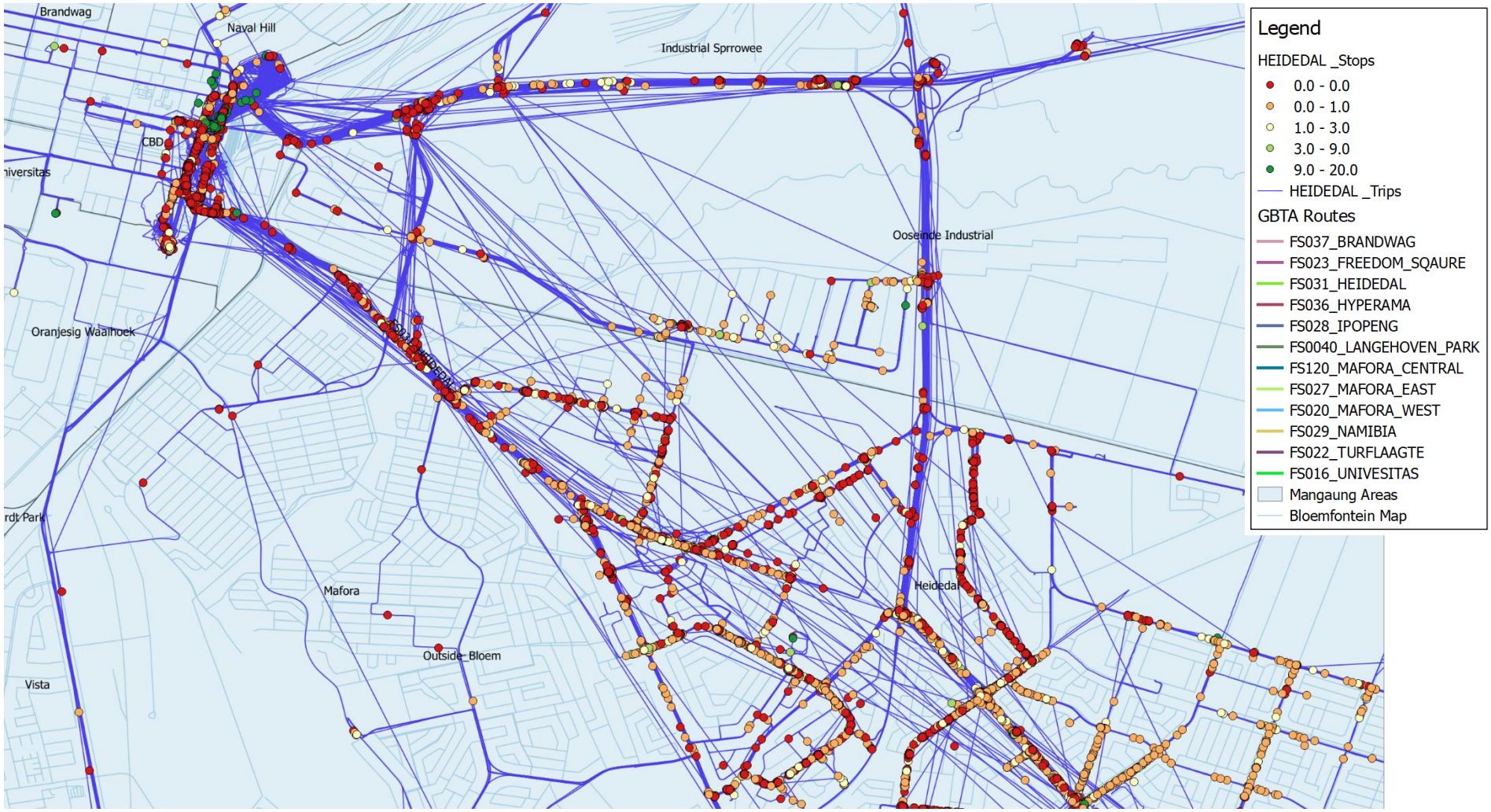
Operations of all surveyed taxis including stops



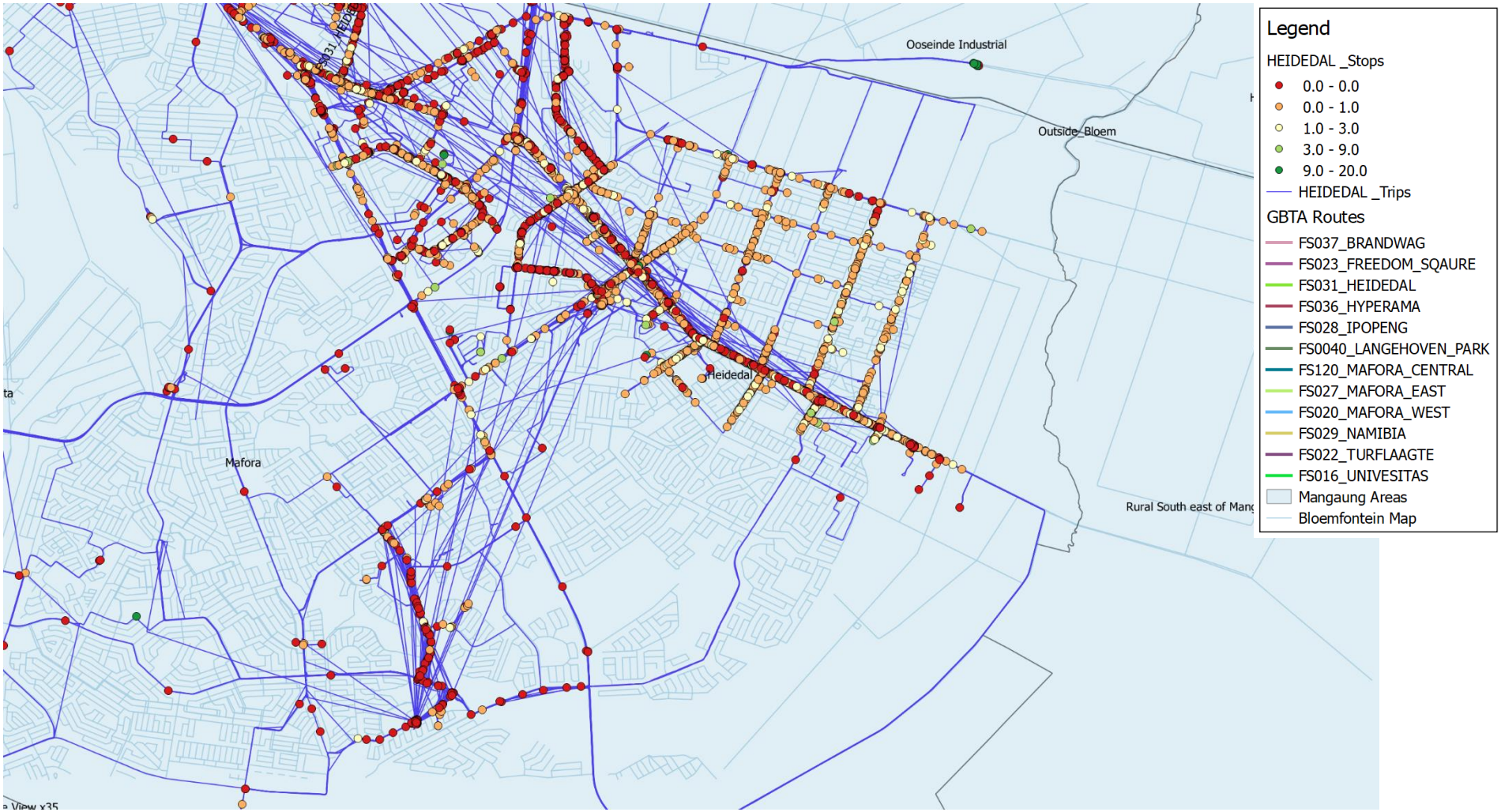
Operations of all surveyed taxis including stops – Focused on the HEIDEDAL route



Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the HEIDEDAL area

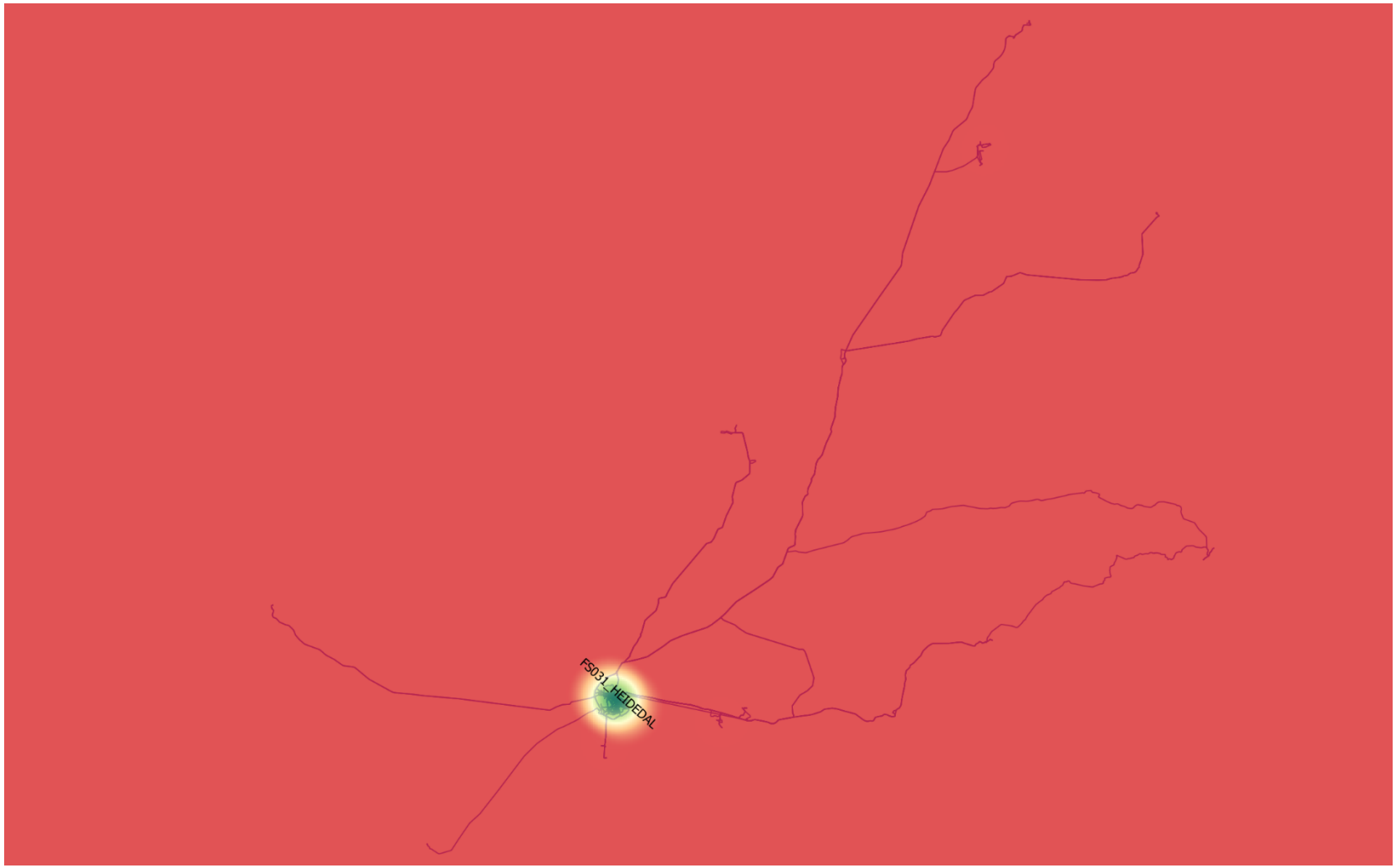


5.2. Heatmaps of taxi operations

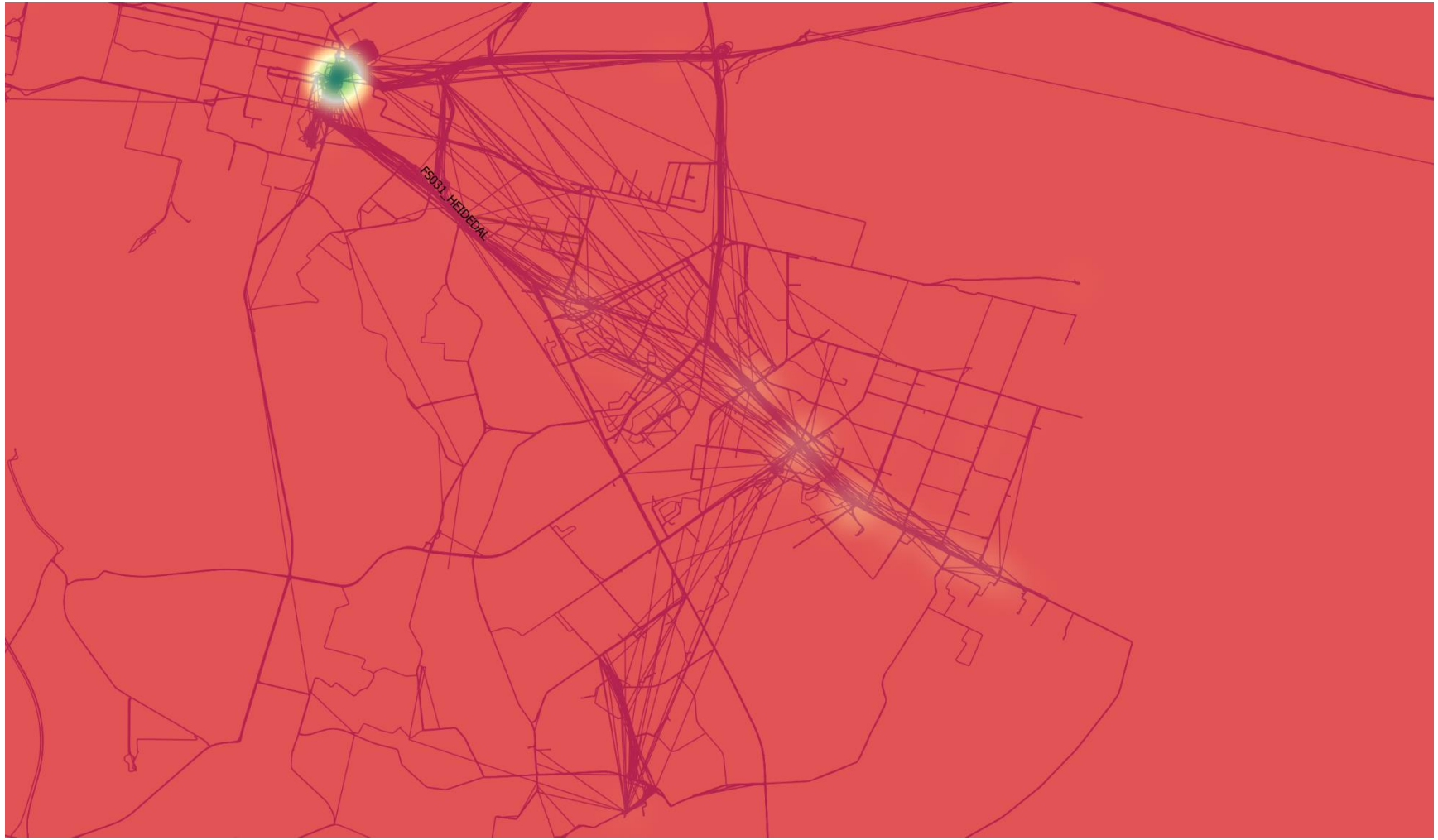
The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

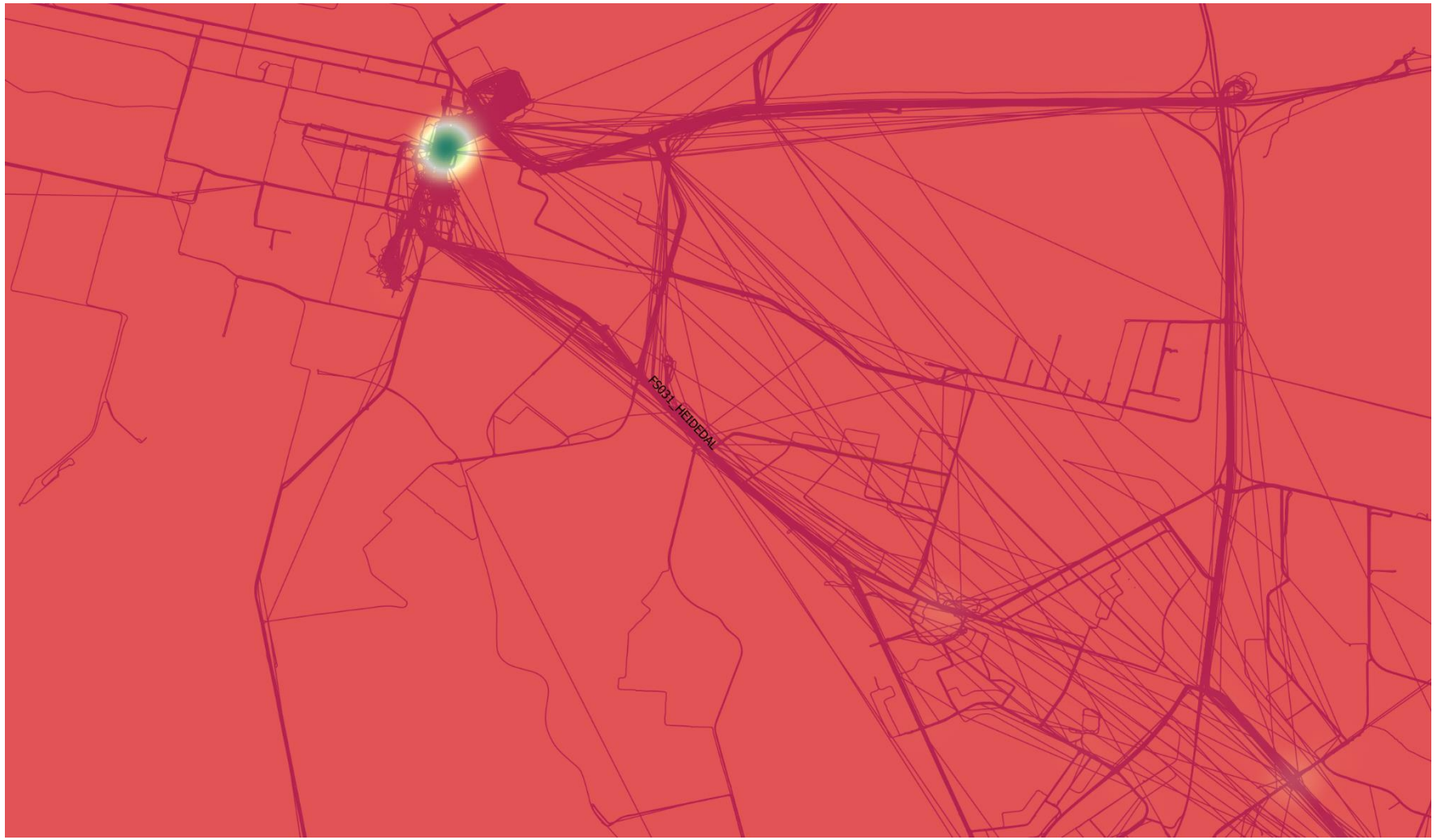
Heatmap of total surveyed area.



Heatmap of total surveyed area – Focused on the HEIDEDAL route



Heatmap of total surveyed area – Focused on the CBD



Heatmap of total surveyed area – Focused on HEIDEDAL

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – HEIDEDAL

iSAHA

Table of Contents

ROUTE: HEIDEDAL
REPORT DATE: 26 October 2017

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

33 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

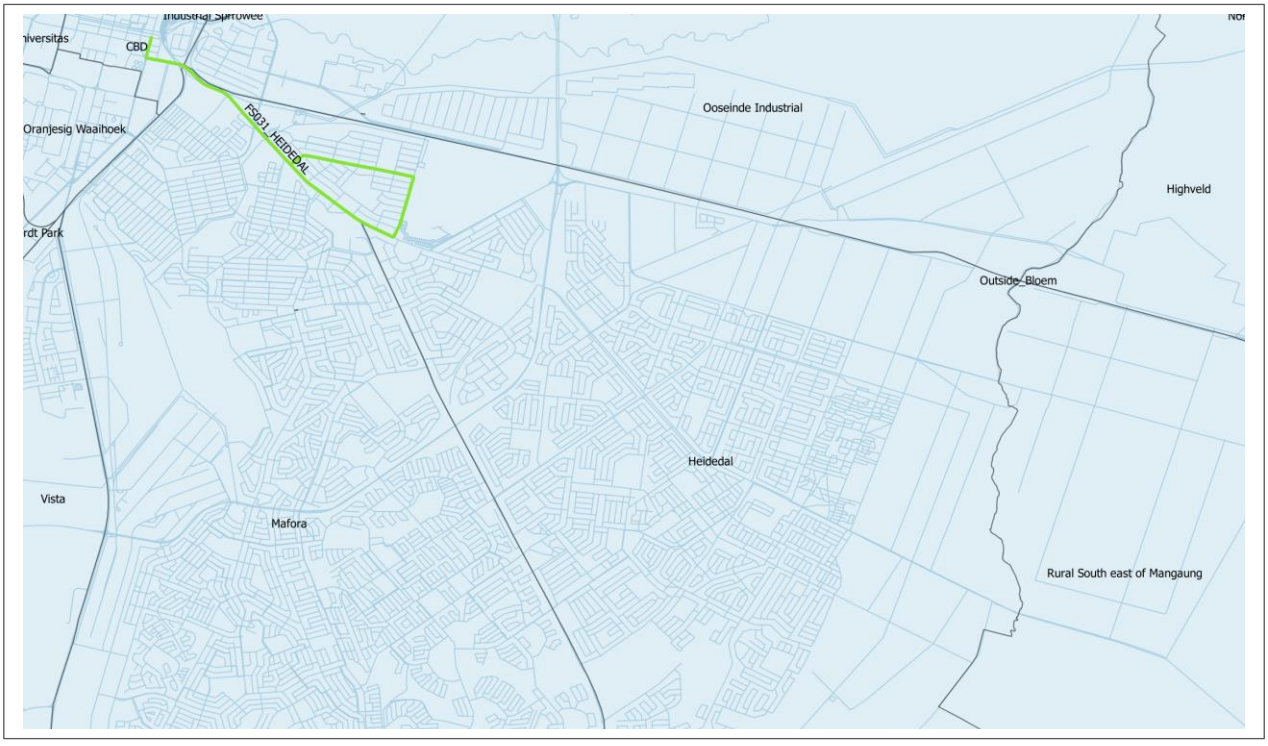
A total of 33 vehicles were surveyed between cycle 1 and cycle 10. 29 vehicles had 6 or more consecutive days of data and 4 vehicles did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 411.11	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 9 877.77	Per week As determined from survey
Average monthly income	R 42 770.73	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R479 071.66	Calculated from weekly result Formula: 48.5 x weekly average

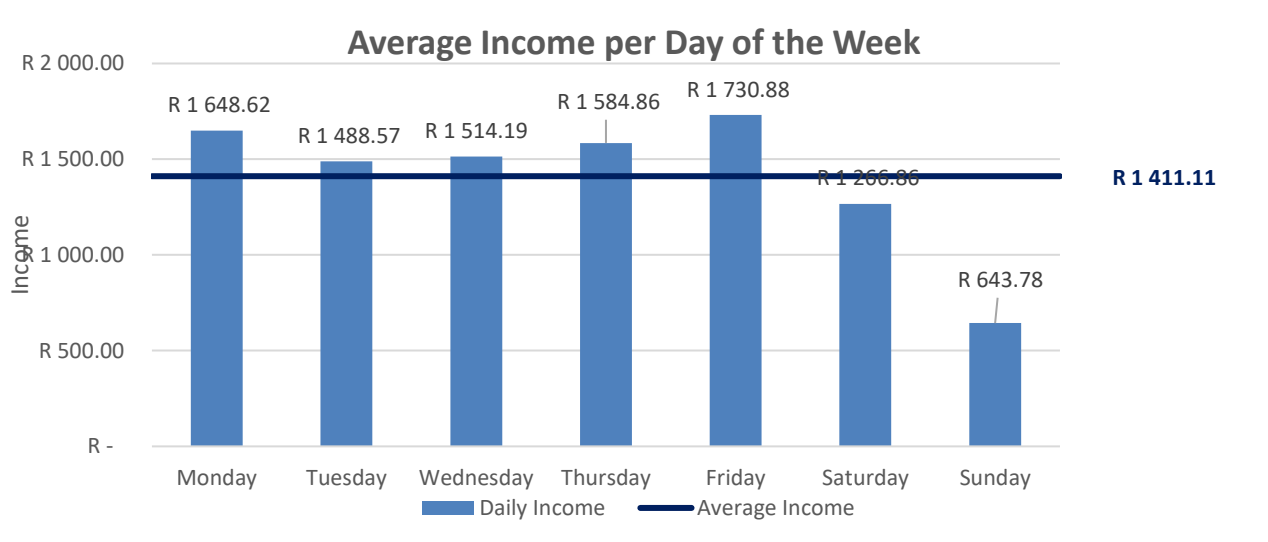


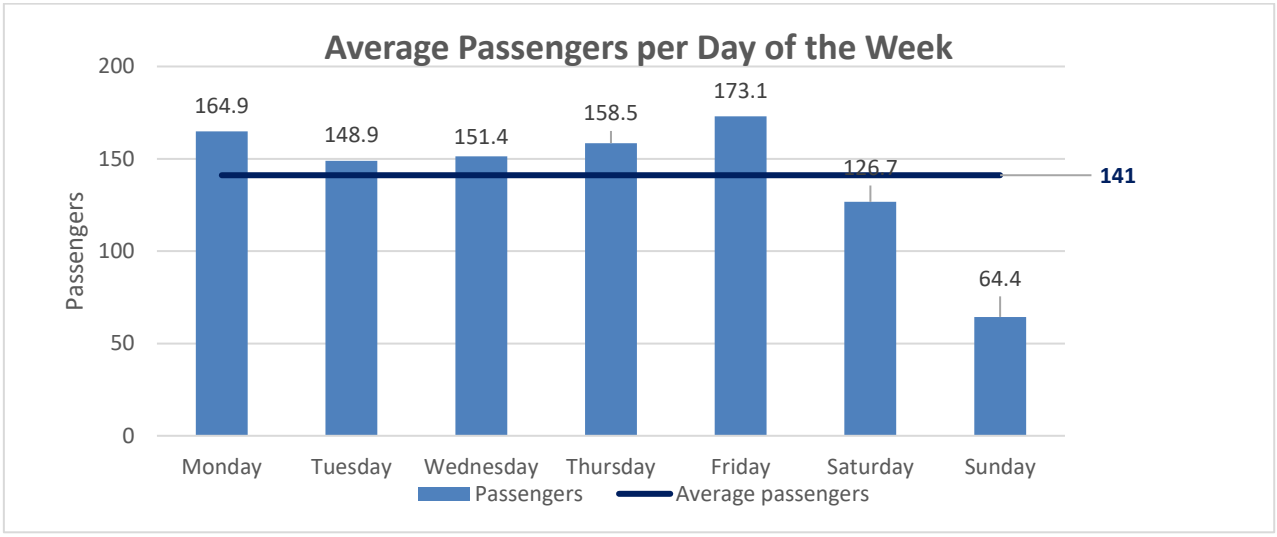
Corridor served by HEIDEDAL Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	165	R 10.00	R 1 648.62
Tuesday	149	R 10.00	R 1 488.57
Wednesday	151	R 10.00	R 1 514.19
Thursday	158	R 10.00	R 1 584.86
Friday	173	R 10.00	R 1 730.88
Saturday	127	R 10.00	R 1 266.86
Sunday	64	R 10.00	R 643.78
Weekly total	988		R 9 877.77
Average	141	R 10.00	R 1 411.11
Weekday Avg	159	R 10.00	R 1 593.43

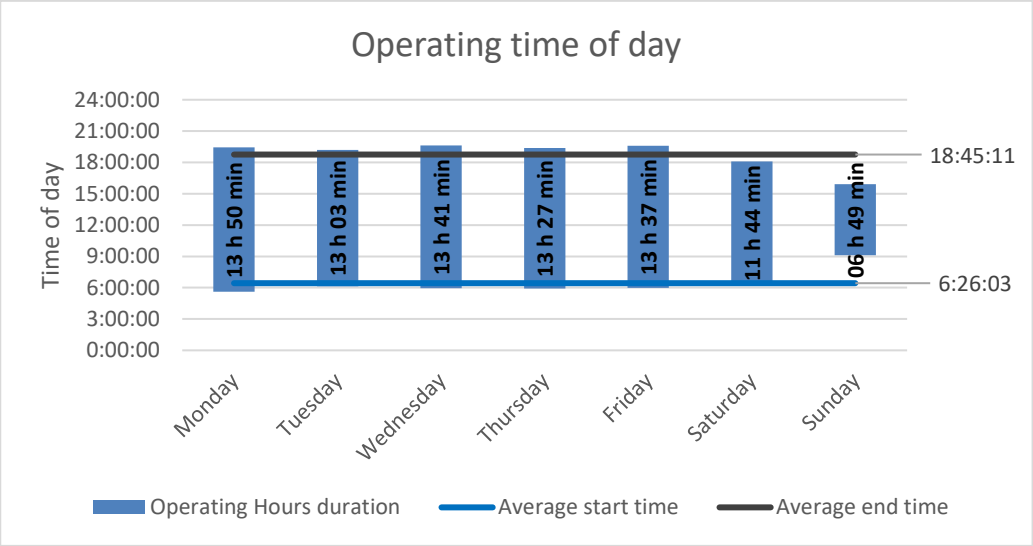



Average Passengers per Day of the Week
200
150
100
50
0
Passengers
164.9
148.9
151.4
158.5
173.1
126.7
64.4
141
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.4. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	6:26:03	18:45:11	12:19:08
Weekday (Mon-Fri) avg	5:55:05	19:27:13	13:32:08
Monday	5:36:36	19:27:01	13:50:25
Tuesday	6:07:40	19:11:38	13:03:59
Wednesday	5:56:54	19:38:11	13:41:17
Thursday	5:55:25	19:23:16	13:27:51
Friday	5:58:53	19:35:59	13:37:07
Saturday	6:20:36	18:04:53	11:44:17
Sunday	9:06:19	15:55:21	6:49:02



3.5. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	193	185	R	7.63	44%
Weekday (Mon-Fri) avg	209	207	R	7.71	44%
Monday	216	216	R	7.63	43%
Tuesday	199	199	R	7.47	45%
Wednesday	200	200	R	7.55	43%
Thursday	202	202	R	7.86	44%
Friday	225	216	R	8.02	46%
Saturday	201	172	R	7.37	44%
Sunday	105	89	R	7.27	42%

3.6. Operational analysis

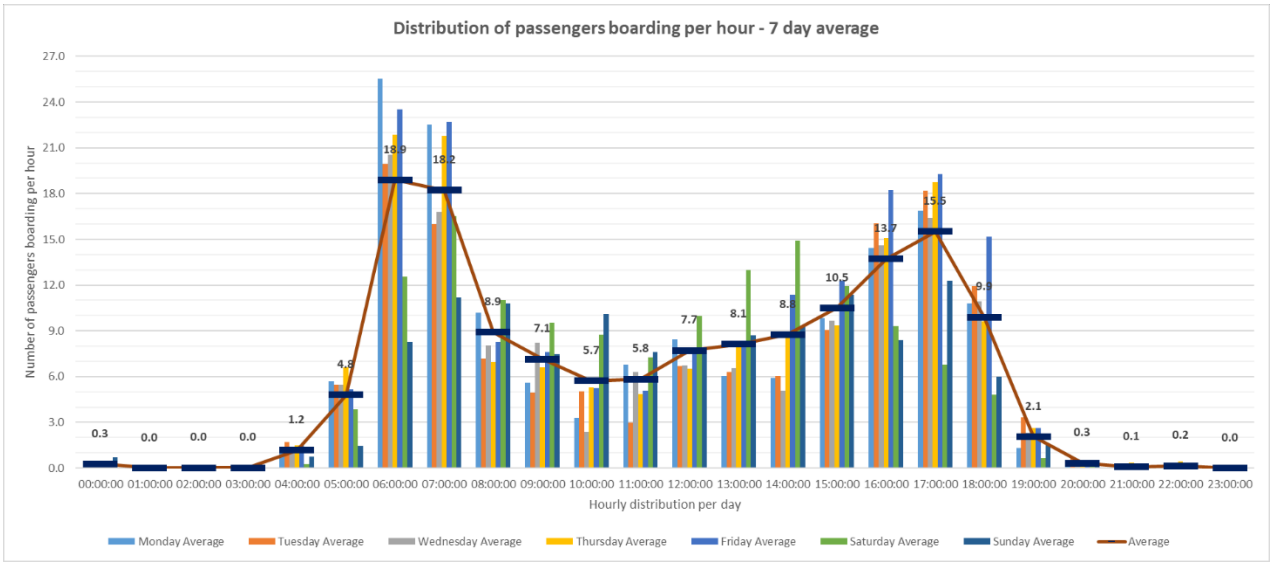
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	184.8	141	1.30	00:06:08	13.6	1463.4	3336.6	44%
Weekday (Mon-Fri) avg	206.7	159	1.30	00:06:00	14.9	1493.0	3378.8	44%
Monday	216.1	165	1.31	00:05:55	15.6	1452.8	3402.9	43%
Tuesday	199.4	149	1.34	00:06:06	14.6	1480.4	3331.6	45%
Wednesday	200.4	151	1.32	00:06:17	14.6	1347.5	3114.8	43%
Thursday	201.7	158	1.27	00:06:03	14.5	1502.6	3433.5	44%
Friday	215.8	173	1.24	00:05:41	15.3	1671.2	3592.2	46%
Saturday	171.8	127	1.30	00:06:07	13.9	1395.6	3235.2	44%
Sunday	88.5	64	1.35	00:06:45	6.8	1249.7	3041.4	42%

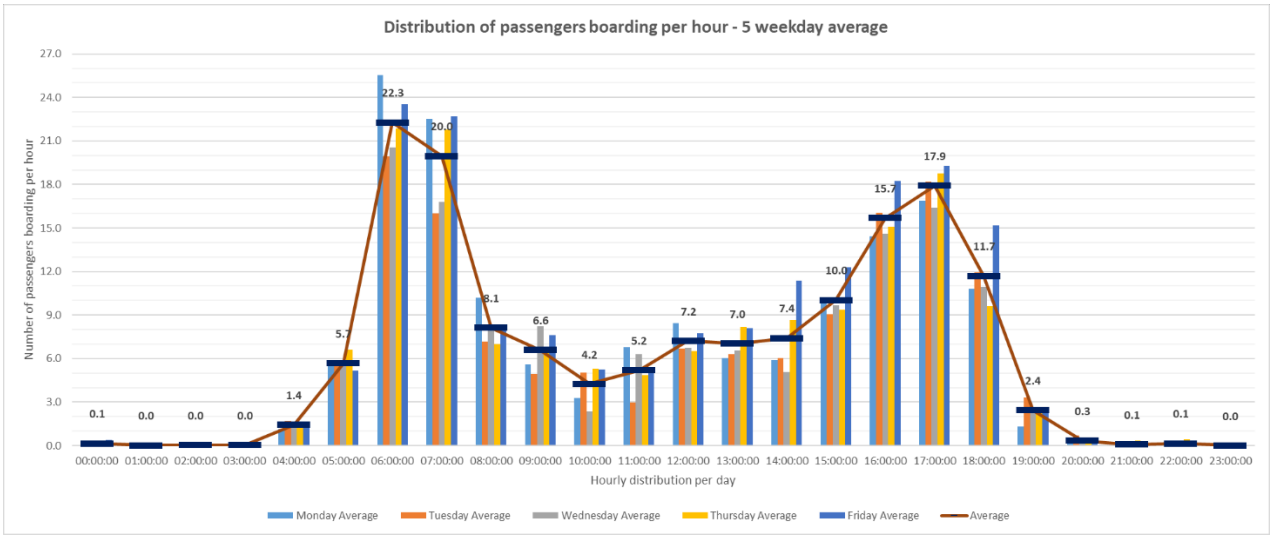
3.7. Fluctuations

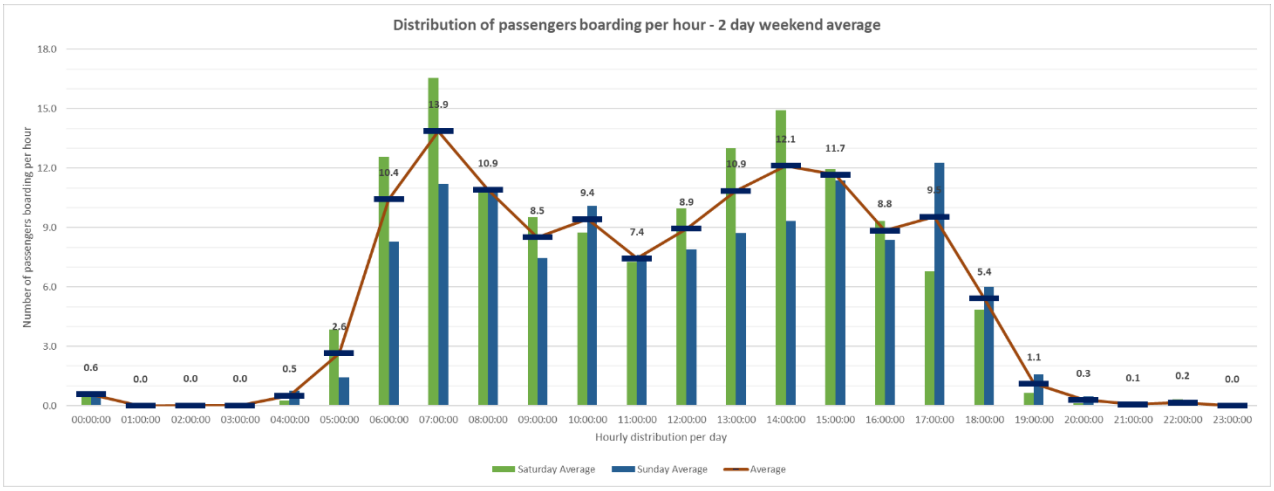
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.3	R 2.67	1%
01:00	01:59	0.0	R 0.11	0%
02:00	02:59	0.0	R 0.19	0%
03:00	03:59	0.0	R 0.20	0%
04:00	04:59	1.2	R 11.66	3%
05:00	05:59	4.8	R 48.09	11%
06:00	06:59	18.9	R 188.92	36%
07:00	07:59	18.2	R 182.16	40%
08:00	08:59	8.9	R 89.16	26%
09:00	09:59	7.1	R 71.42	24%
10:00	10:59	5.7	R 57.22	22%
11:00	11:59	5.8	R 58.31	26%
12:00	12:59	7.7	R 77.11	38%
13:00	13:59	8.1	R 81.21	40%
14:00	14:59	8.8	R 87.53	40%
15:00	15:59	10.5	R 105.01	46%
16:00	16:59	13.7	R 137.28	49%
17:00	17:59	15.5	R 155.20	44%
18:00	18:59	9.9	R 98.96	35%
19:00	19:59	2.1	R 20.61	15%
20:00	20:59	0.3	R 3.27	3%
21:00	21:59	0.1	R 0.73	1%
22:00	22:59	0.2	R 1.52	0%
23:00	23:59	0.0	R 0.04	0%

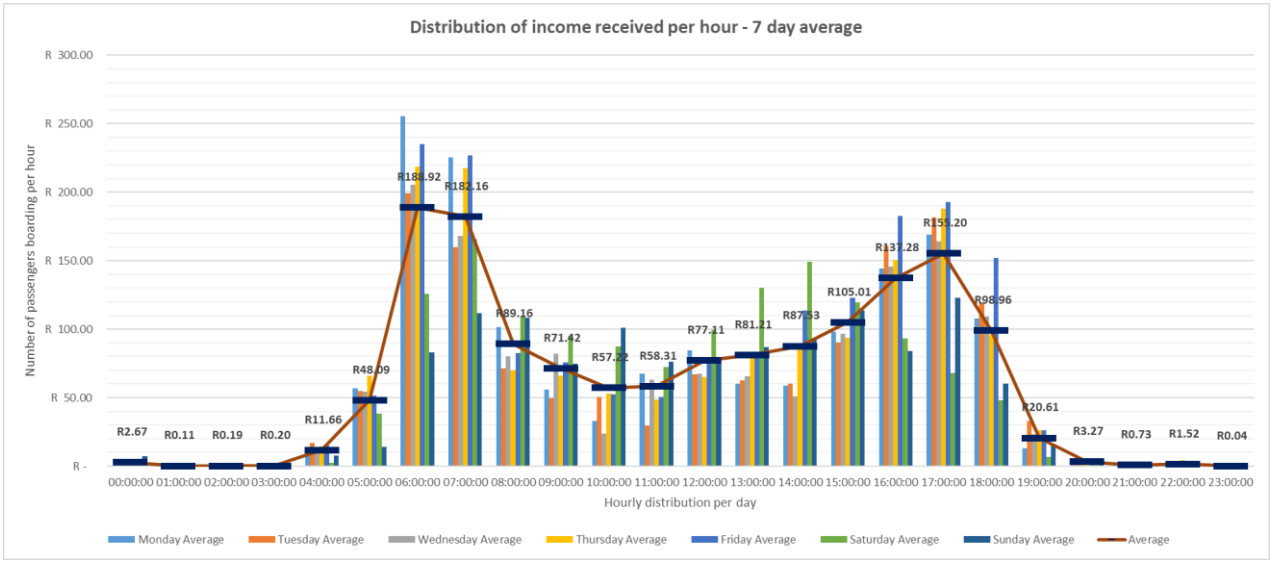
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

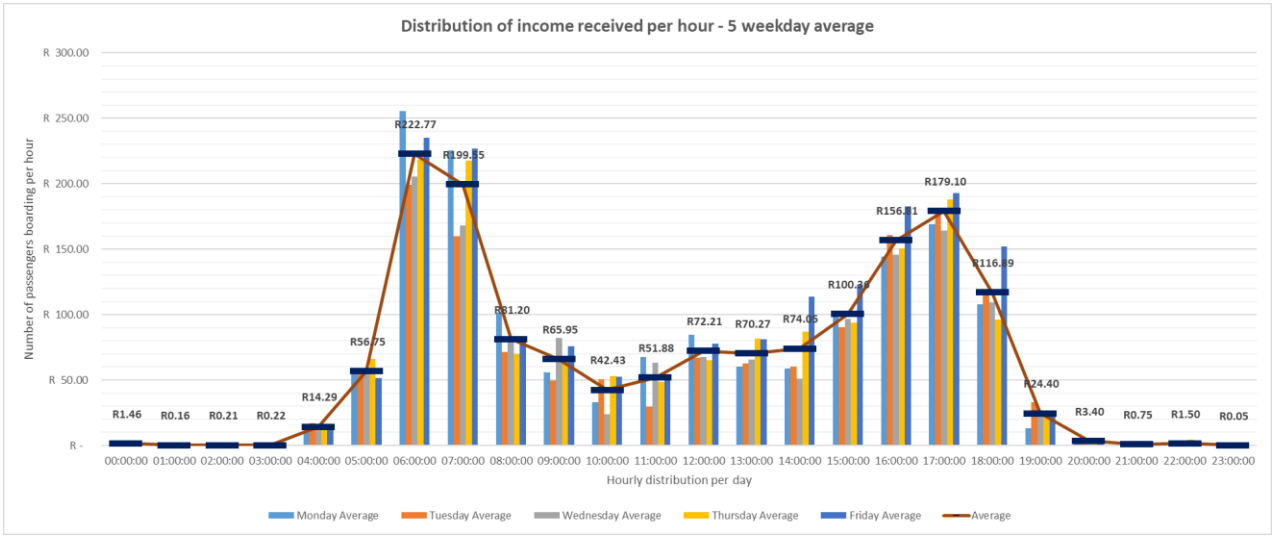


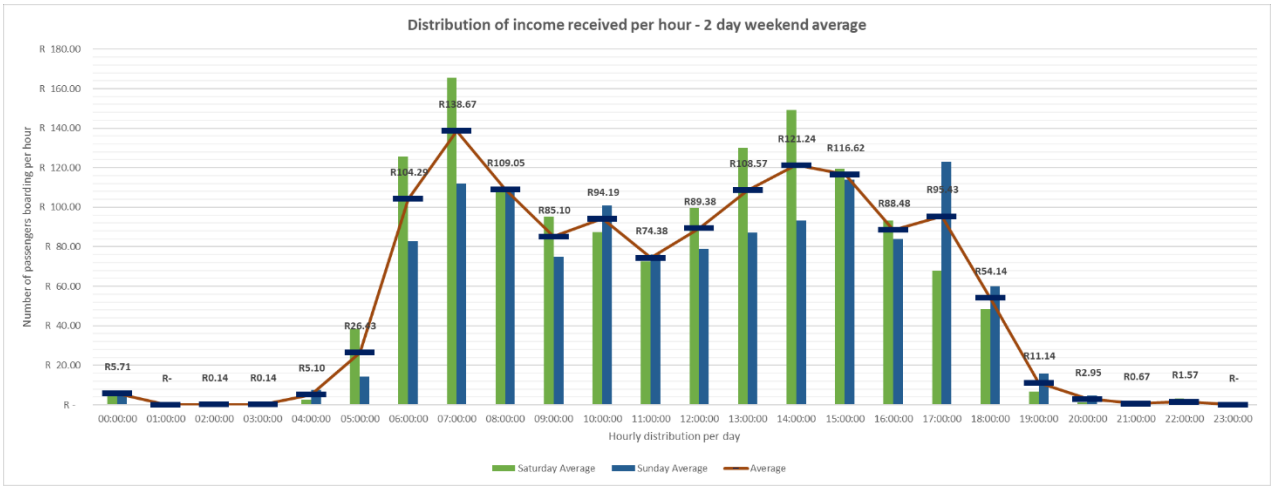




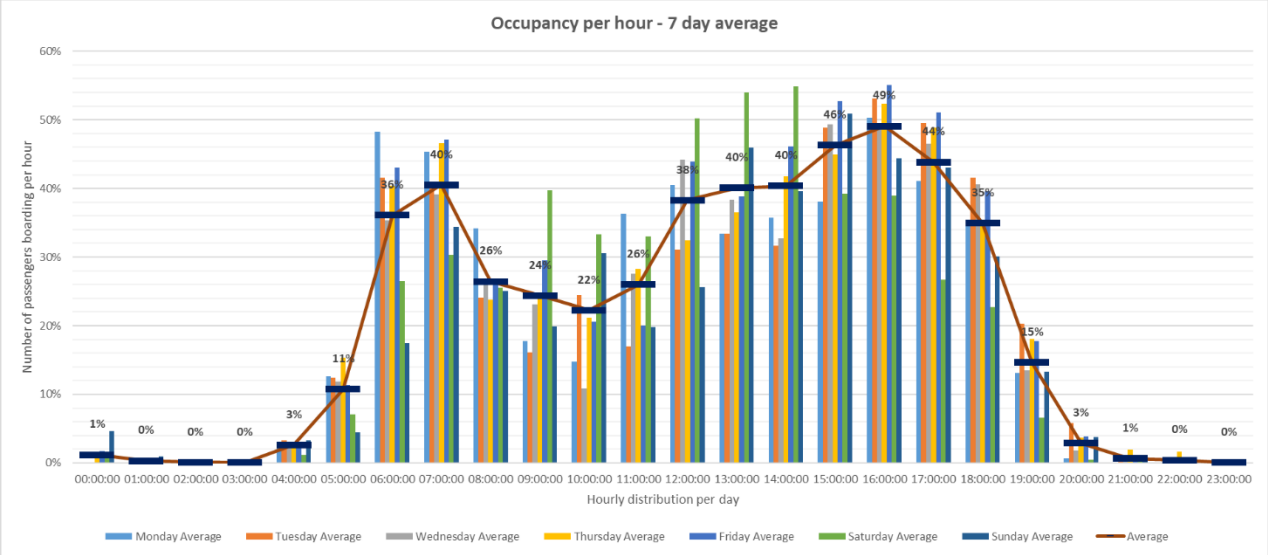
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

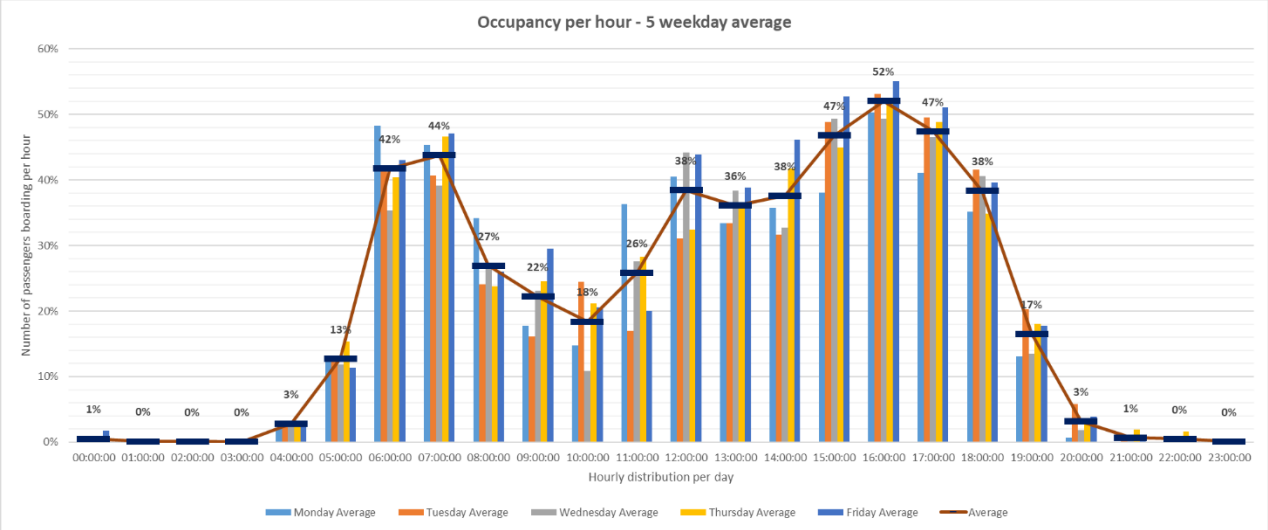


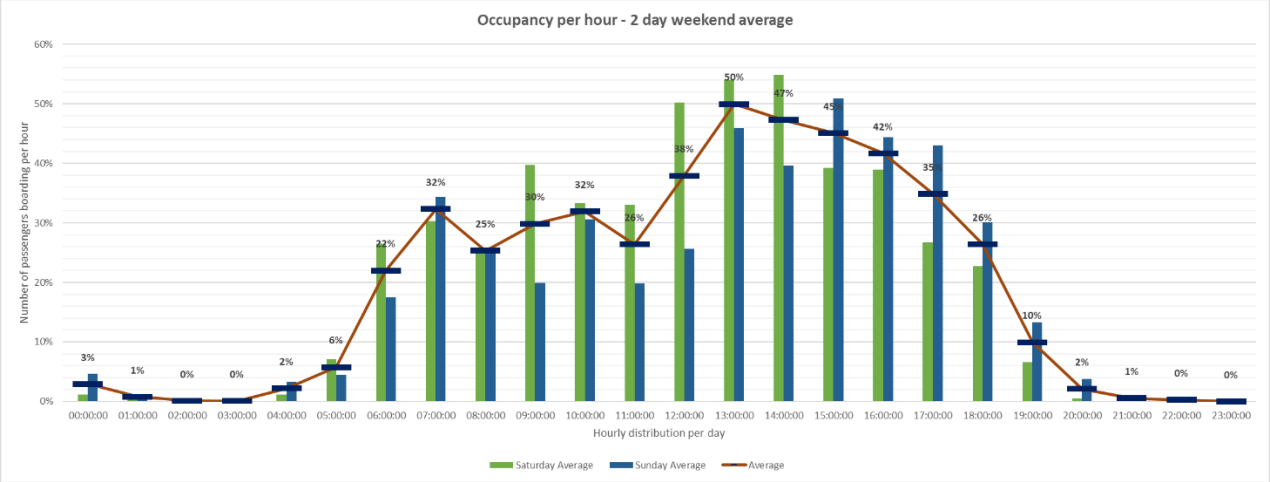

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 300.00
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R1.46
R0.16
R0.21
R0.22
R14.29
R56.75
R222.77
R199.15
R81.20
R65.95
R42.43
R51.88
R72.21
R70.27
R74.05
R100.38
R156.81
R179.10
R116.89
R24.40
R3.40
R0.75
R1.50
R0.05
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 180.00
R 160.00
R 140.00
R 120.00
R 100.00
R 80.00
R 60.00
R 40.00
R 20.00
R -
R5.71
R-
R0.14
R0.14
R5.10
R26.43
R104.29
R138.67
R109.05
R85.10
R94.19
R74.38
R89.38
R108.57
R121.24
R116.62
R88.48
R95.33
R54.14
R11.14
R2.95
R0.67
R1.57
R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

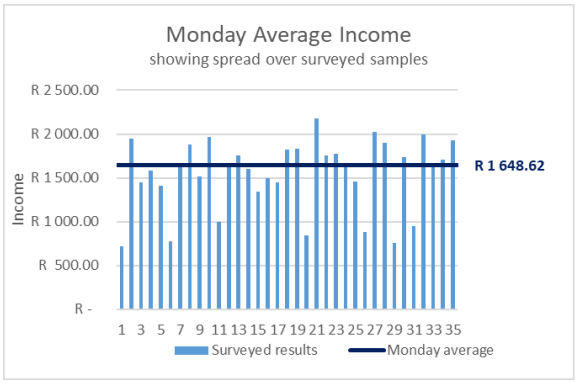


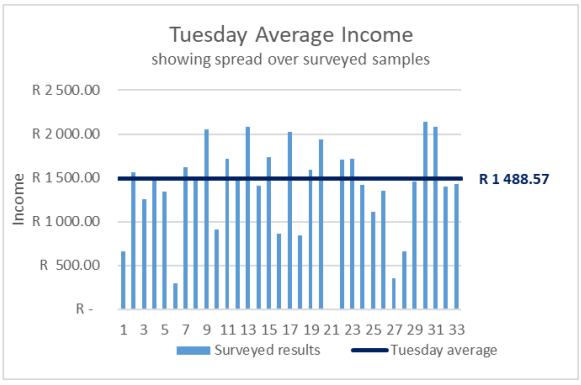


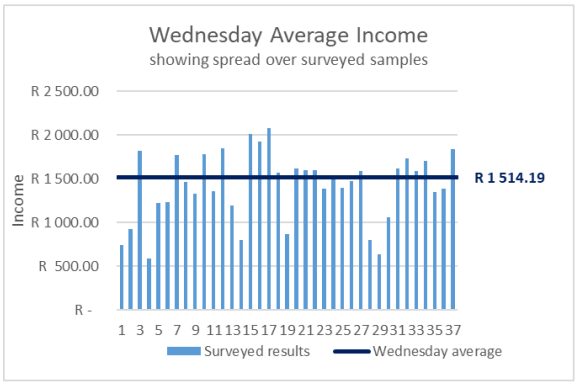

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
60%
50%
40%
30%
20%
10%
0%
3%
1%
0%
0%
2%
6%
22%
32%
25%
30%
32%
26%
38%
50%
47%
45%
42%
35%
26%
10%
2%
1%
0%
0%
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

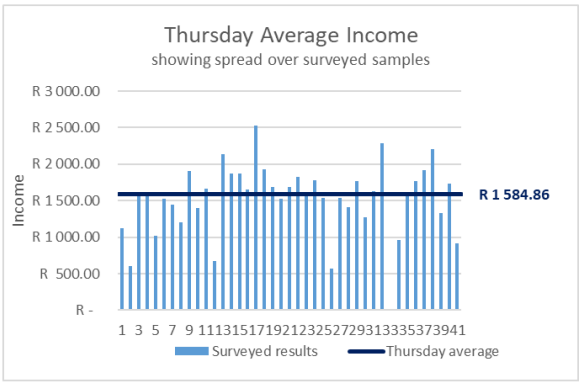
4. DETAILED SURVEY RESULTS

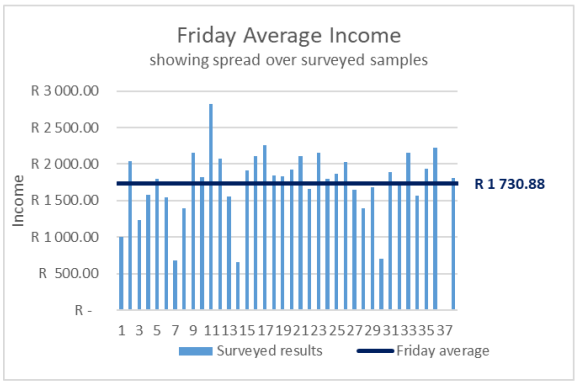
4.1. Income distribution

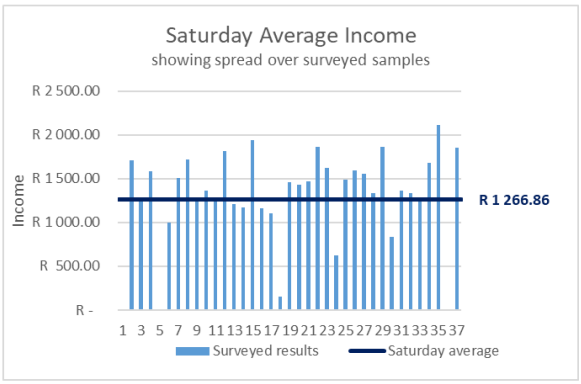


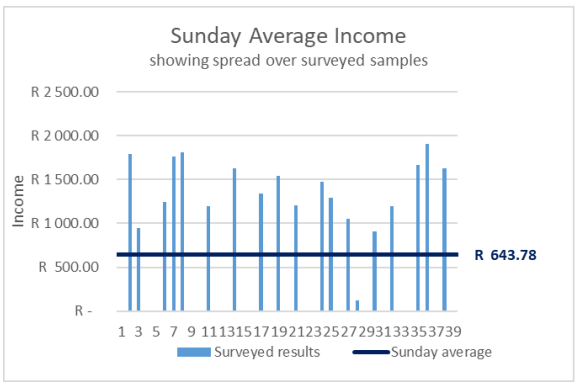




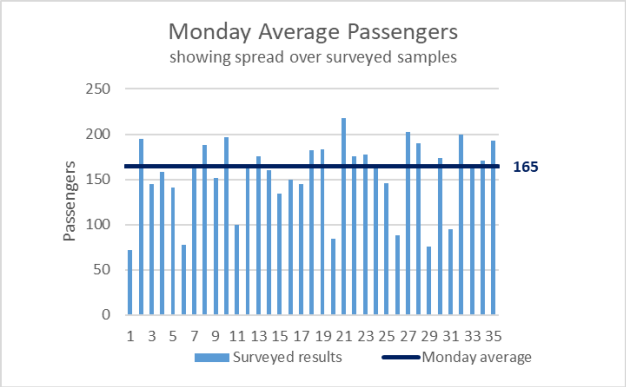


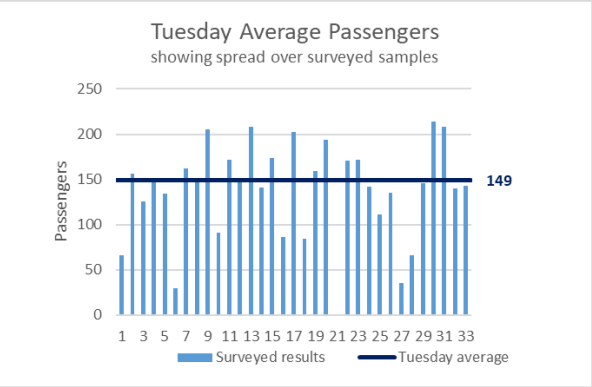


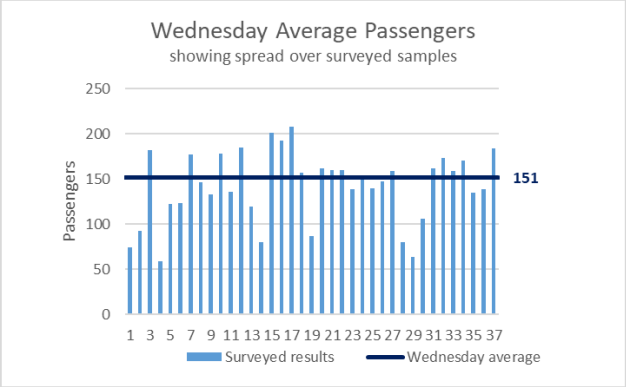


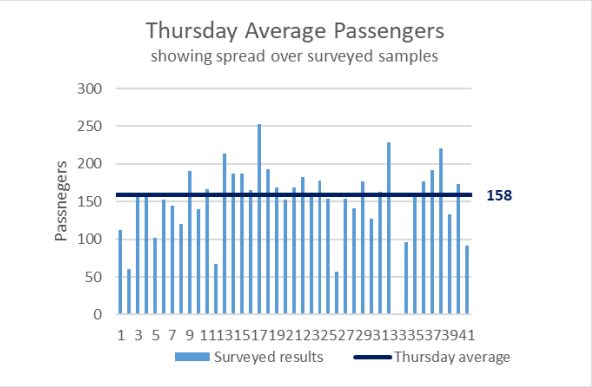


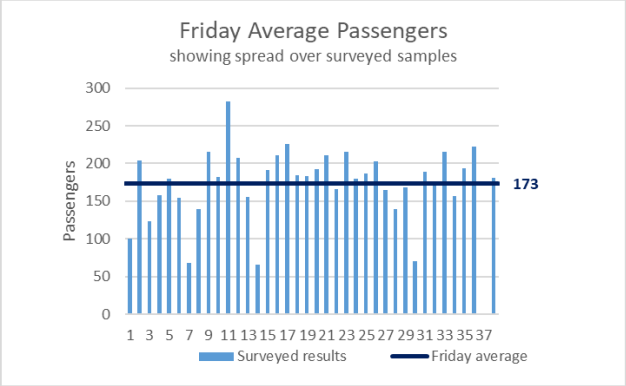
4.2. Passenger number distribution

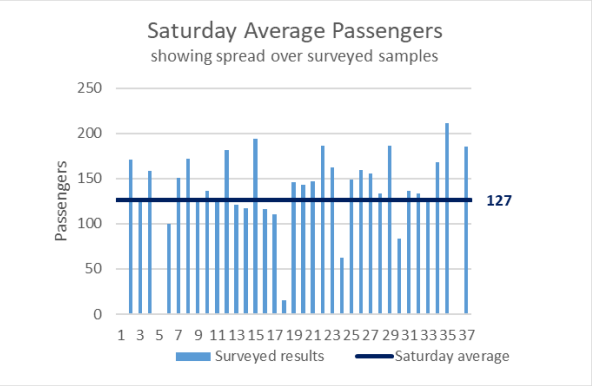


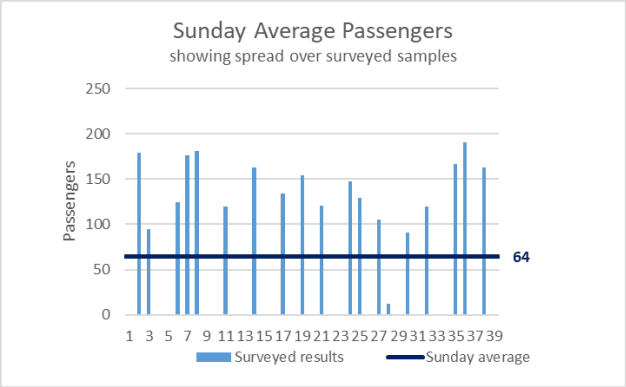










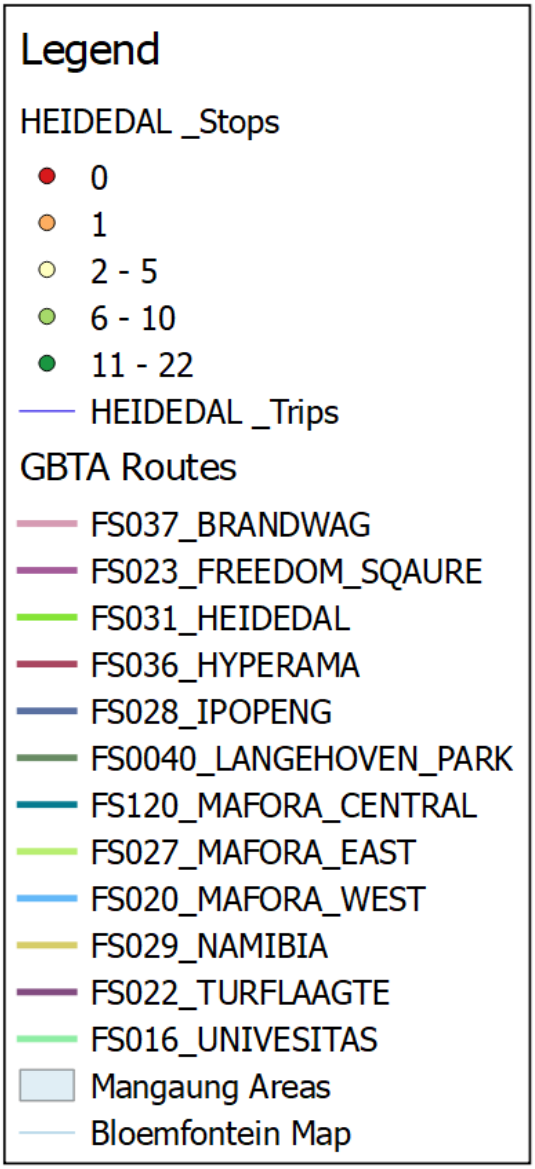


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

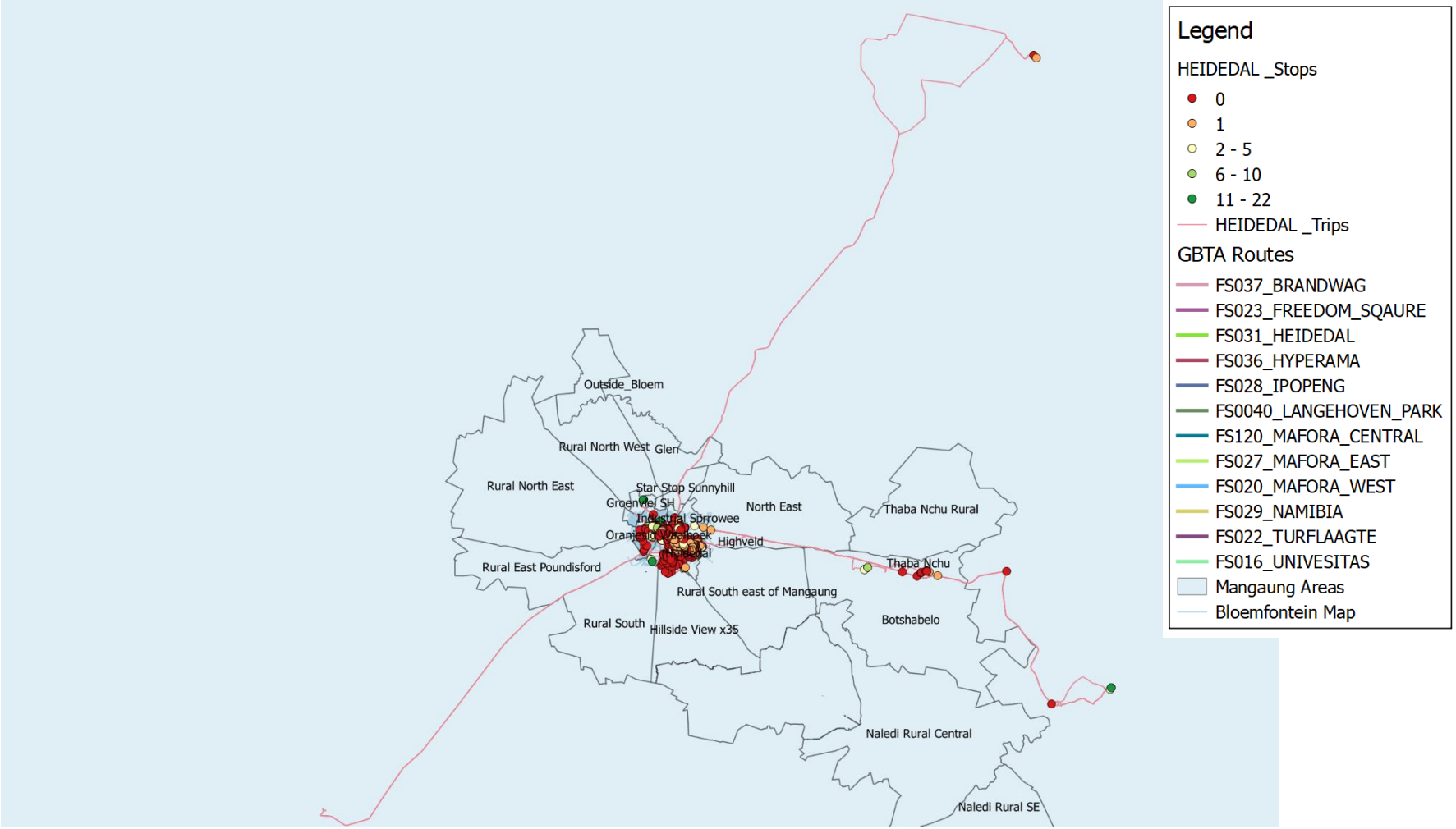


5.1. All surveyed operations

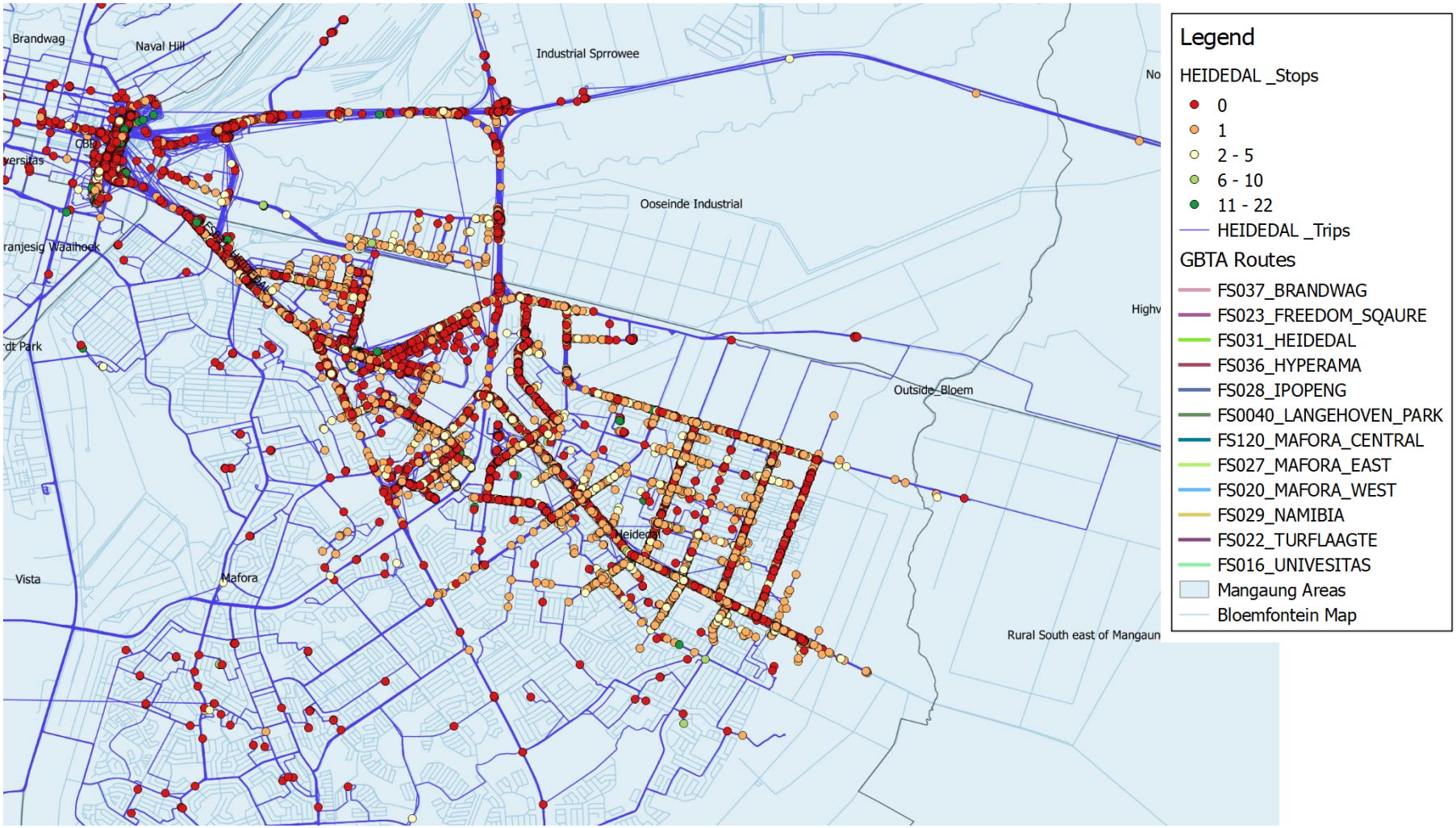
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

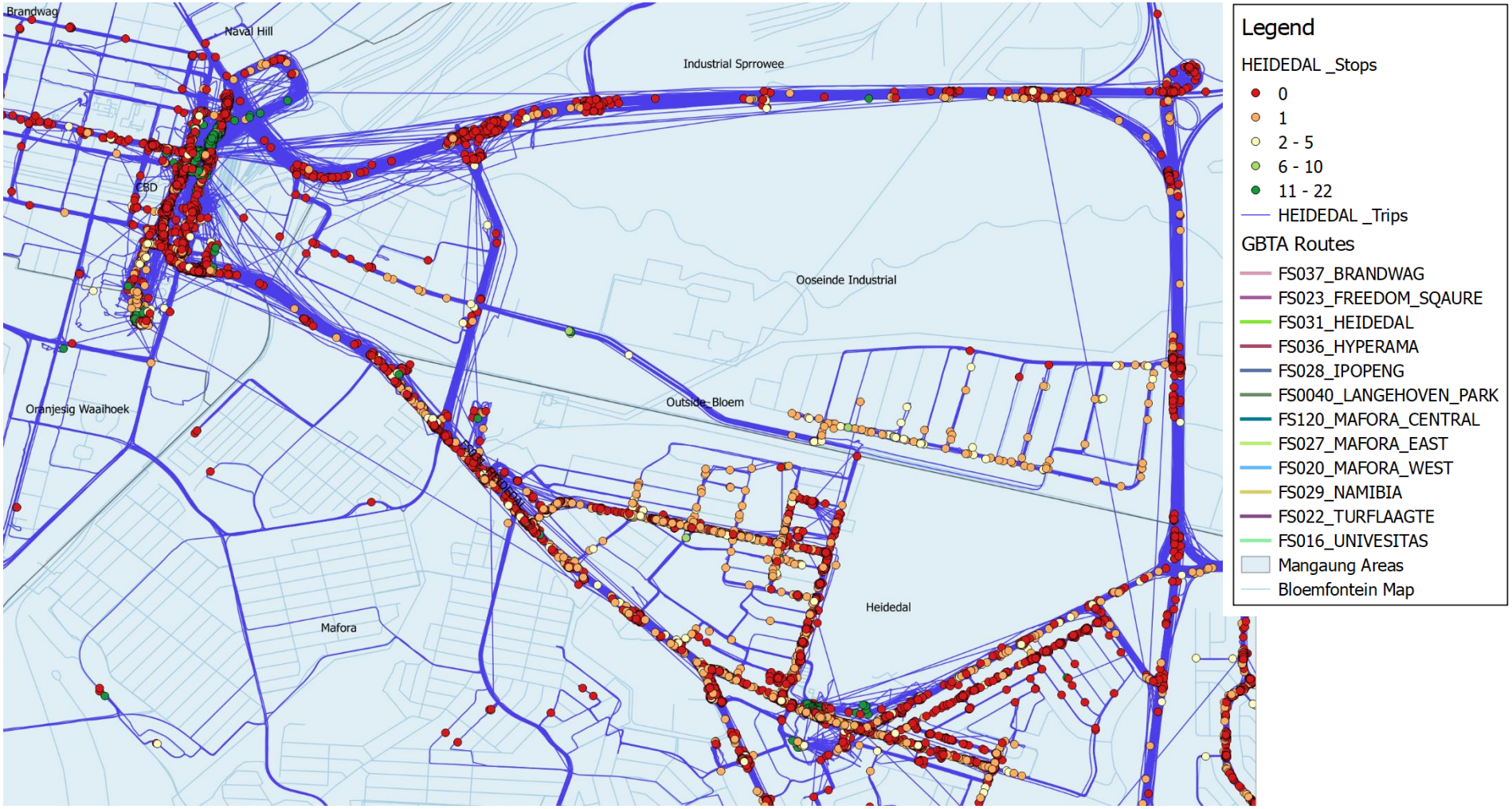
Operations of all surveyed taxis including stops



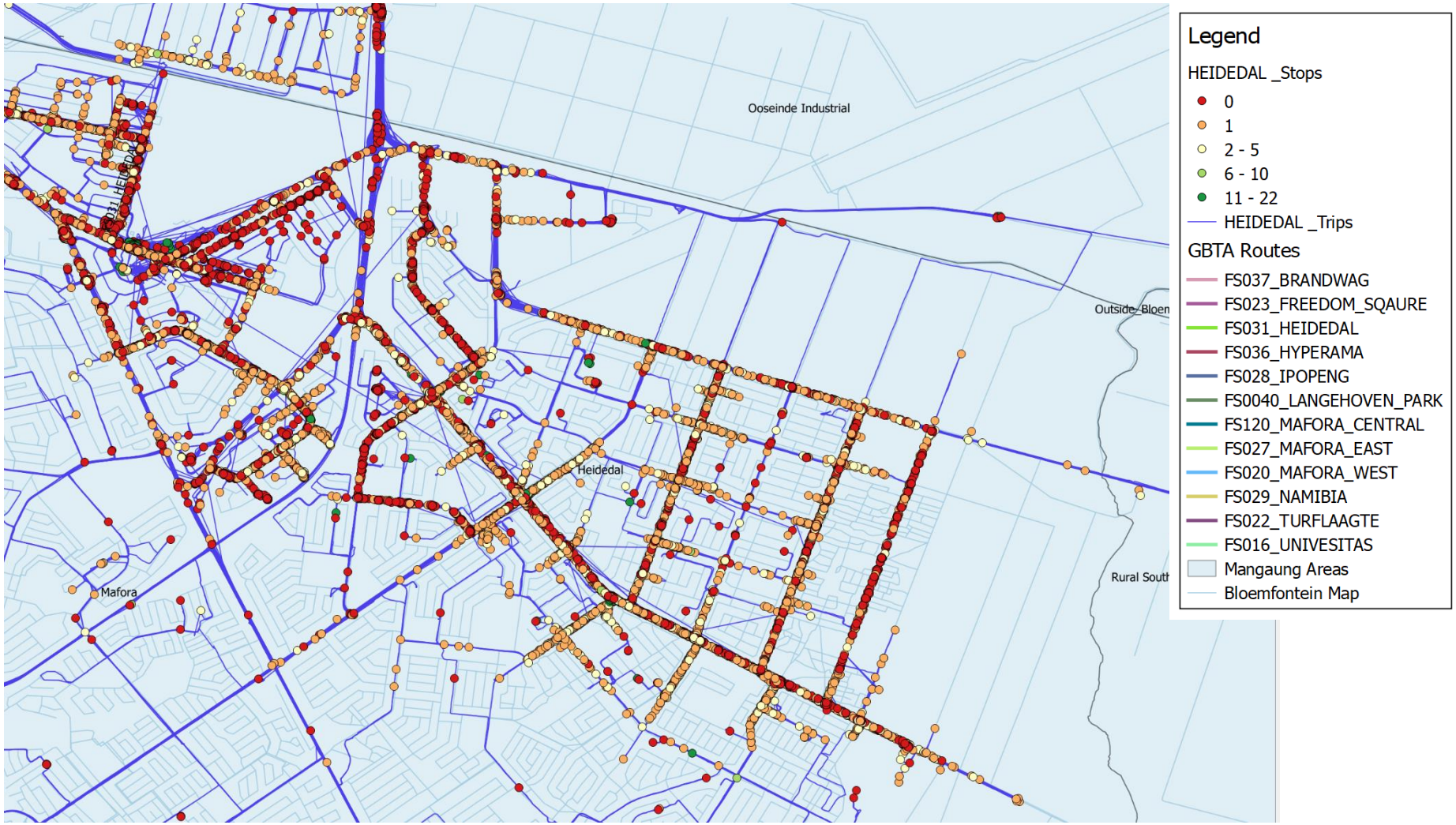
Operations of all surveyed taxis including stops – Focused on the HEIDEDAL route



Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the HEIDEDAL area

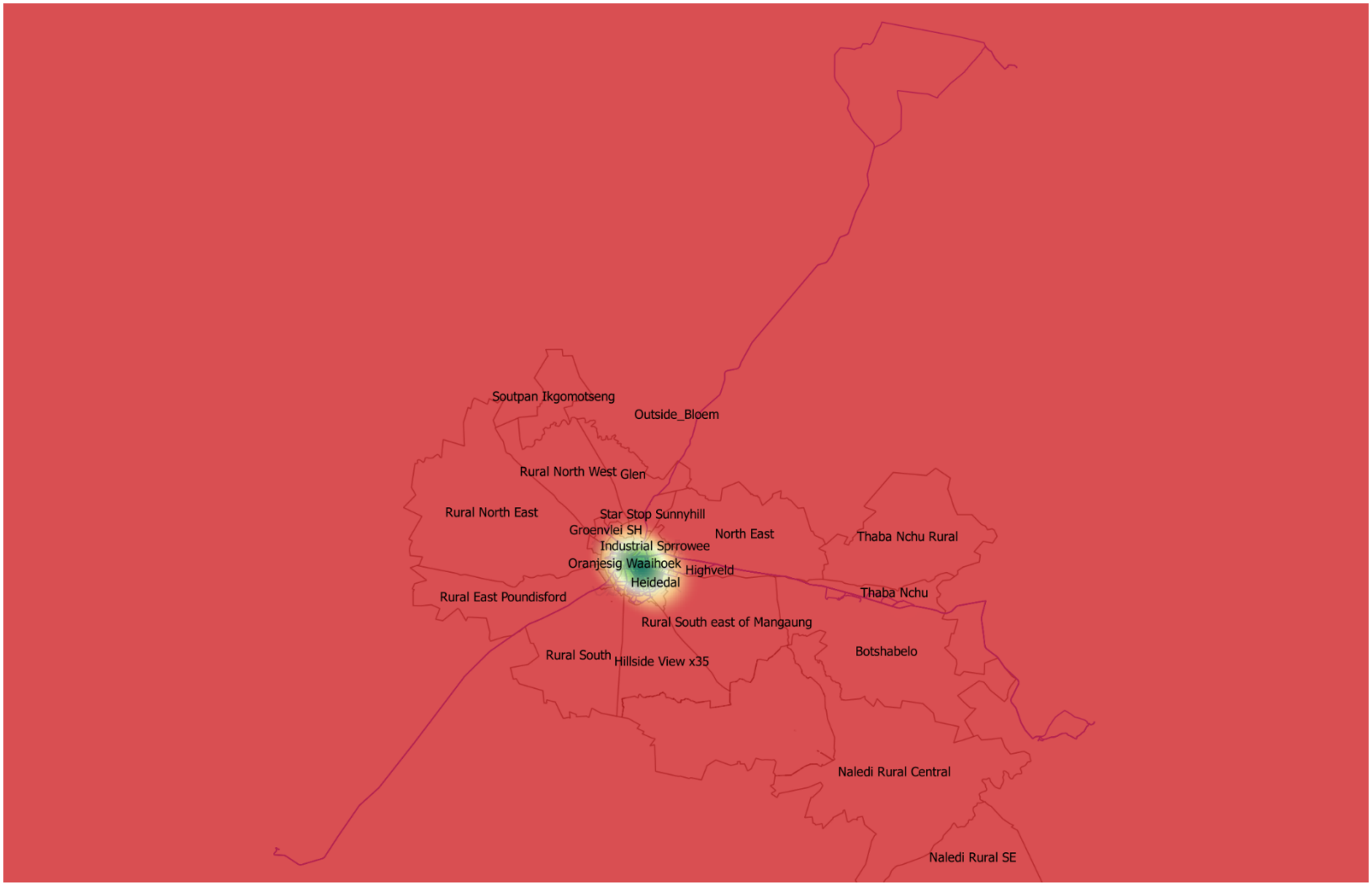


5.2. Heatmaps of taxi operations

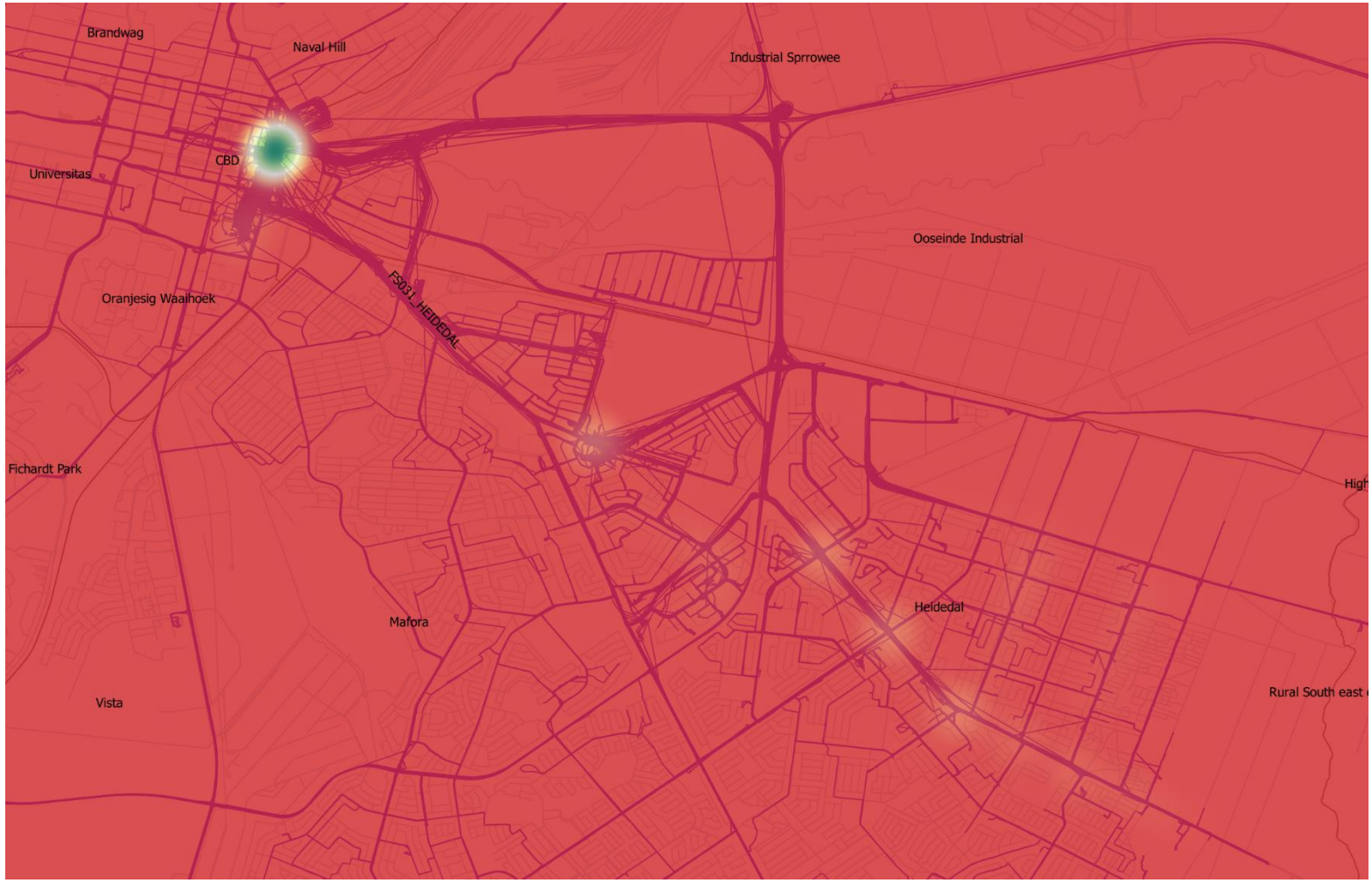
The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

Heatmap of total surveyed area.

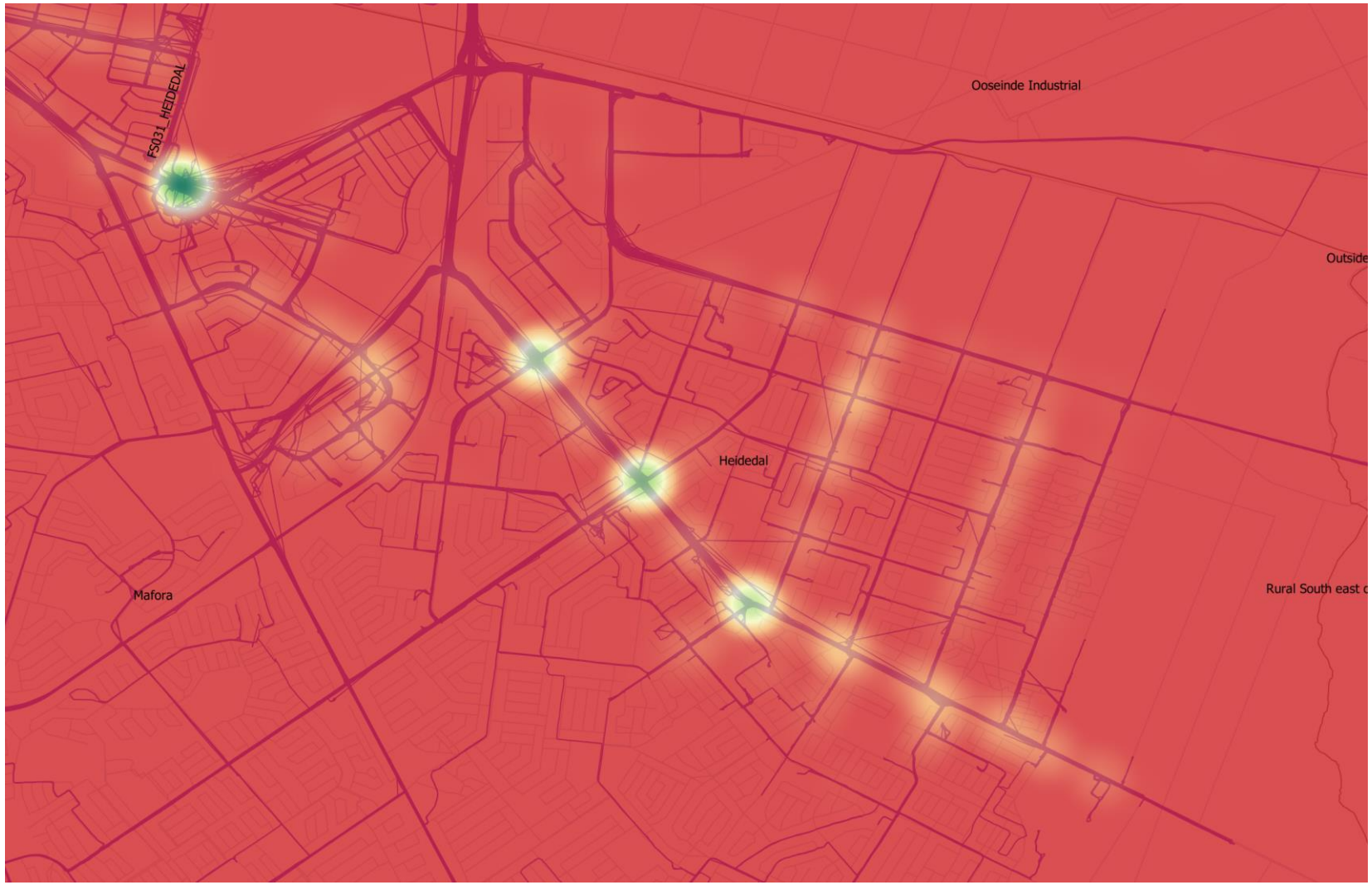


Heatmap of total surveyed area – Focused on the HEIDEDAL route



Heatmap of total surveyed area – Focused on the CBD

Heatmap of total surveyed area – Focused on HEIDEDAL



ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – HYPERAMA

iSAHA

Table of Contents

ROUTE: **HYPERAMA**
REPORT DATE: **1 November 2017**

1. INTRODUCTION

The electronic on-board survey results for Hyperama Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Hyperama Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option C*	
Average operating income per month	**R 52 527.71**		**R 53 150.75**	
Average operating income per day		R 1 733.02		R 1 753.57
Cost of operations per month	**R 20 169.12**		**R 21 416.34**	
Cost of operations per day		R 662.37		R 703.33
Operational cost - Fuel & Oil	*R 8 915.53*	*R 292.79*	*R 6 911.25*	*R 226.97*
Operational cost - Maintenance	*R 4 074.26*	*R 133.80*	*R 4 616.76*	*R 151.62*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 9 430.00*	*R 309.69*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 32 358.59**		**R 31 734.41**	
Average daily operating profit *		R 1 070.65		R 1 050.24
** Excluding driver salary*				
Excluding payments to owner				

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1		
Driver Salary	**R 5 000.00**	**R 5 000.00**
Average monthly operating profit	**R 32 358.59**	**R 31 734.41**
Driver Salary	**R 5 000.00**	**R 5 000.00**
Monthly profit to Owner	**R 27 358.59**	**R 26 734.41**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:				
Total usage fee paid to owner per month	**R**	**17 617.50**	**R**	**21 097.50**
Average operating income per month	**R**	**52 527.71**	**R**	**53 150.75**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**21 097.50**
Usage cost per month (fuel, oil)	**R**	**8 915.53**	**R**	**6 911.25**
Monthly profit to Driver	**R**	**25 994.68**	**R**	**25 142.00**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**21 097.50**
Maintenance cost per month	R	4 074.26	R	4 616.76
Fixed cost per month	R	6 721.00	R	9 430.00
Overhead cost per month	R	458.33	R	458.33
Monthly profit to Owner (scenario 2)	**R**	**6 363.91**	**R**	**6 592.41**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income			
	Option A	*Option B*	*Option C*
	Average income per day	Average income per day	Average income per day
Monday	R 1 800.00	R -	R 930.00
Tuesday	R 1 842.22	R -	R 1 800.00
Wednesday	R 1 922.00	R -	R 2 100.00
Thursday	R 1 954.44	R -	R 2 290.00
Friday	R 2 184.44	R -	R 1 835.00
Saturday	R 1 311.00	R -	R 1 600.00
Sunday	R 1 117.00	R -	R 1 720.00
Total weekly income	**R 12 131.11**	**R -**	**R 12 275.00**
Average daily income	**R 1 733.02**	**R -**	**R 1 753.57**

4. COST CALCULATIONS

4.1. General information

	Option A	*Option C*
General information		
Vehicle type	Quantum 15 Seater	Sprinter 22 Seater
Average km driven per day	180 km	140 km
Cost of fuel	R 14.00 per litre	R 14.00 per litre
Cost of oil	R 60.00 per 500 ml	R 60.00 per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil
Operational cost

Usage cost assumptions
Scenario 2

Fuel consumption		10	km / litre	10	km / litre
Oil consumption: one 500ml can of oil every		2	days	2	days
Fuel and Oil usage per day	**R**	**292.79**		**R 226.97**	
Fuel and Oil usage per month	**R**	**8 915.53**		**R 6 911.25**	

Maintenance cost assumptions
These expenses are always for the owner's account

Main service cost	R	3 500.00		R 6 000.00	
Number of main services		2	per year	1	per year
Minor service cost	R	1 400.00		R 4 000.00	
Number of minor services		6	per year	2	per year
Wheel maintenance cost	R	2 000.00		R 5 000.00	
(brake pads, wheel cylinder, etc)					
Number of wheel maintenances		4	per year	3	per year
Wheel alignment cost	R	360.00		R 360.00	
Number of wheel alignments		12	per year	12	per year
Price of tyres	R	1 350.00	per tyre	R 2 500.00	per tyre
Tyre lifespan		30 000.00	km	60 000.00	km
Upholstery, cost of replacement	R	2 200.00		R 2 200.00	
Number of times upholstery is replaced		2	per year	2	per year
Unforeseen cost (average per event)	R	2 300.00		R 2 300.00	
(interior, parts, exhaust, auto-electrical, windows, starter, etc)					
Number of times of unforeseen expenses		1	per year	1	per year
Cost of cleaning, per event	R	50.00		R 50.00	
Number of times cleaning is done		52	per year	52	per year
Maintenance: average cost per day	**R**	**133.80**		**R 151.62**	
Maintenance: average cost per month	**R**	**4 074.26**		**R 4 616.76**	

4.3. Fixed cost

Fixed cost *operations of the vehicle*						
Insurance installment	R	18 000.00	per year	R	22 000.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year	R	83 340.00	per year
Vehicle licence fees cost	R	1 500.00	per year	R	1 700.00	per year
Roadworthy test cost	R	480.00	per year	R	960.00	per year
Operating licence cost, once every 5 years	R	12.00		R	60.00	
Monthly association fee	R	100.00	per year	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**		**R**	**309.69**	
Fixed cost: average cost per month	**R**	**6 721.00**		**R**	**9 430.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*					
Number of taxis in fleet		3			3	
Equipment and tools	*(computers, software, tools)*	R 2 000.00	per year	R	2 000.00	per year
Communication	*(landlines, cellphones, internet connections)*	R 2 000.00	per year	R	500.00	per year
Security	*(security, parking fees)*	R 500.00	per year	R	500.00	per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R 1 000.00	per year	R	1 000.00	per year
Overhead cost: average cost per day per taxi		**R 15.05**		**R**	**15.05**	
Overhead cost: average cost per month per taxi		**R 458.33**		**R**	**458.33**	

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – HYPERAMA

iSAHA

Table of Contents

ROUTE: **HYPERAMA**
REPORT DATE: **1 November 2017**

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

12 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

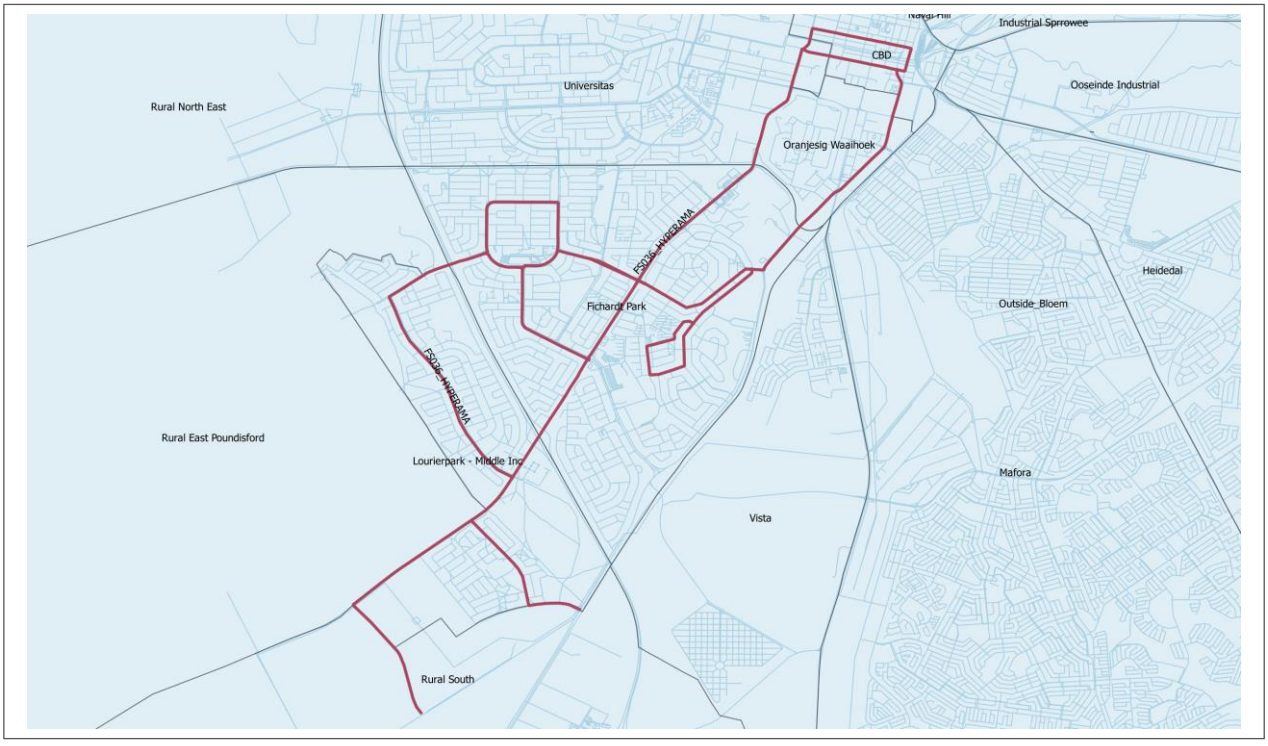
A total of 12 vehicles were surveyed between cycle 1 and cycle 10. 11 vehicles had 6 or more consecutive days of data and 1 vehicle did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 700.86	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 11 906.00	Per week As determined from survey
Average monthly income	R 51 552.98	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R577 441.00	Calculated from weekly result Formula: 48.5 x weekly average

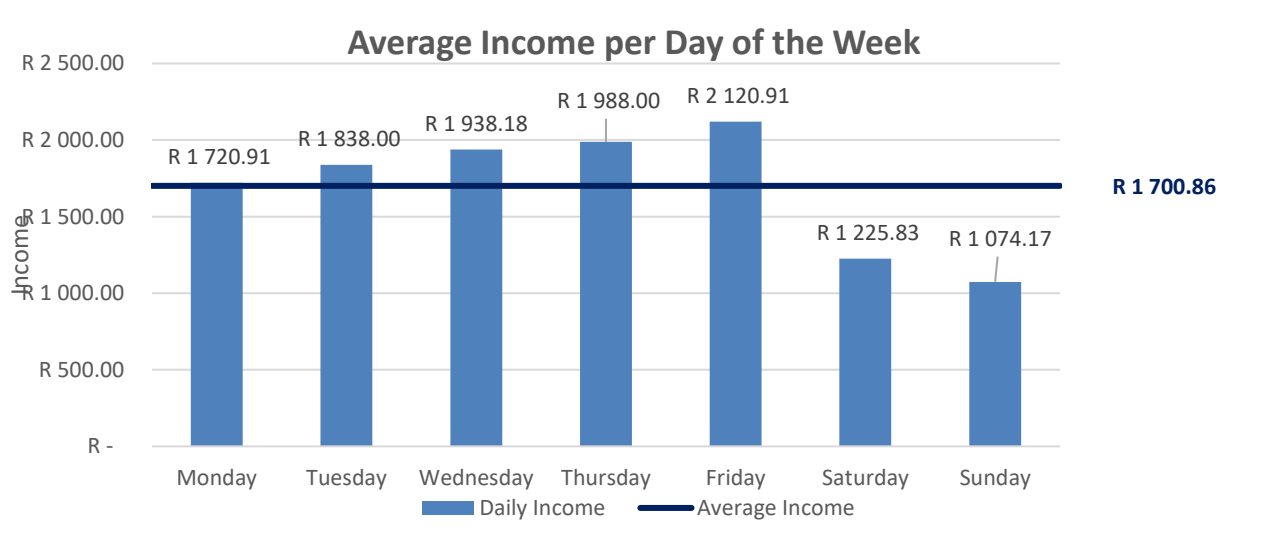


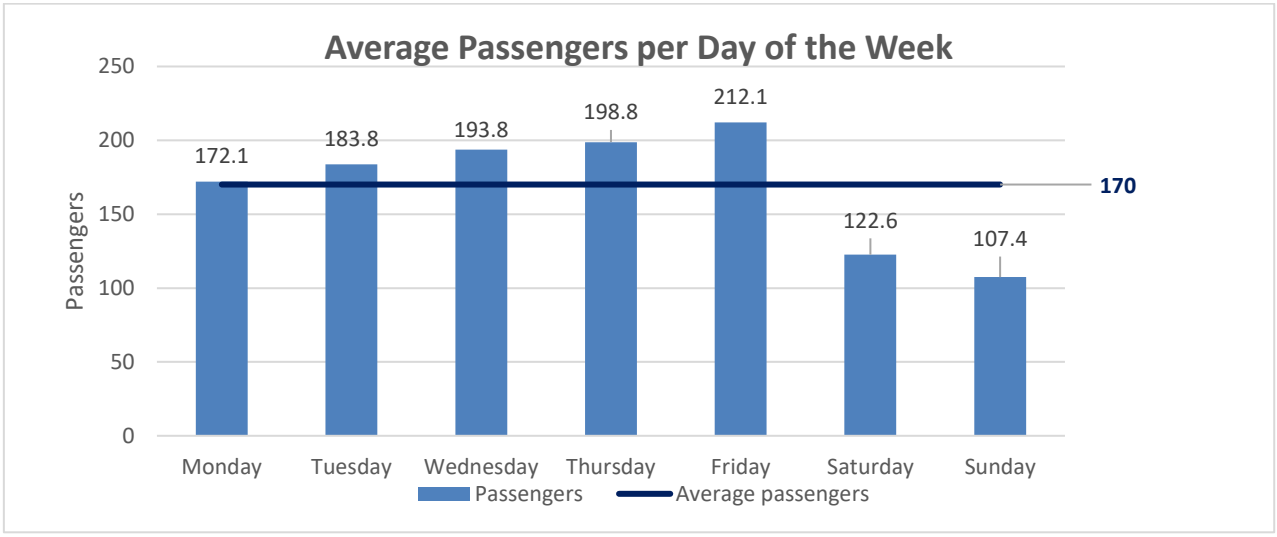
Corridor served by HYPERAMA Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	172	R 10.00	R 1 720.91
Tuesday	184	R 10.00	R 1 838.00
Wednesday	194	R 10.00	R 1 938.18
Thursday	199	R 10.00	R 1 988.00
Friday	212	R 10.00	R 2 120.91
Saturday	123	R 10.00	R 1 225.83
Sunday	107	R 10.00	R 1 074.17
Weekly total	1191		R 11 906.00
Average	170	R 10.00	R 1 700.86
Weekday Avg	192	R 10.00	R 1 921.20

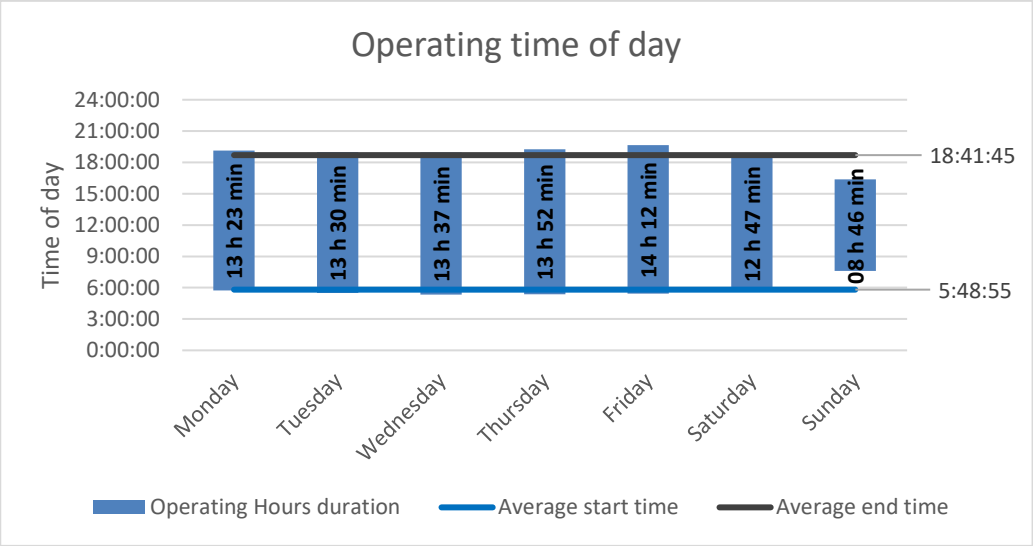



Average Passengers per Day of the Week
Passengers
250
200
150
100
50
0
172.1
183.8
193.8
198.8
212.1
122.6
107.4
170
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.4. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	5:48:55	18:41:45	12:52:51
Weekday (Mon-Fri) avg	5:28:15	19:11:33	13:43:17
Monday	5:43:27	19:07:06	13:23:39
Tuesday	5:29:17	18:59:24	13:30:07
Wednesday	5:19:59	18:57:33	13:37:34
Thursday	5:22:05	19:14:42	13:52:38
Friday	5:26:29	19:38:58	14:12:30
Saturday	5:45:27	18:32:41	12:47:13
Sunday	7:35:37	16:21:53	8:46:16



3.5. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	172	172	R	9.88	45%
Weekday (Mon-Fri) avg	191	191	R	10.05	45%
Monday	182	182	R	9.46	44%
Tuesday	189	189	R	9.71	45%
Wednesday	186	186	R	10.42	47%
Thursday	185	185	R	10.75	46%
Friday	214	214	R	9.92	45%
Saturday	133	133	R	9.20	44%
Sunday	116	116	R	9.24	45%

3.6. Operational analysis

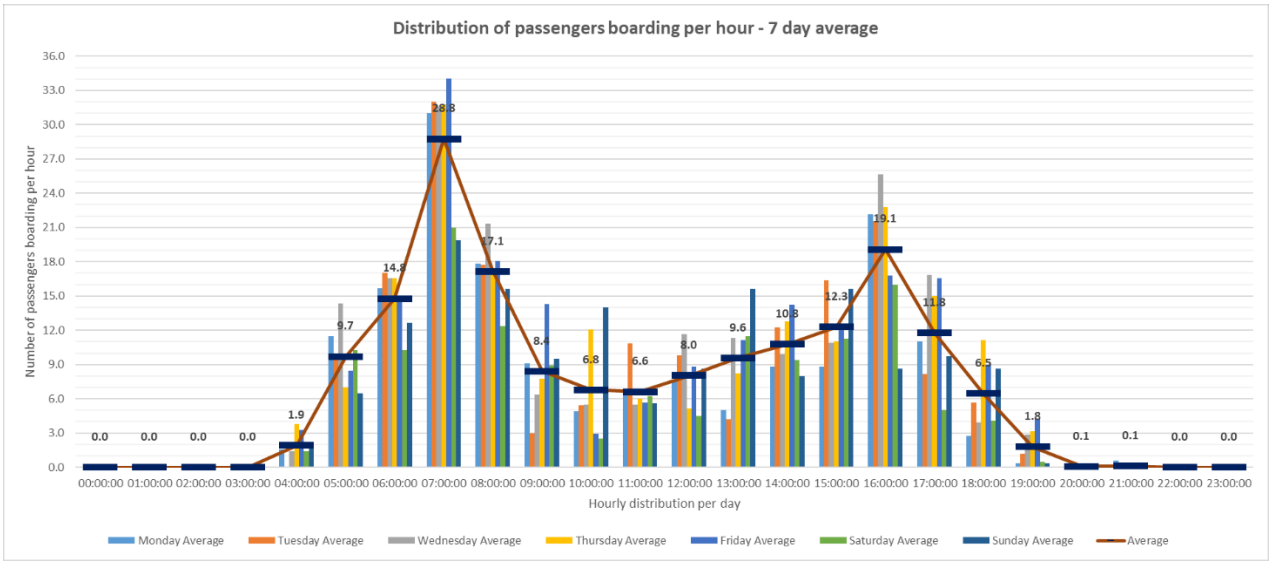
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	172.2	170	1.01	00:08:18	12.5	1306.7	2909.3	45%
Weekday (Mon-Fri) avg	191.2	192	1.00	00:07:24	13.9	1335.4	2968.2	45%
Monday	181.9	172	1.06	00:07:53	13.4	1224.0	2828.5	44%
Tuesday	189.3	184	1.03	00:07:45	14.1	1308.1	2933.2	45%
Wednesday	186.1	194	0.96	00:07:33	13.7	1368.1	2937.2	47%
Thursday	184.9	199	0.93	00:07:04	13.3	1315.9	2844.2	46%
Friday	213.8	212	1.01	00:06:47	15.0	1442.8	3252.1	45%
Saturday	133.3	123	1.09	00:11:44	9.6	1018.5	2335.9	44%
Sunday	116.3	107	1.08	00:09:23	8.7	1401.3	3082.9	45%

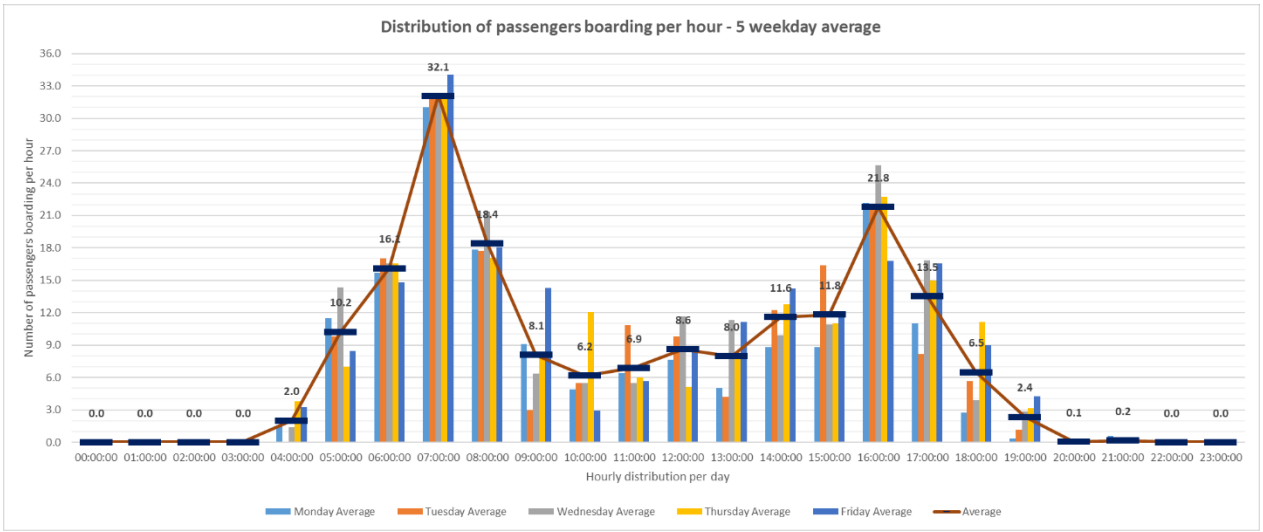
3.7. Fluctuations

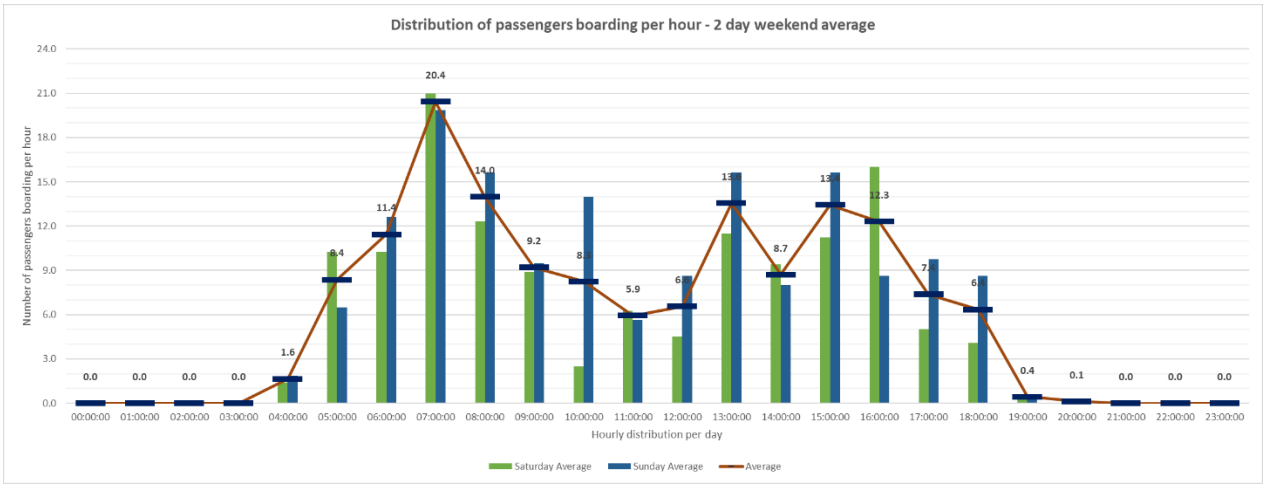
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.0	R -	0%
01:00	01:59	0.0	R -	0%
02:00	02:59	0.0	R -	0%
03:00	03:59	0.0	R -	0%
04:00	04:59	1.9	R 19.04	7%
05:00	05:59	9.7	R 96.95	30%
06:00	06:59	14.8	R 147.80	49%
07:00	07:59	28.8	R 287.56	49%
08:00	08:59	17.1	R 171.42	47%
09:00	09:59	8.4	R 84.10	32%
10:00	10:59	6.8	R 67.69	25%
11:00	11:59	6.6	R 66.11	22%
12:00	12:59	8.0	R 80.33	30%
13:00	13:59	9.6	R 95.72	31%
14:00	14:59	10.8	R 107.73	40%
15:00	15:59	12.3	R 122.94	42%
16:00	16:59	19.1	R 190.82	54%
17:00	17:59	11.8	R 117.57	42%
18:00	18:59	6.5	R 64.52	26%
19:00	19:59	1.8	R 18.06	7%
20:00	20:59	0.1	R 0.74	0%
21:00	21:59	0.1	R 1.12	1%
22:00	22:59	0.0	R -	1%
23:00	23:59	0.0	R -	0%

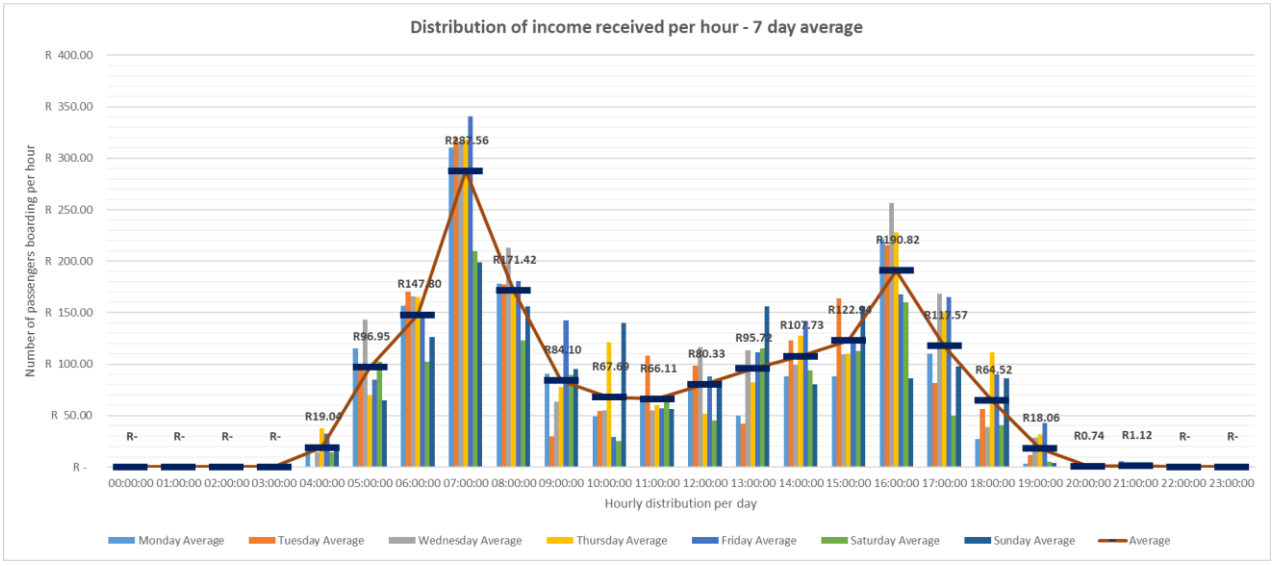
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

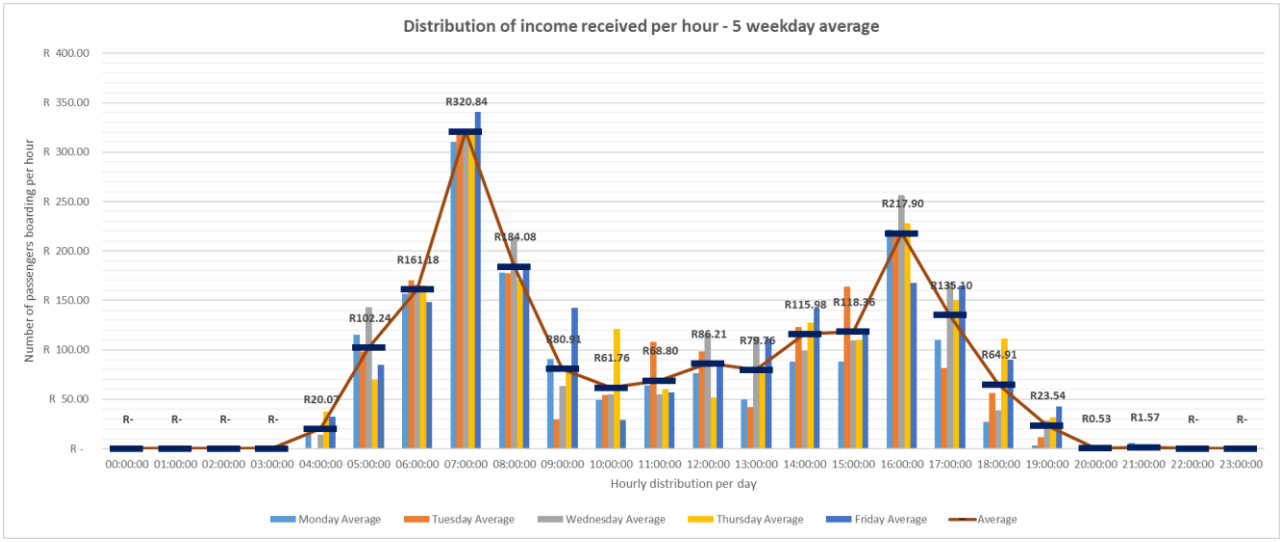


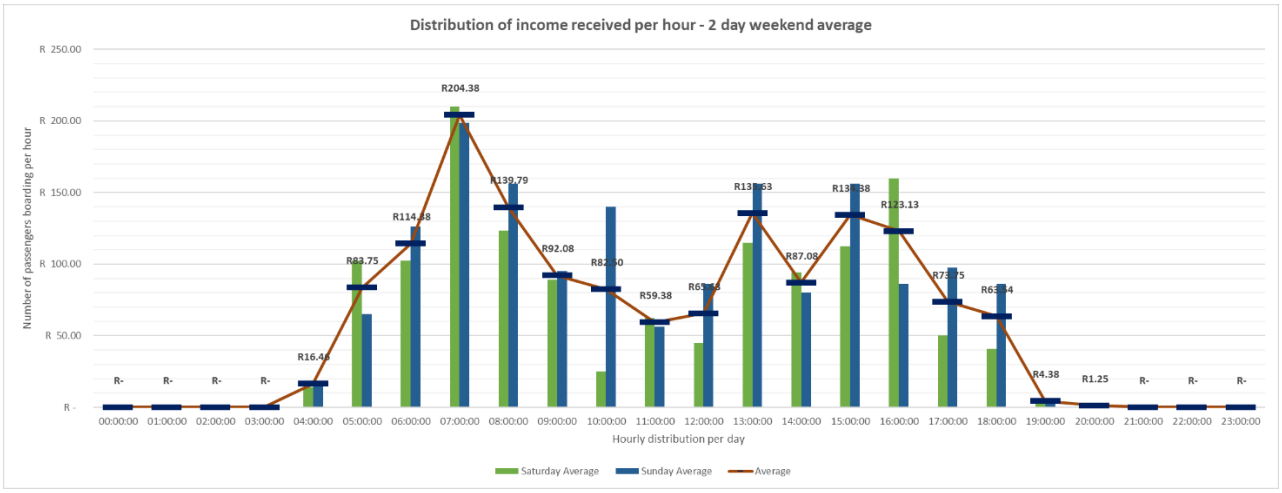




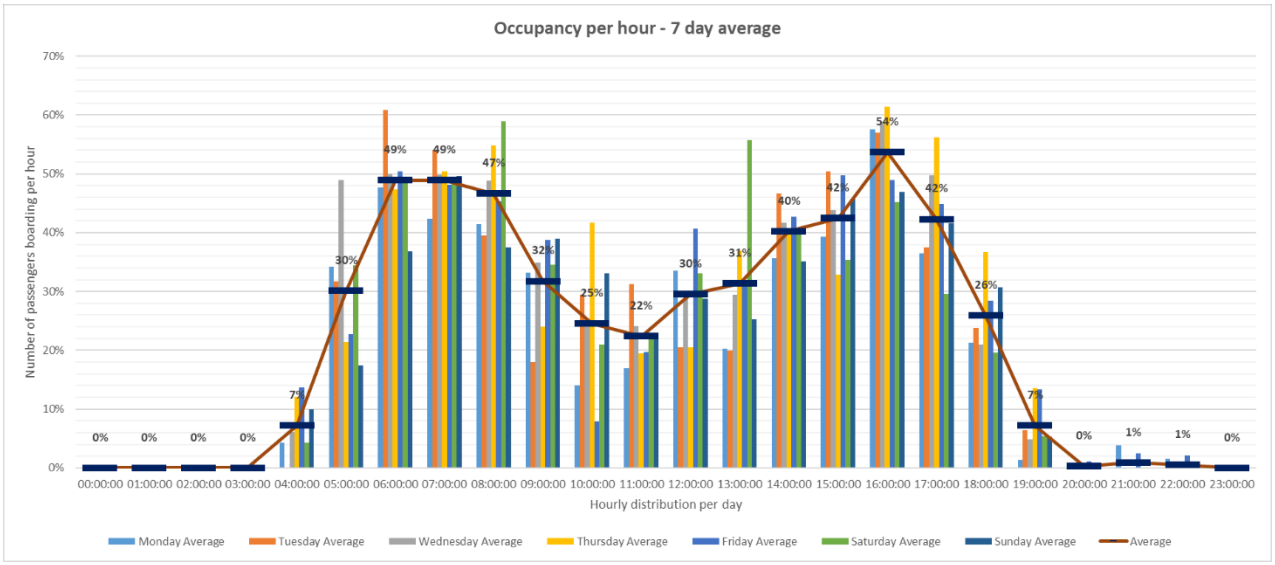
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

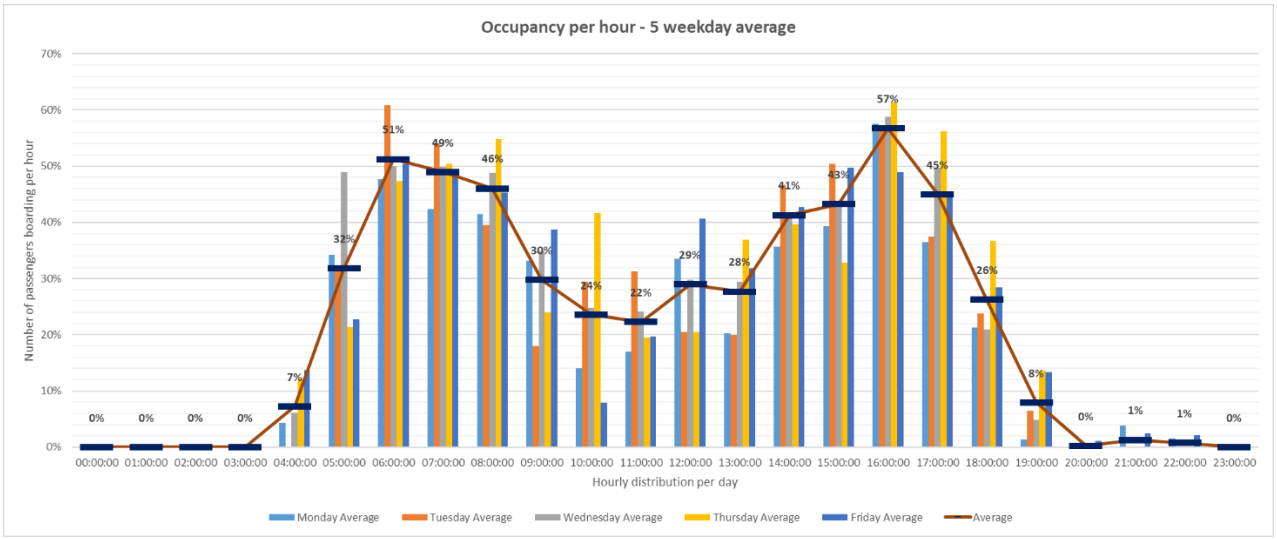


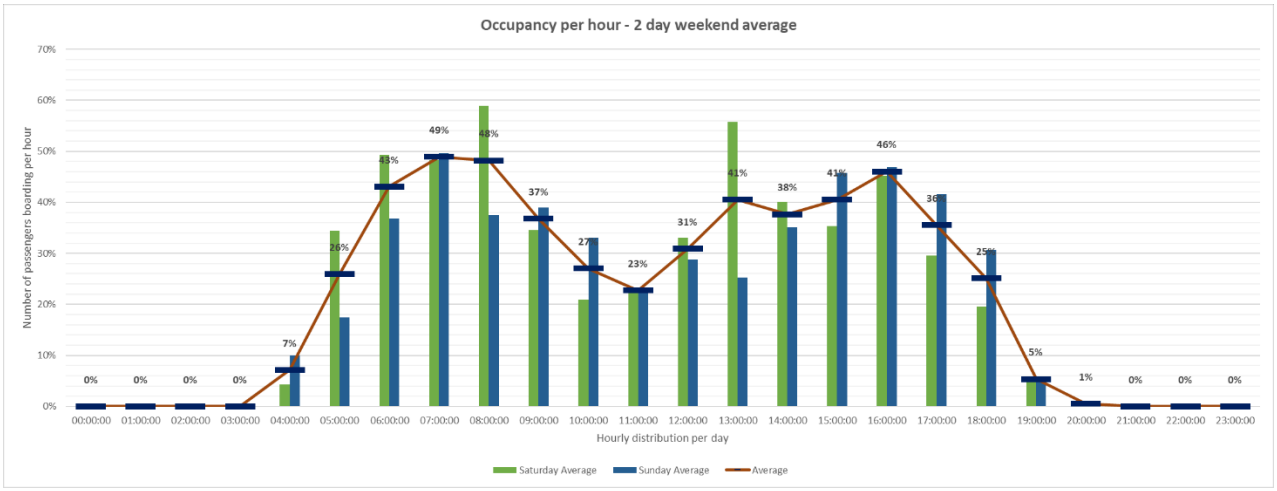

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 400.00
R 350.00
R 300.00
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R320.84
R217.90
R184.08
R161.18
R135.10
R118.36
R115.98
R102.24
R86.21
R80.91
R79.76
R68.80
R64.91
R61.76
R23.54
R20.07
R0.53
R1.57
R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R204.38
R139.79
R114.38
R92.08
R87.08
R83.75
R59.38
R16.46
R4.38
R1.25
R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

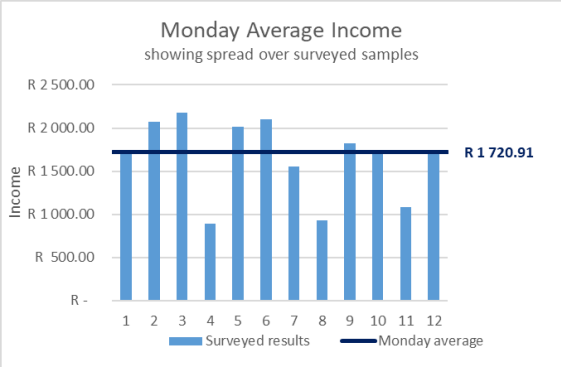


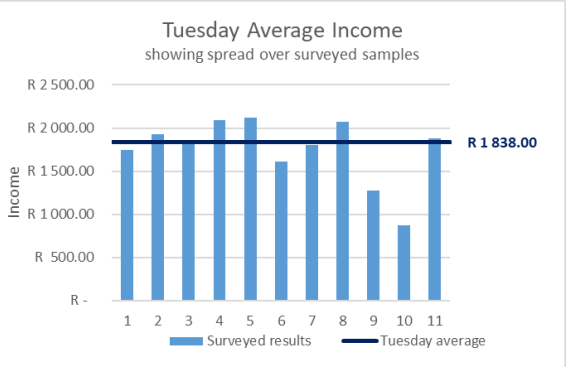


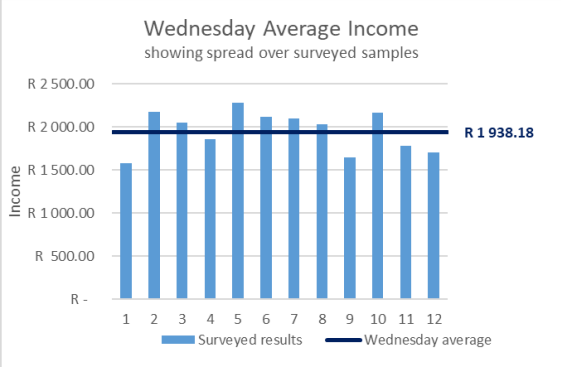

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
70%
60%
50%
40%
30%
20%
10%
0%
0% 0% 0% 0% 7% 26% 43% 49% 48% 37% 27% 23% 31% 41% 38% 41% 46% 36% 25% 5% 1% 0% 0% 0%
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

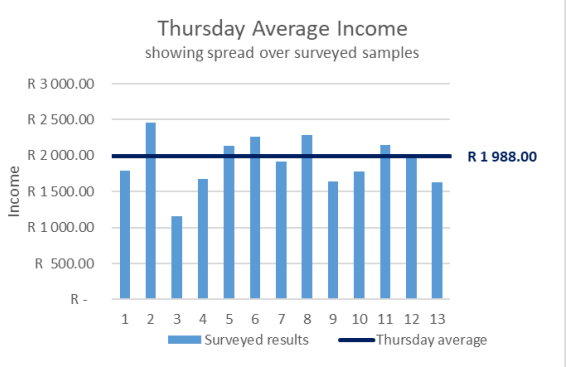
4. DETAILED SURVEY RESULTS

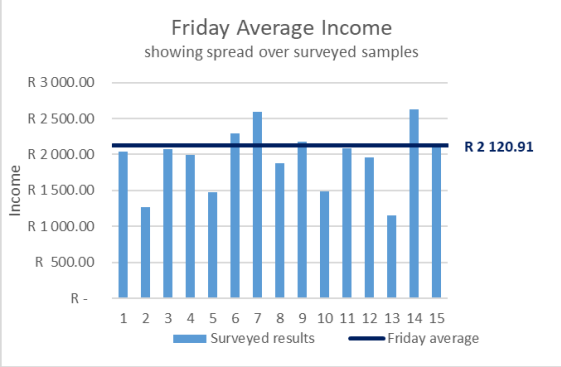
4.1. Income distribution

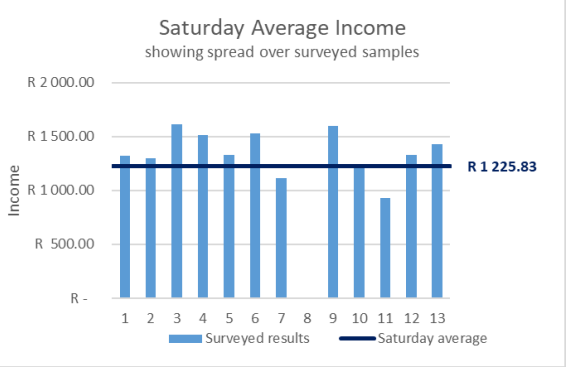


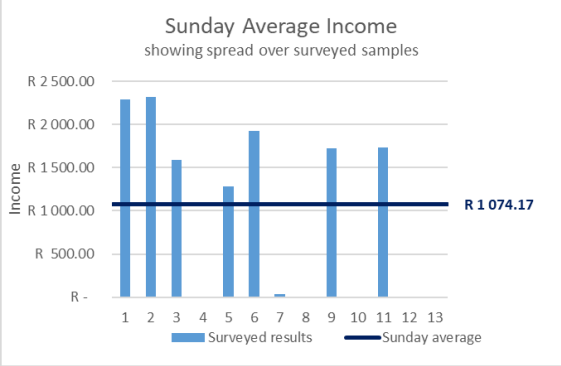




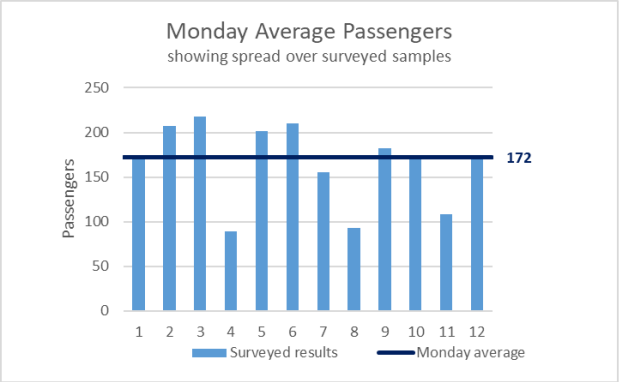


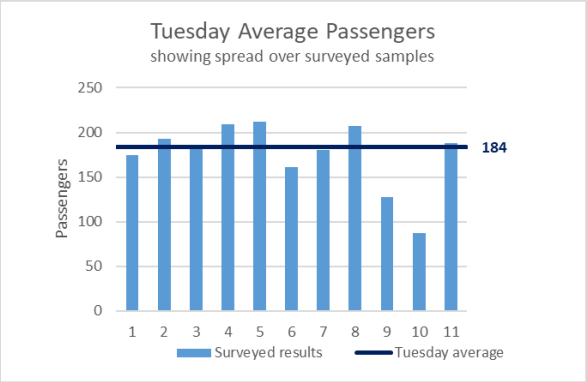


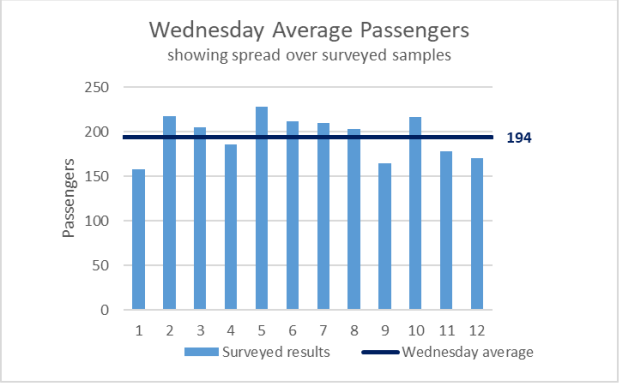


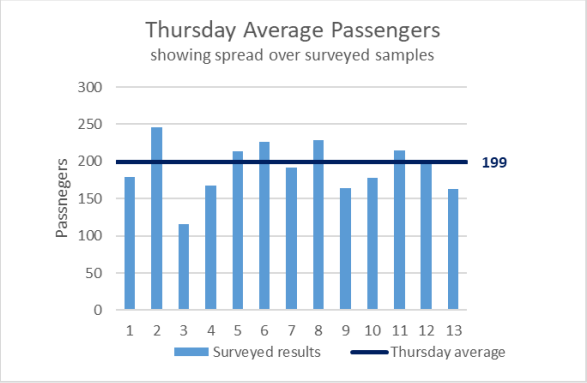


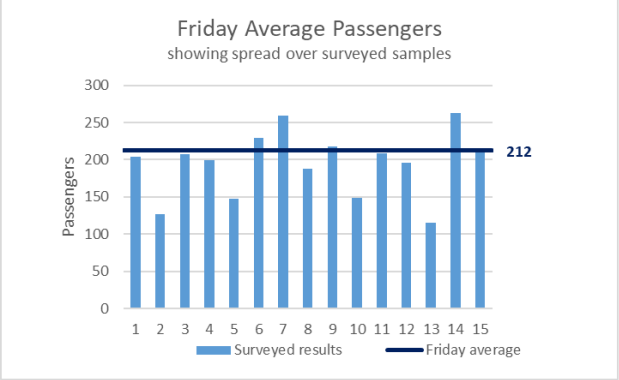
4.2. Passenger number distribution

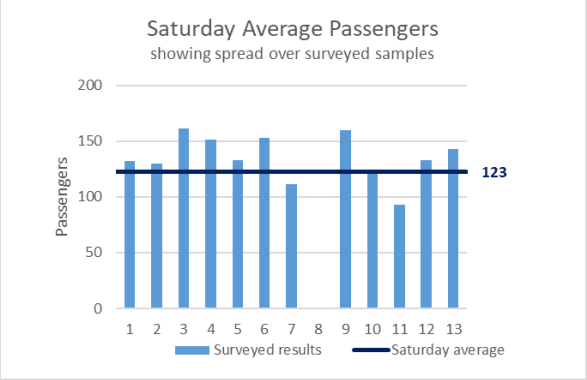


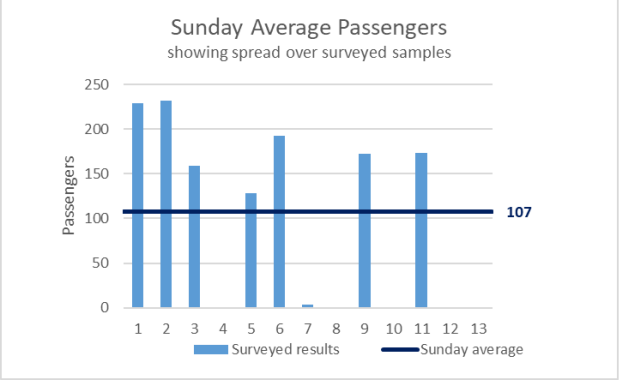










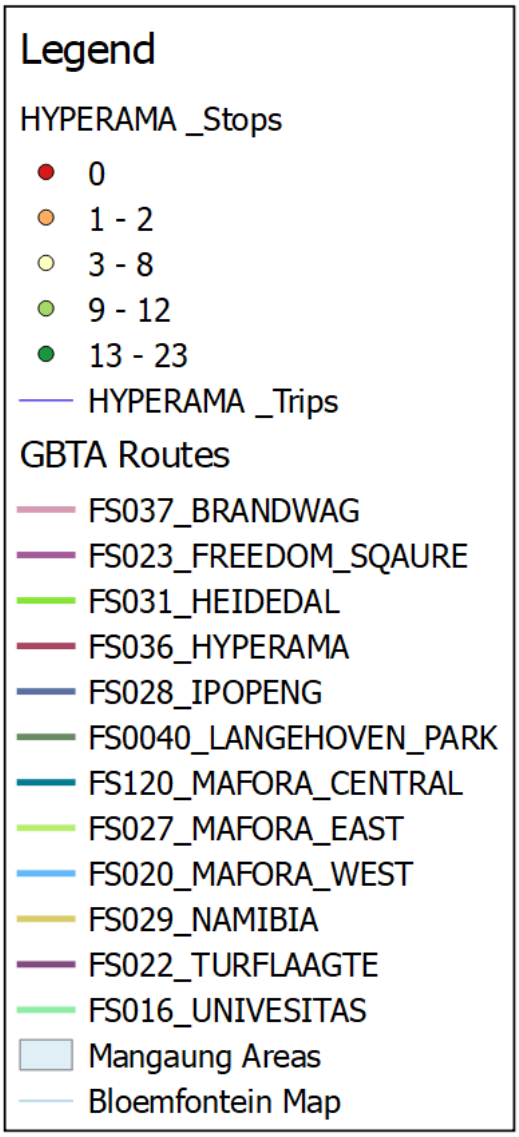


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

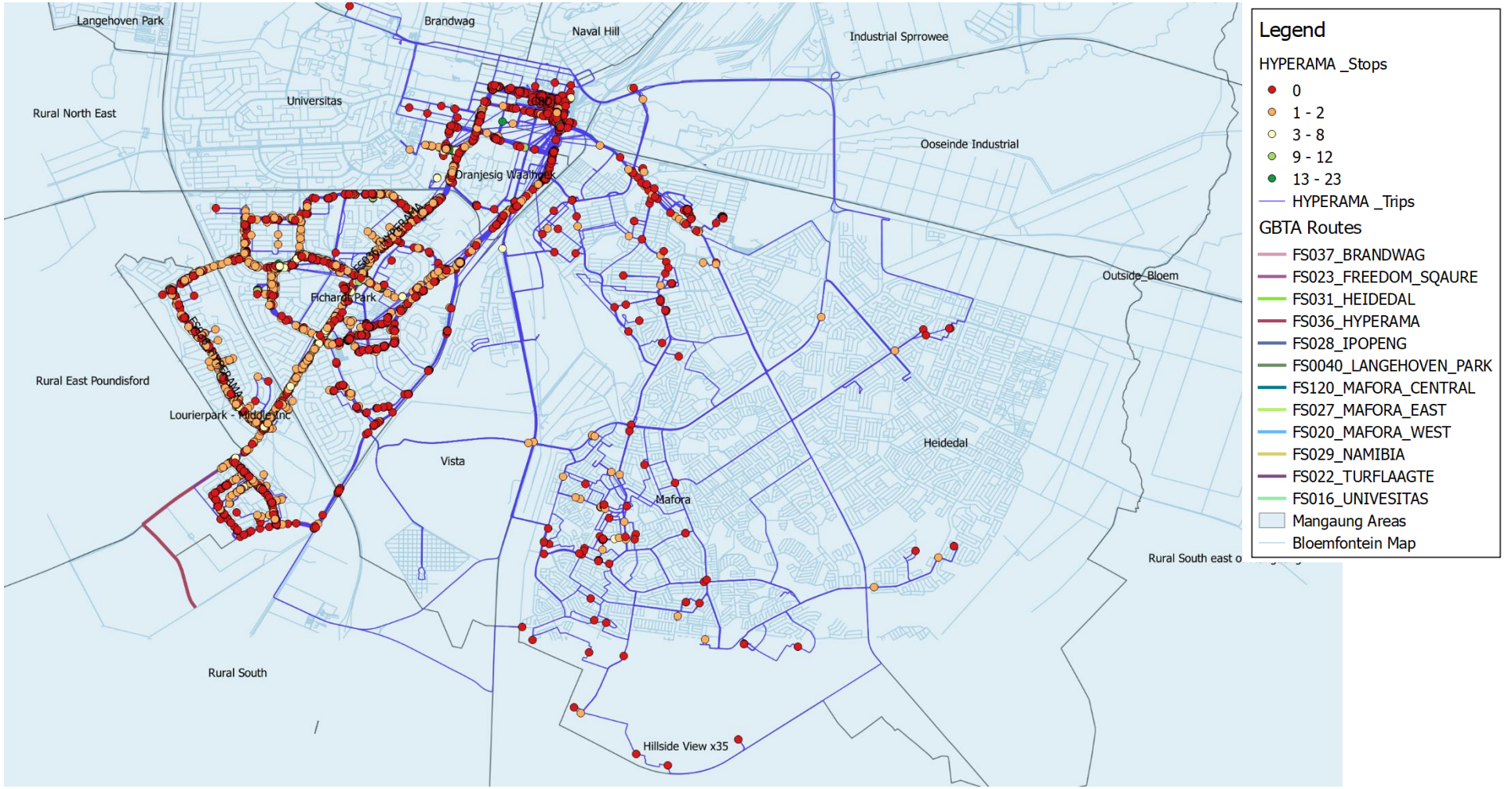


5.1. All surveyed operations

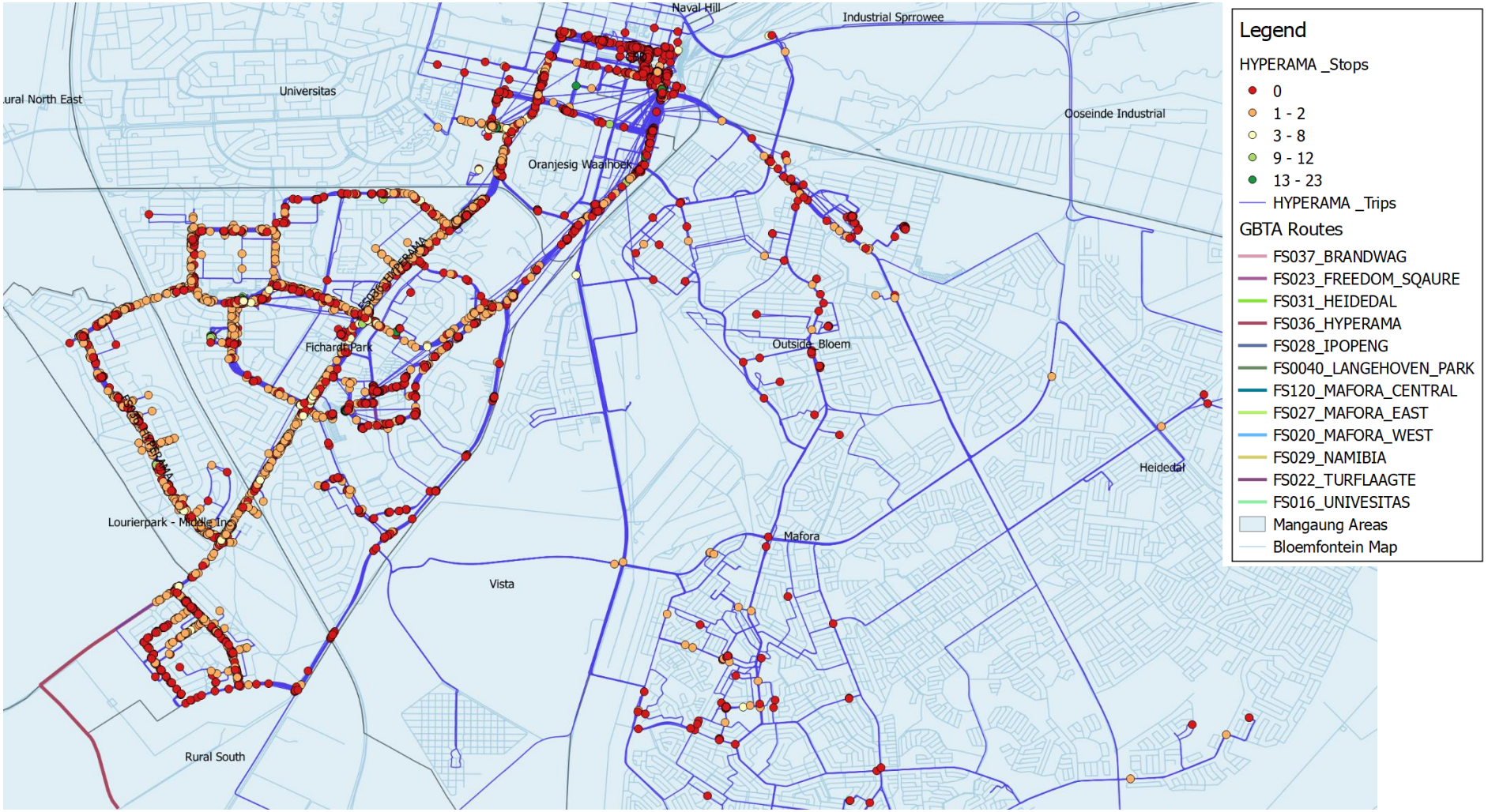
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

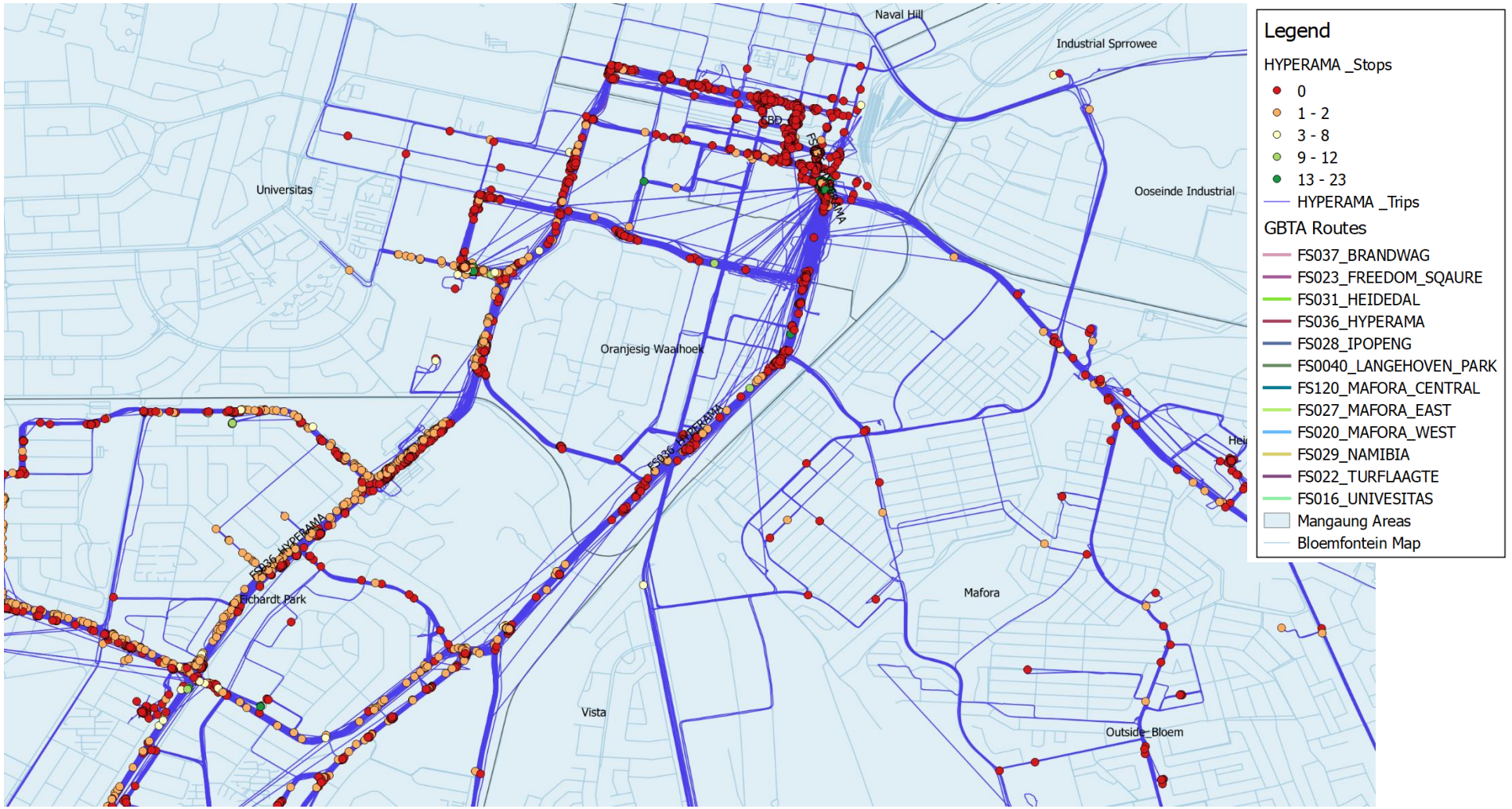
Operations of all surveyed taxis including stops



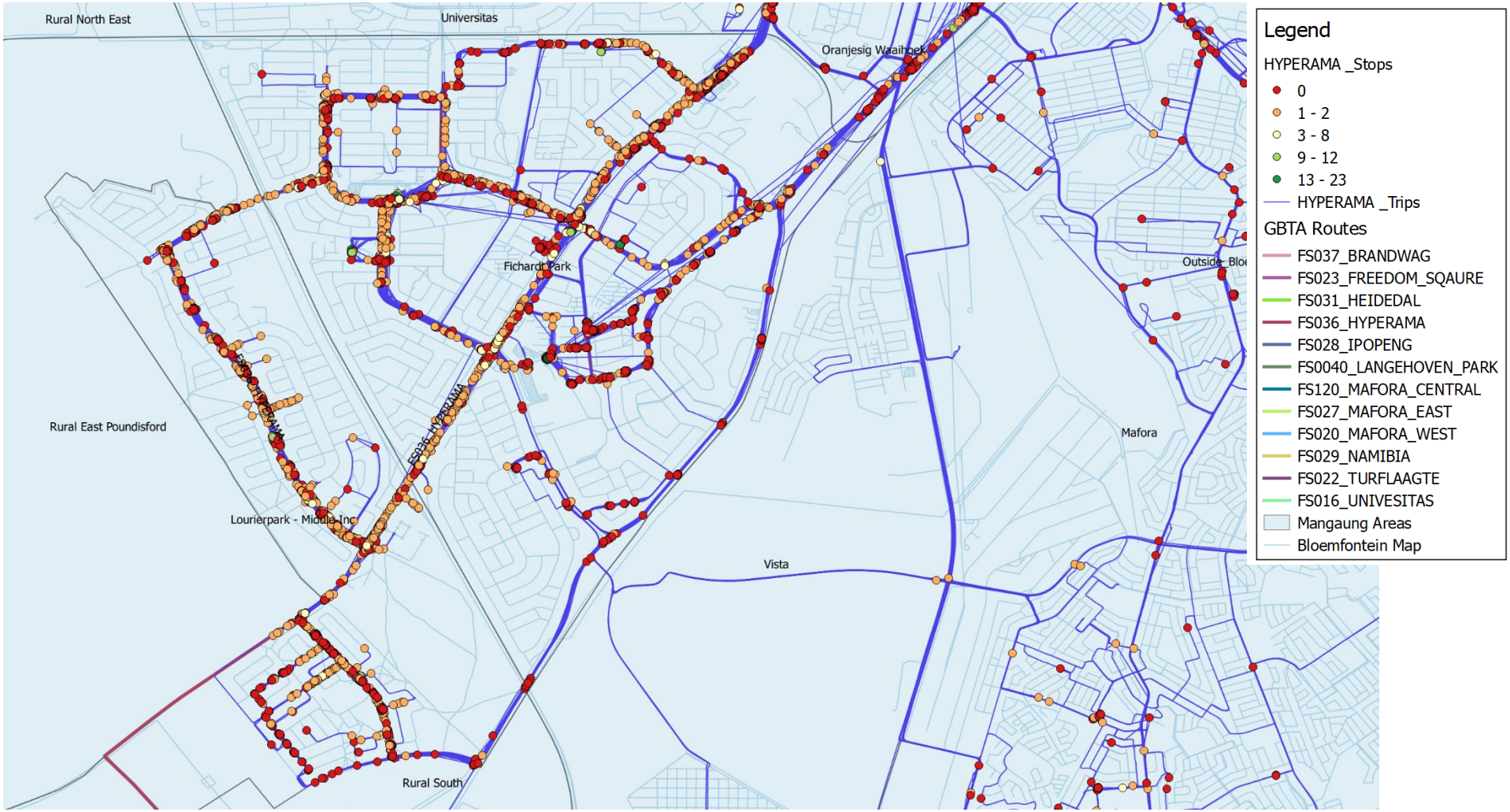
Operations of all surveyed taxis including stops – Focused on the HYPERAMA route



Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the HYPERAMA area

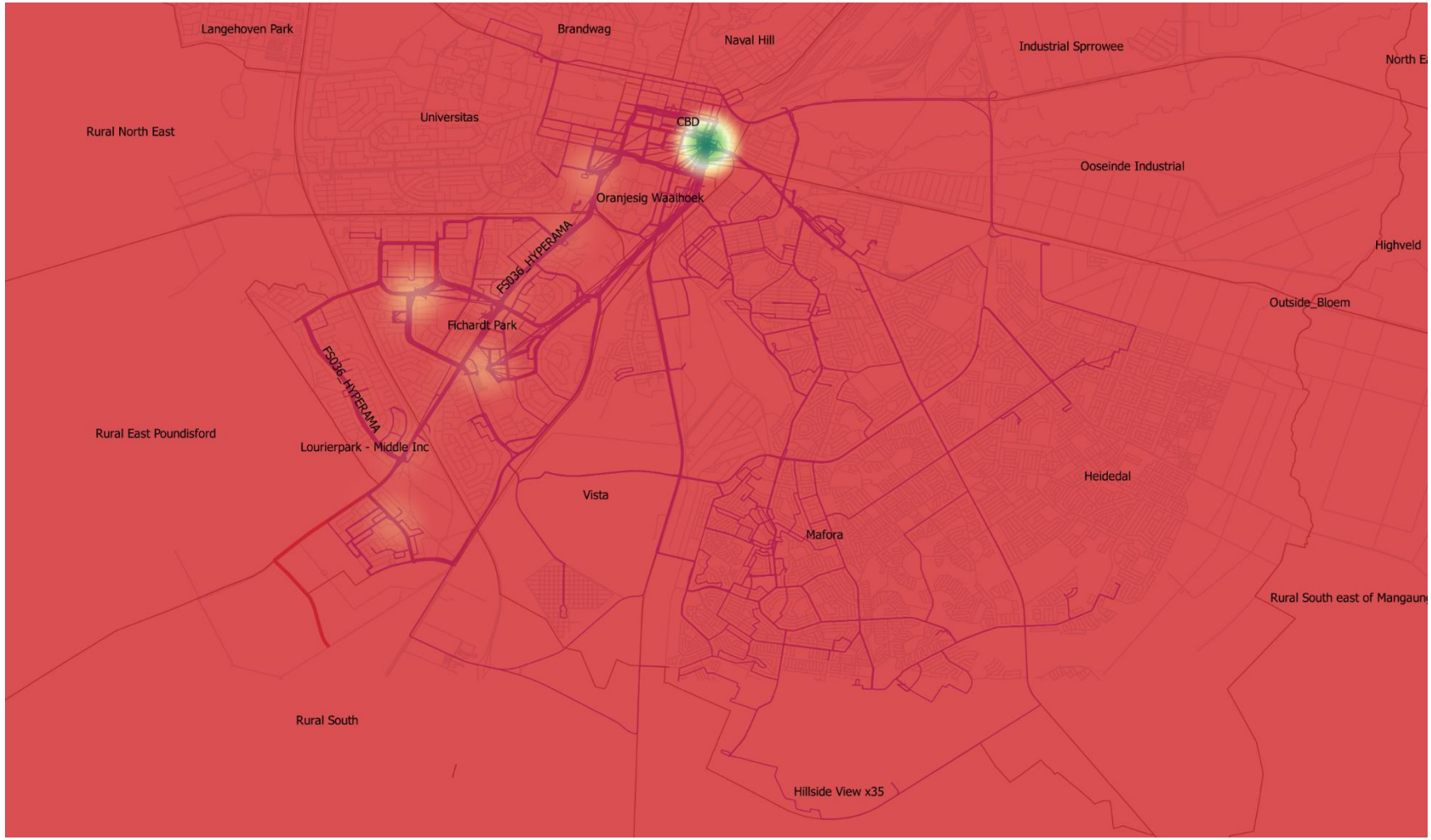


5.2. Heatmaps of taxi operations

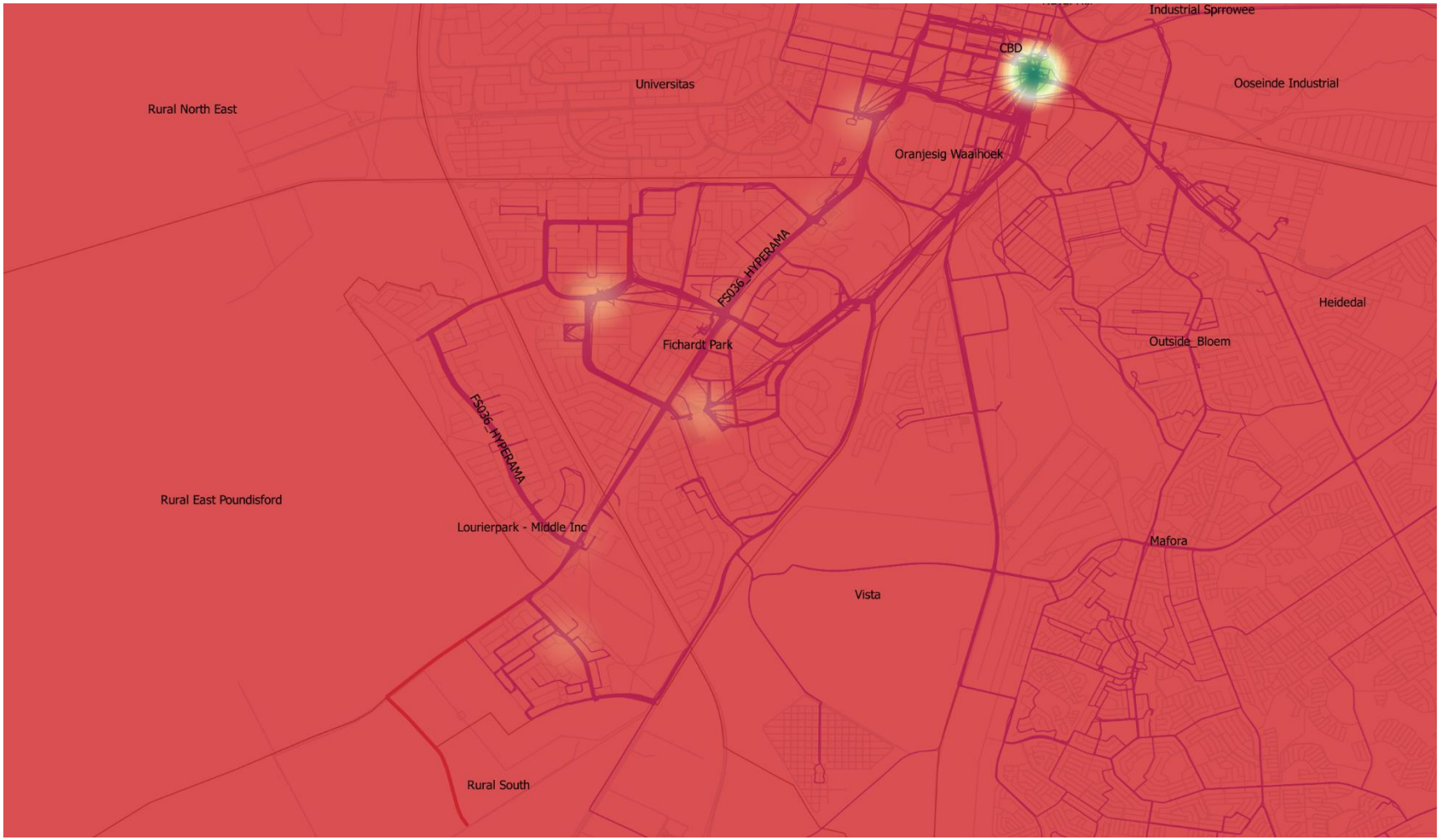
The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

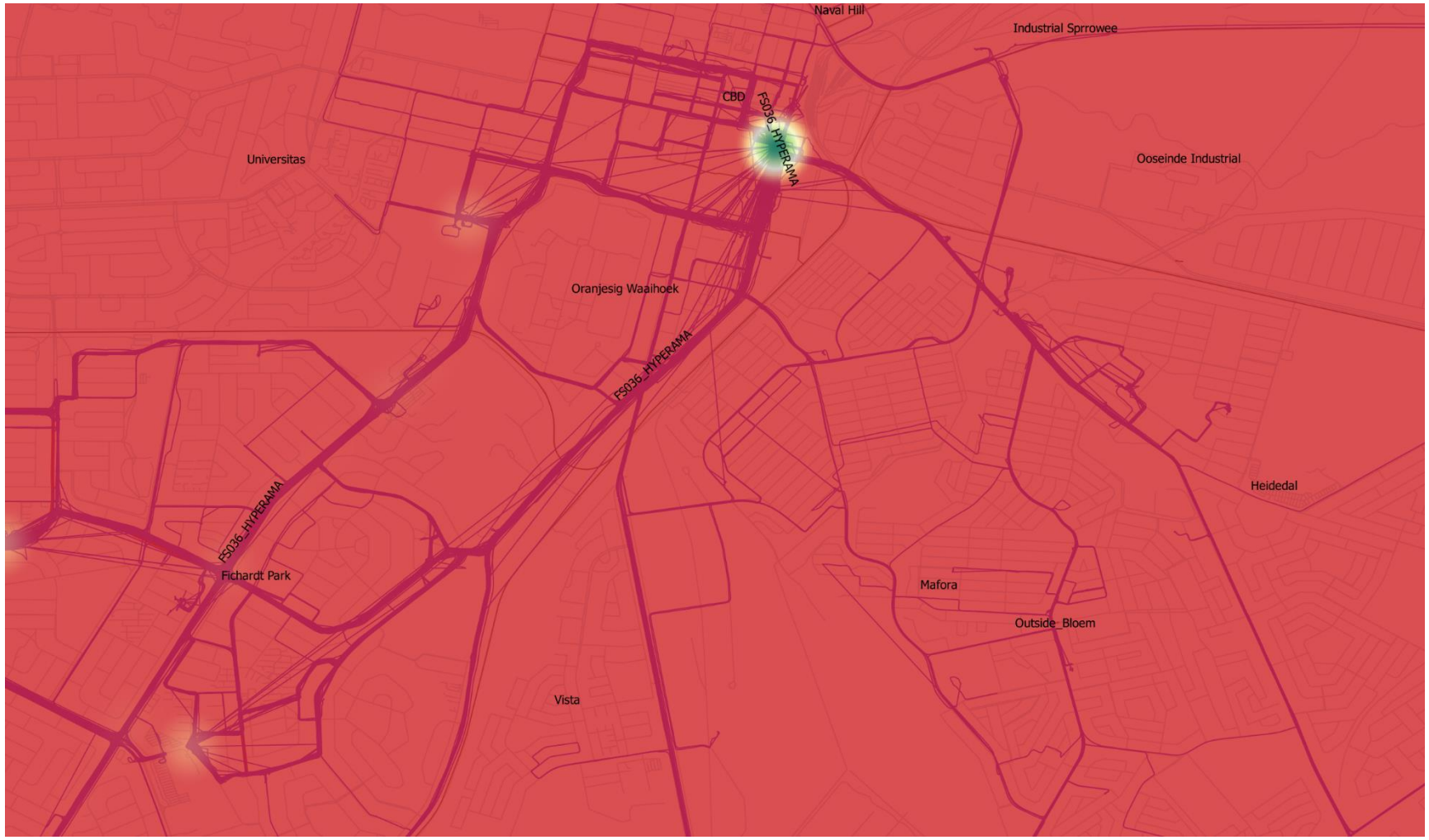
Heatmap of total surveyed area.



Heatmap of total surveyed area – Focused on the HYPERAMA route



Heatmap of total surveyed area – Focused on the CBD



Heatmap of total surveyed area – Focused on HYPERAMA

ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – IPOPENG

iSAHA

Table of Contents

ROUTE: IPOPENG
REPORT DATE: 23 November 2017

1. INTRODUCTION

The electronic on-board survey results for Ipopeng Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Ipopeng Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option B*	
Average operating income per month	**R 29 783.96**		**R 16 930.30**	
Average operating income per day		R 982.64		R 558.57
Cost of operations per month	**R 19 461.83**		**R 13 910.87**	
Cost of operations per day		R 639.14		R 456.84
Operational cost - Fuel & Oil	*R 8 278.88*	*R 271.88*	*R 7 077.93*	*R 232.44*
Operational cost - Maintenance	*R 4 003.62*	*R 131.48*	*R 2 714.60*	*R 89.15*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 3 660.00*	*R 120.20*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 10 322.13**		**R 3 019.43**	
Average daily operating profit *		R 343.50		R 101.73
** Excluding driver salary*				
Excluding payments to owner				

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1

Driver Salary	**R 5 000.00**	**R 5 000.00**
Average monthly operating profit	**R 10 322.13**	**R 3 019.43**
Driver Salary	**R 5 000.00**	**R 5 000.00**
Monthly profit to Owner	**R 5 322.13**	**R -1 980.57**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:				
Total usage fee paid to owner per month	**R**	**17 617.50**	**R**	**11 745.00**
Average operating income per month	**R**	**29 783.96**	**R**	**16 930.30**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**11 745.00**
Usage cost per month (fuel, oil)	**R**	**8 278.88**	**R**	**7 077.93**
Monthly profit to Driver	**R**	**3 887.58**	**R**	**-1 892.63**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**11 745.00**
Maintenance cost per month	R	4 003.62	R	2 714.60
Fixed cost per month	R	6 721.00	R	3 660.00
Overhead cost per month	R	458.33	R	458.33
Monthly profit to Owner (scenario 2)	**R**	**6 434.55**	**R**	**4 912.07**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income						
	Option A		*Option B*		*Option C*	
	Average income per day		Average income per day		Average income per day	
Monday	R	1 101.33	R	770.00	R	-
Tuesday	R	1 098.57	R	720.00	R	-
Wednesday	R	1 053.85	R	380.00	R	-
Thursday	R	1 121.43	R	790.00	R	-
Friday	R	1 220.67	R	780.00	R	-
Saturday	R	840.67	R	440.00	R	-
Sunday	R	442.00	R	30.00	R	-
Total weekly income	**R**	**6 878.51**	**R**	**3 910.00**	**R**	**-**
Average daily income	**R**	**982.64**	**R**	**558.57**	**R**	**-**

4. COST CALCULATIONS

4.1. General information

	Option A			*Option B*		
General information						
Vehicle type	Quantum 15 Seater			Hi-Ace 14 Seater		
Average km driven per day	168		km	105		km
Cost of fuel	R	14.00	per litre	R	14.00	per litre
Cost of oil	R	60.00	per 500 ml	R	60.00	per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil *Operational cost*					
Usage cost assumptions *These expenses are usually for the driver's account under Scenario 2*					
Fuel consumption	10	km / litre		7	km / litre
Oil consumption: one 500ml can of oil every	2	days		2	days
Fuel and Oil usage per day	**R**	**271.88**		**R**	**232.44**
Fuel and Oil usage per month	**R**	**8 278.88**		**R**	**7 077.93**
Maintenance cost assumptions *These expenses are always for the owner's account*					
Main service cost	R	3 500.00		R	1 200.00
Number of main services		2	per year		2	per year
Minor service cost	R	1 400.00		R	700.00
Number of minor services		6	per year		6	per year
Wheel maintenance cost *(brake pads, wheel cylinder, etc)*	R	2 000.00		R	1 200.00
Number of wheel maintenances		4	per year		4	per year
Wheel alignment cost	R	360.00		R	360.00
Number of wheel alignments		12	per year		12	per year
Price of tyres	R	1 350.00	per tyre	R	700.00	per tyre
Tyre lifespan		30 000.00	km		11 200.00	km
Upholstery, cost of replacement	R	2 200.00		R	1 200.00
Number of times upholstery is replaced		2	per year		2	per year
Unforeseen cost (average per event) *(interior, parts, exhaust, auto-electrical, windows, starter, etc)*	R	2 300.00		R	2 300.00
Number of times of unforeseen expenses		1	per year		1	per year
Cost of cleaning, per event	R	50.00		R	50.00
Number of times cleaning is done		52	per year		52	per year
Maintenance: average cost per day	**R**	**131.48**		**R**	**89.15**
Maintenance: average cost per month	**R**	**4 003.62**		**R**	**2 714.60**

4.3. Fixed cost

Fixed cost						
	Fixed costs are related to a vehicle, independent of the operations of the vehicle					
Insurance installment	R	18 000.00	per year	R	9 600.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year	R	27 780.00	per year
Vehicle licence fees cost	R	1 500.00	per year	R	900.00	per year
Roadworthy test cost	R	480.00	per year	R	480.00	per year
Operating licence cost, once every 5 years	R	12.00		R	60.00	
Monthly association fee	R	100.00	per year	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**		**R**	**120.20**	
Fixed cost: average cost per month	**R**	**6 721.00**		**R**	**3 660.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*		
Number of taxis in fleet		3	3
Equipment and tools	*(computers, software, tools)*	R 2 000.00 per year	R 2 000.00 per year
Communication	*(landlines, cellphones, internet connections)*	R 2 000.00 per year	R 500.00 per year
Security	*(security, parking fees)*	R 500.00 per year	R 500.00 per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R 1 000.00 per year	R 1 000.00 per year
Overhead cost: average cost per day per taxi		**R 15.05**	**R 15.05**
Overhead cost: average cost per month per taxi		**R 458.33**	**R 458.33**

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – IPOPENG

iSAHA

Table of Contents

ROUTE: IPOPENG
REPORT DATE: 23 November 2017

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

17 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

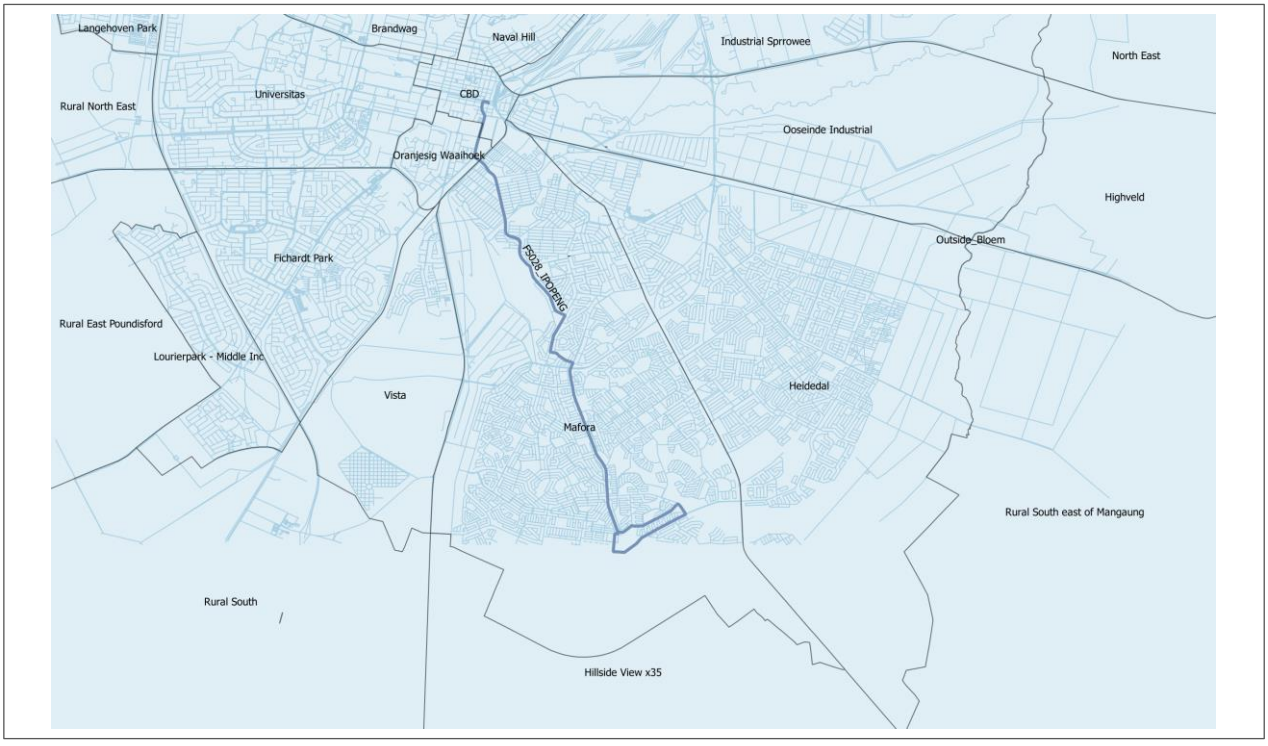
A total of 17 vehicles were surveyed between cycle 1 and cycle 10. 16 vehicles had 6 or more consecutive days of data and 1 vehicle did not have sufficient data. 2 Vehicles were surveyed more than once.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 961.73	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 6 732.14	Per week As determined from survey
Average monthly income	R 29 150.16	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R326 508.68	Calculated from weekly result Formula: 48.5 x weekly average

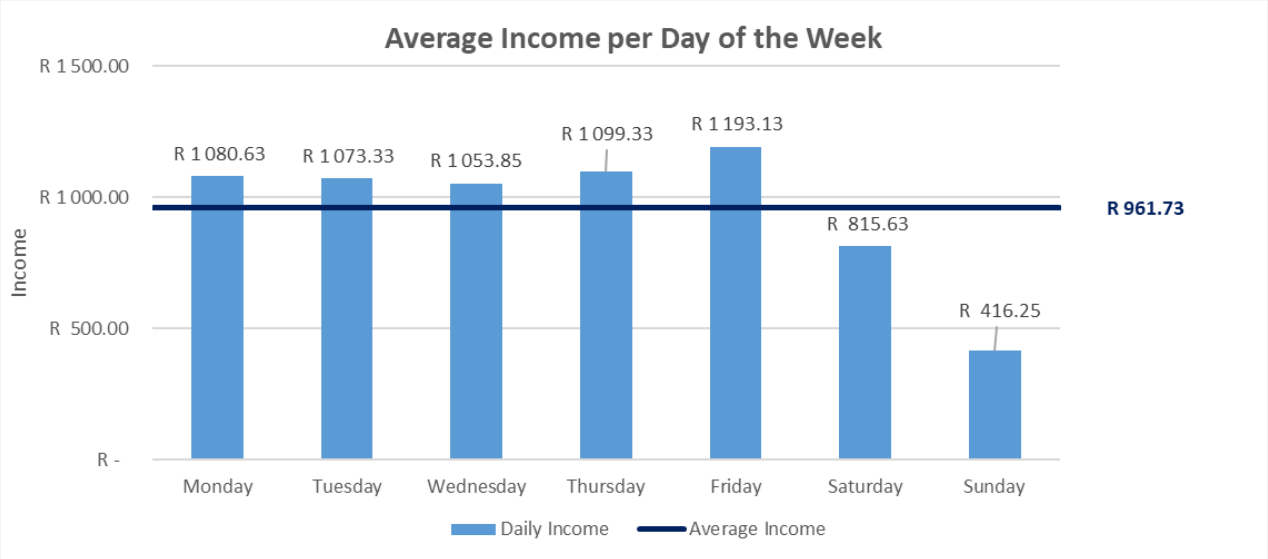


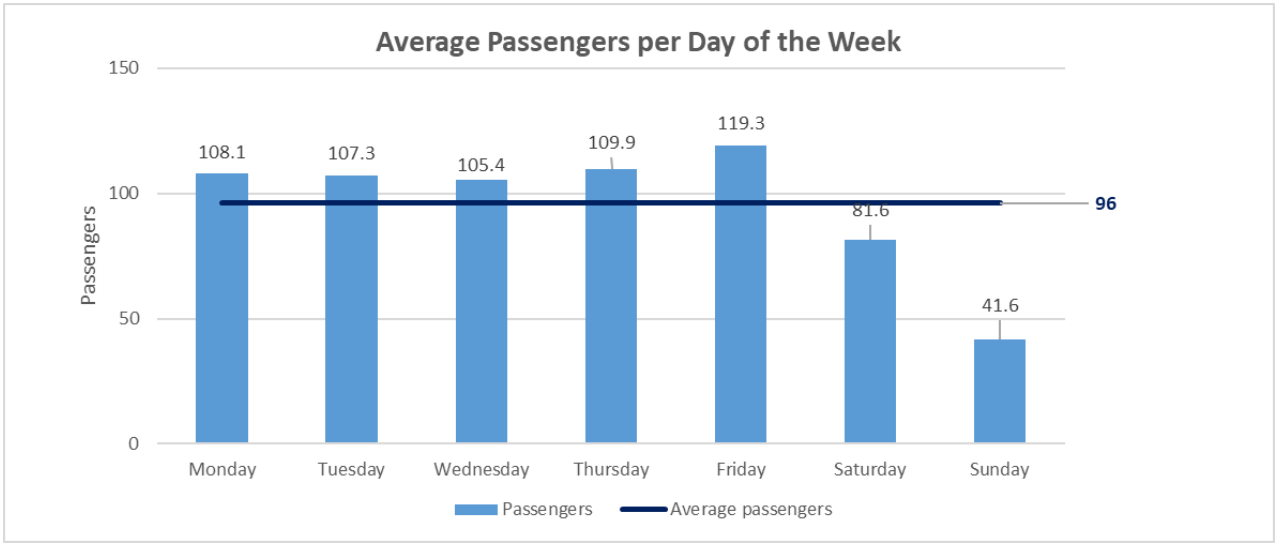
Corridor served by IPOPENG Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	108	R 10.00	R 1 080.63
Tuesday	107	R 10.00	R 1 073.33
Wednesday	105	R 10.00	R 1 053.85
Thursday	110	R 10.00	R 1 099.33
Friday	119	R 10.00	R 1 193.13
Saturday	82	R 10.00	R 815.63
Sunday	42	R 10.00	R 416.25
Weekly total	673		R 6 732.14
Average	96	R 10.00	R 961.73
Weekday Avg	110	R 10.00	R 1 100.05

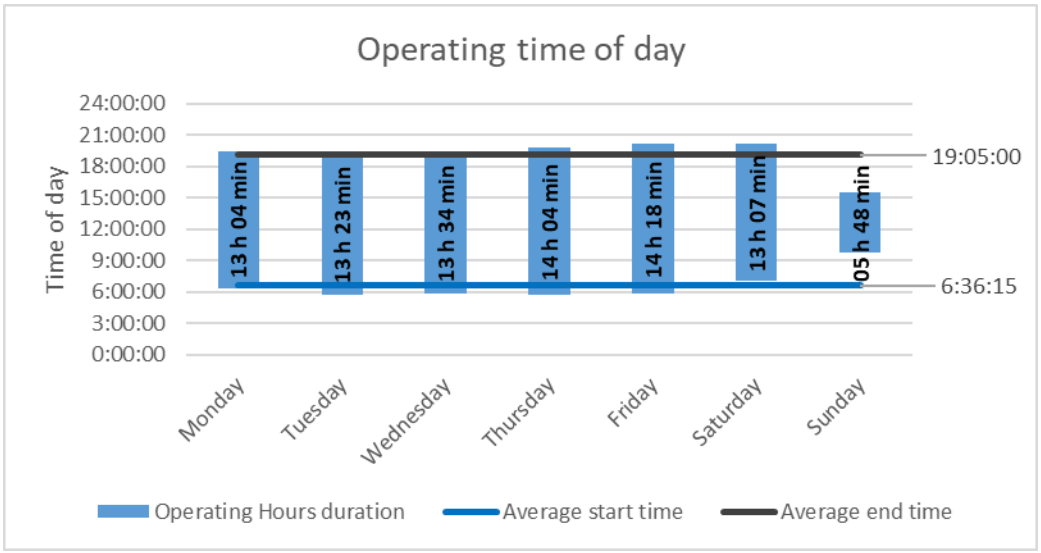




3.3. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	6:36:15	19:05:00	12:28:45
Weekday (Mon-Fri) avg	5:53:37	19:34:45	13:41:08
Monday	6:22:28	19:27:08	13:04:41
Tuesday	5:43:52	19:07:24	13:23:33
Wednesday	5:47:49	19:21:53	13:34:04
Thursday	5:43:15	19:48:08	14:04:53
Friday	5:50:42	20:09:12	14:18:29
Saturday	7:01:52	20:09:25	13:07:33
Sunday	9:43:47	15:31:48	5:48:01


Operating time of day
24:00:00
21:00:00
18:00:00
15:00:00
12:00:00
9:00:00
6:00:00
3:00:00
0:00:00
Time of day
13 h 04 min
13 h 23 min
13 h 34 min
14 h 04 min
14 h 18 min
13 h 07 min
05 h 48 min
19:05:00
6:36:15
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Operating Hours duration
Average start time
Average end time

3.4. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	165	163	R	5.89	42%
Weekday (Mon-Fri) avg	184	184	R	5.99	43%
Monday	180	180	R	5.99	43%
Tuesday	180	180	R	5.95	41%
Wednesday	187	187	R	5.64	41%
Thursday	181	181	R	6.06	43%
Friday	189	189	R	6.32	45%
Saturday	161	152	R	5.36	37%
Sunday	74	74	R	5.66	37%

3.5. Operational analysis

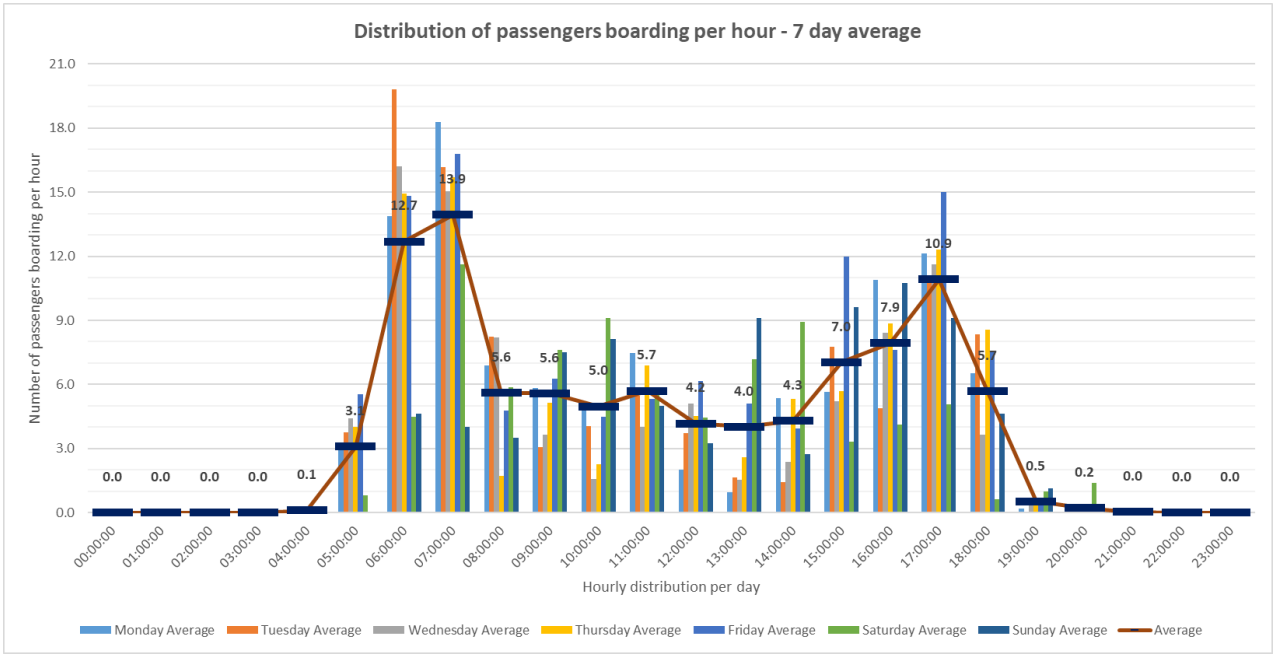
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	163.3	96	1.70	00:08:16	12.1	1100.3	2653.0	42%
Weekday (Mon-Fri) avg	183.5	110	1.67	00:07:53	13.3	1146.0	2698.6	43%
Monday	180.5	108	1.67	00:07:41	13.5	1196.3	2761.8	43%
Tuesday	180.3	107	1.68	00:07:44	13.4	1099.3	2689.1	41%
Wednesday	186.9	105	1.77	00:08:00	13.8	1045.8	2570.0	41%
Thursday	181.3	110	1.65	00:08:13	12.8	1125.9	2619.4	43%
Friday	188.7	119	1.58	00:07:46	13.2	1260.8	2850.7	45%
Saturday	152.0	82	1.86	00:10:02	11.5	885.4	2376.9	37%
Sunday	73.6	42	1.77	00:08:28	6.6	975.5	2655.3	37%

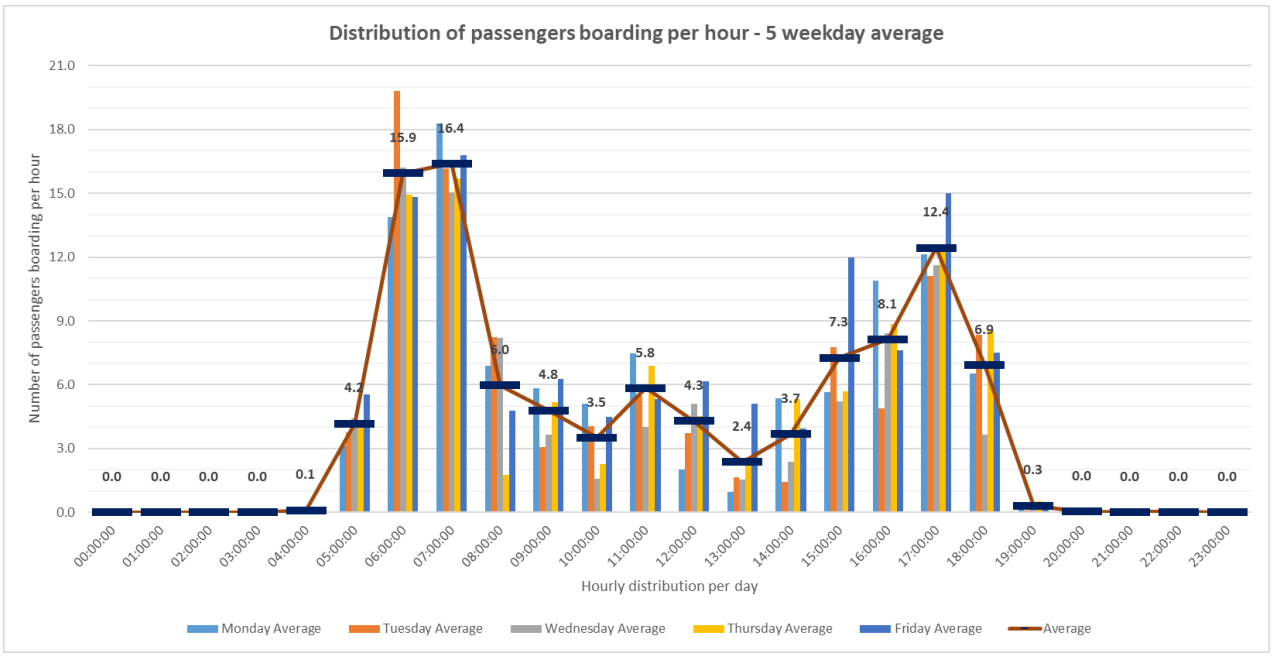
3.6. Fluctuations

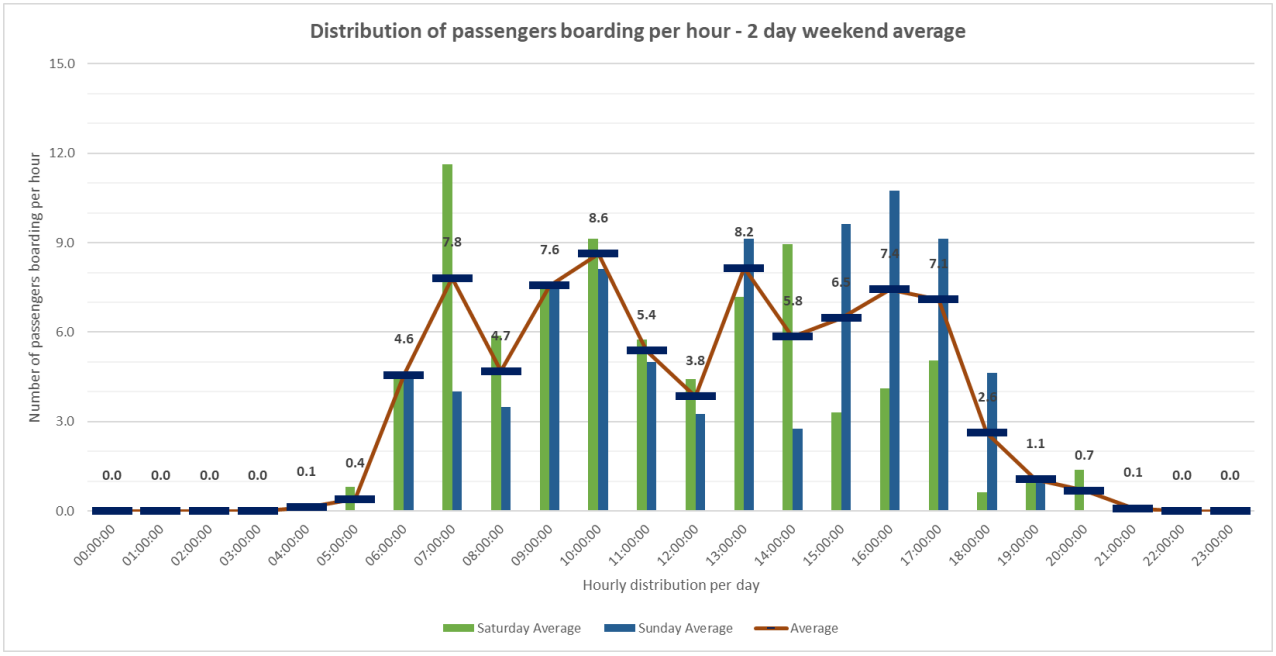
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	0.0	R -	0%
01:00	01:59	0.0	R -	0%
02:00	02:59	0.0	R -	0%
03:00	03:59	0.0	R -	0%
04:00	04:59	0.1	R 0.99	0%
05:00	05:59	3.1	R 30.96	7%
06:00	06:59	12.7	R 126.89	31%
07:00	07:59	13.9	R 139.44	36%
08:00	08:59	5.6	R 56.03	20%
09:00	09:59	5.6	R 55.82	20%
10:00	10:59	5.0	R 49.67	20%
11:00	11:59	5.7	R 57.03	27%
12:00	12:59	4.2	R 41.70	26%
13:00	13:59	4.0	R 40.17	20%
14:00	14:59	4.3	R 42.97	27%
15:00	15:59	7.0	R 70.35	40%
16:00	16:59	7.9	R 79.31	43%
17:00	17:59	10.9	R 109.10	42%
18:00	18:59	5.7	R 56.92	35%
19:00	19:59	0.5	R 5.21	9%
20:00	20:59	0.2	R 2.19	2%
21:00	21:59	0.0	R 0.35	1%
22:00	22:59	0.0	R 0.08	0%
23:00	23:59	0.0	R -	0%

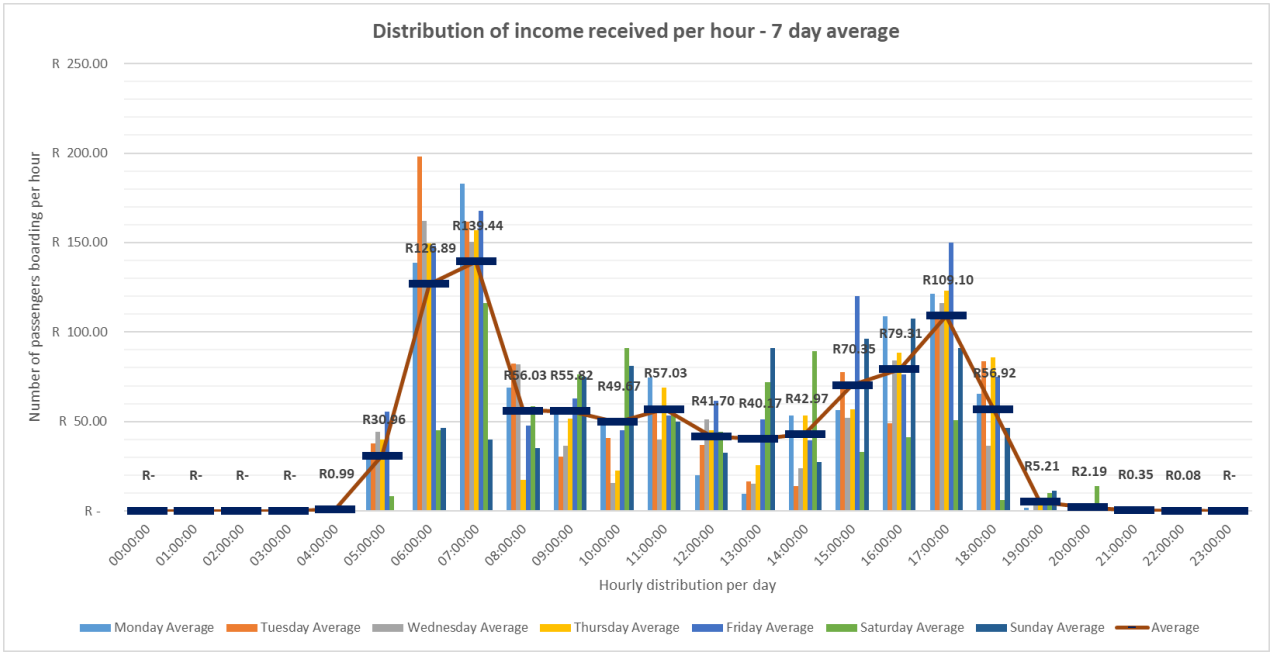
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

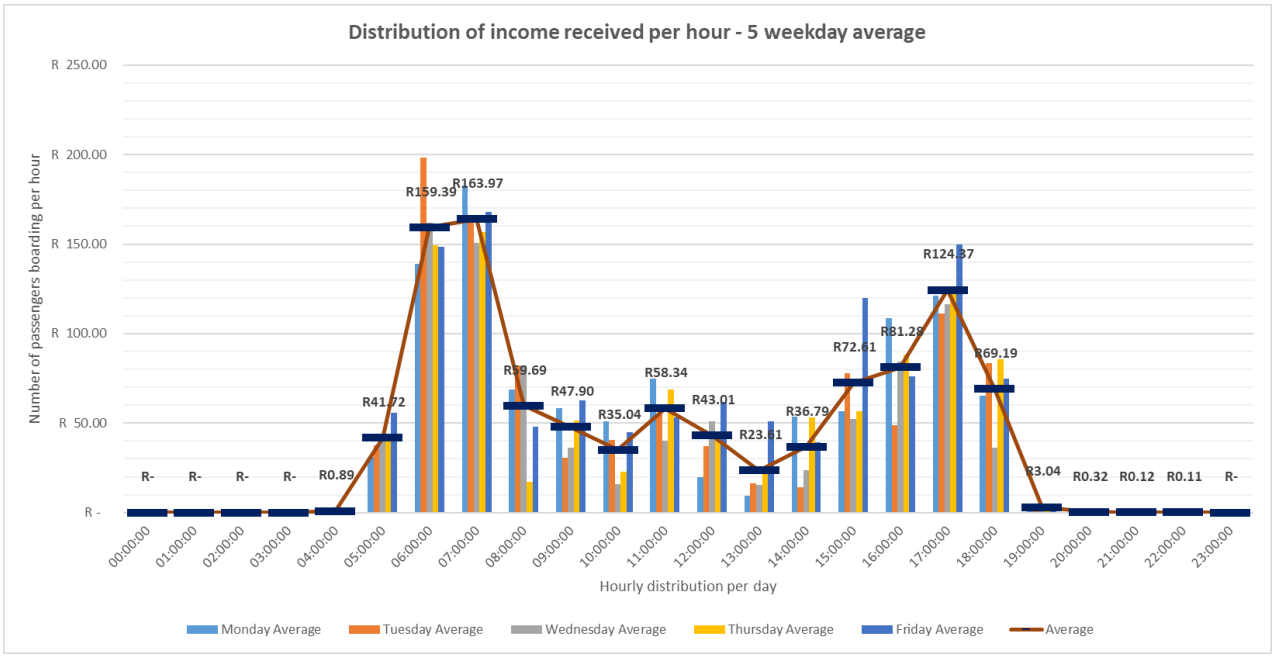


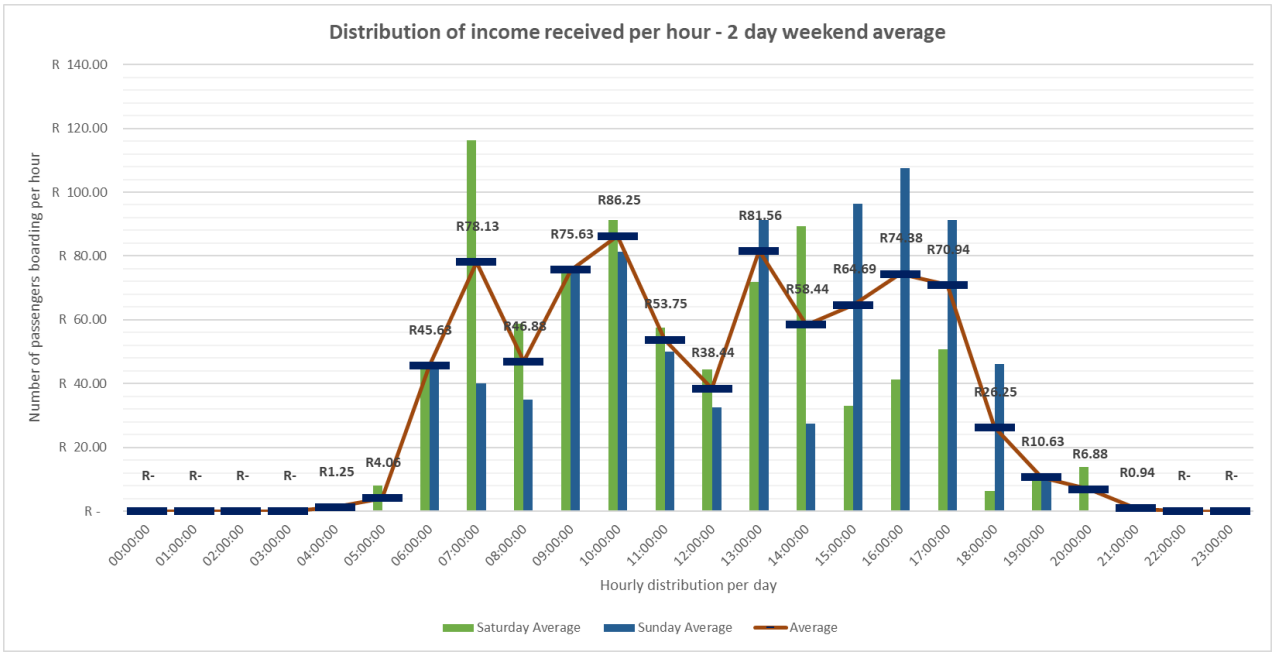




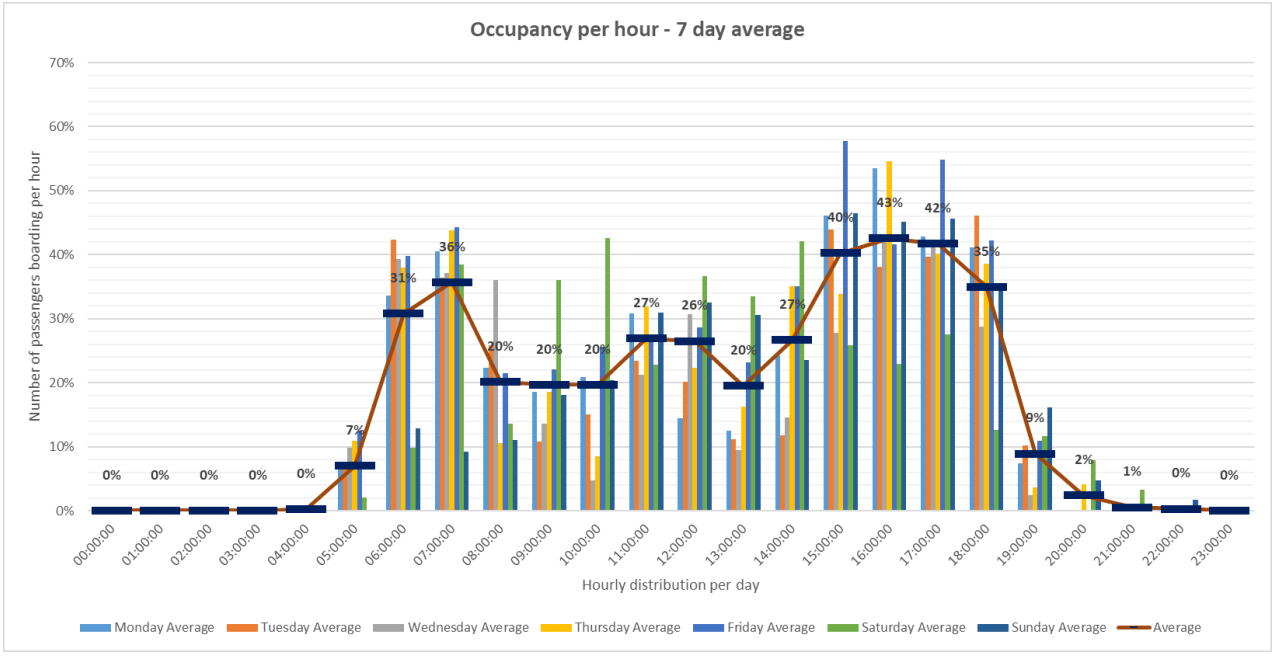
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

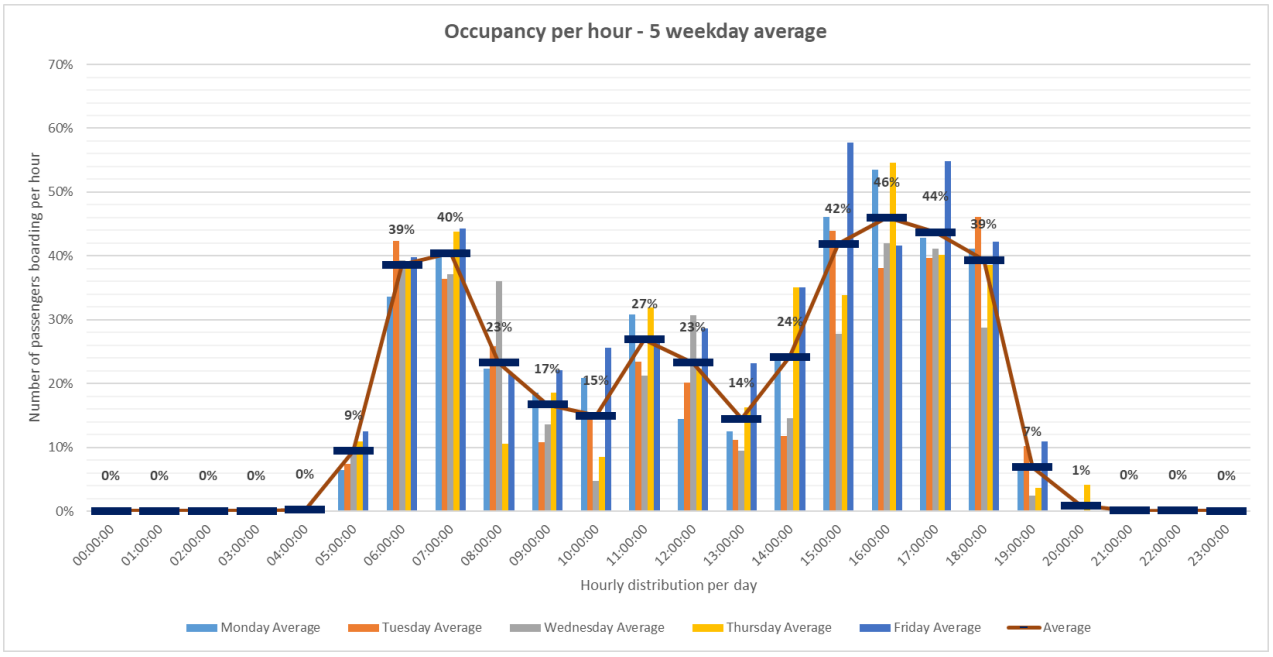


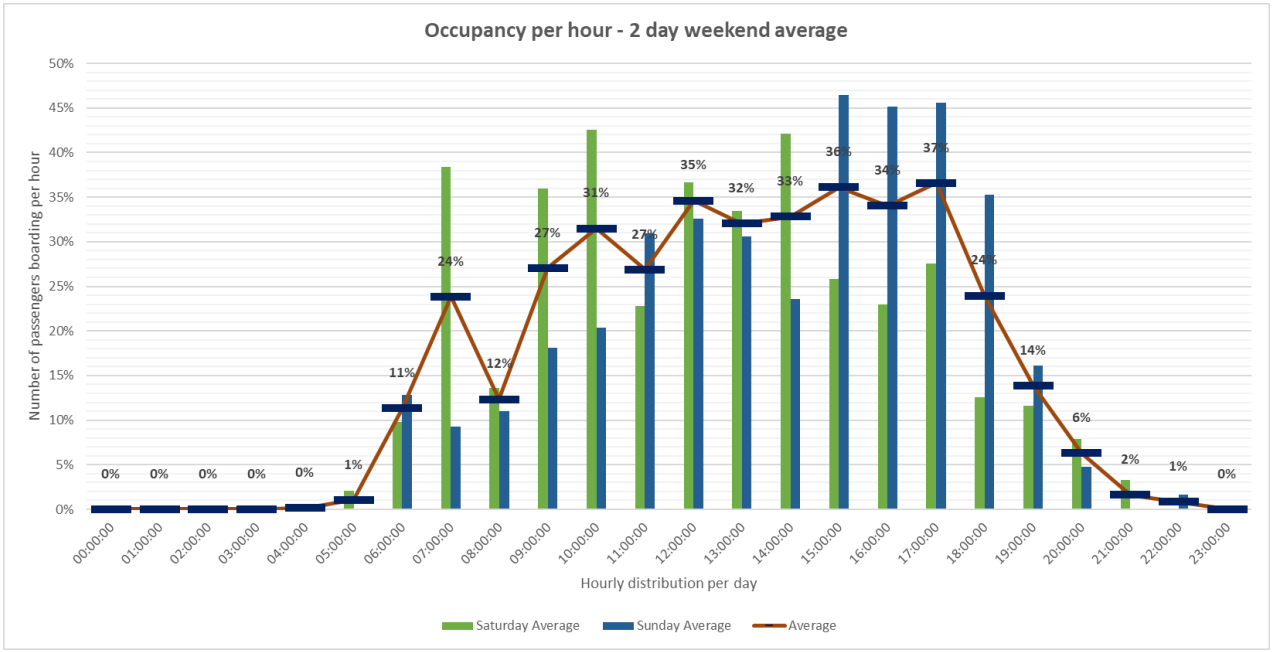

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R- R- R- R- R0.89 R41.72 R159.39 R163.97 R59.69 R47.90 R35.04 R58.34 R43.01 R23.61 R36.79 R72.61 R81.28 R124.37 R69.19 R3.04 R0.32 R0.12 R0.11 R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 140.00
R 120.00
R 100.00
R 80.00
R 60.00
R 40.00
R 20.00
R -
R- R- R- R- R1.25 R4.06 R45.63 R78.13 R46.88 R75.63 R86.25 R53.75 R38.44 R81.56 R58.44 R64.69 R74.38 R70.94 R26.25 R10.63 R6.88 R0.94 R- R-
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

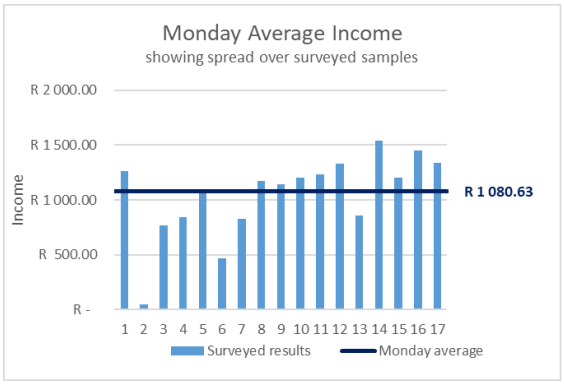


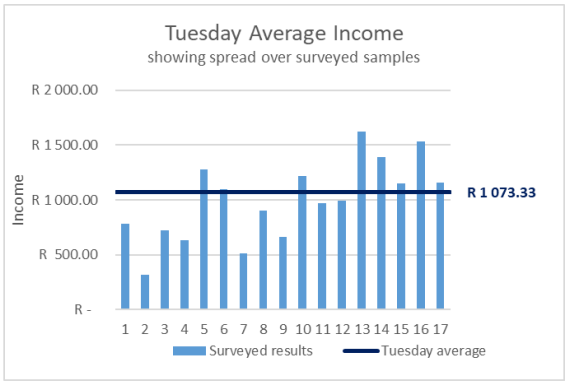


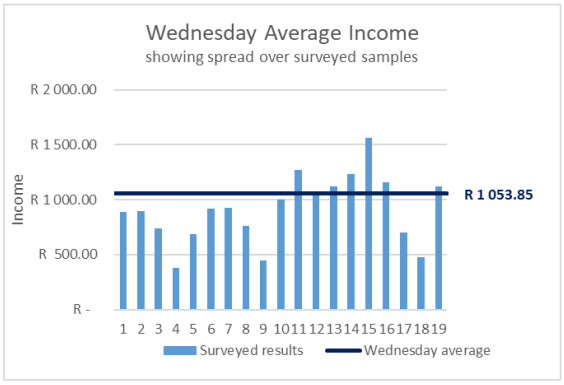

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
0% 0% 0% 0% 0% 1% 11% 24% 12% 27% 31% 27% 35% 32% 33% 36% 34% 37% 24% 14% 6% 2% 1% 0%
00:00:00 01:00:00 02:00:00 03:00:00 04:00:00 05:00:00 06:00:00 07:00:00 08:00:00 09:00:00 10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 22:00:00 23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

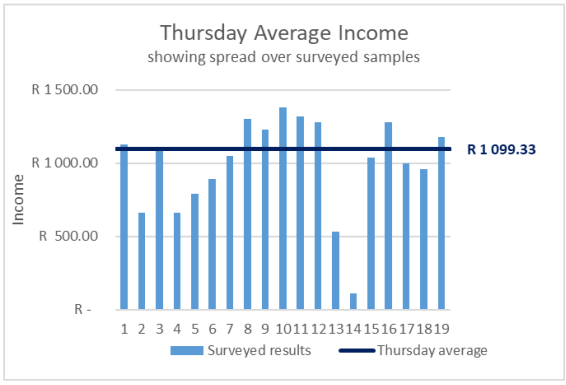
4. DETAILED SURVEY RESULTS

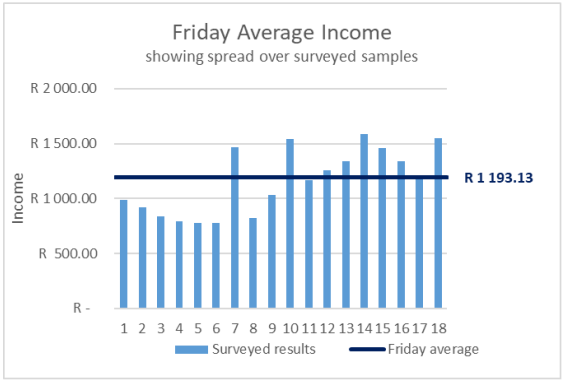
4.1. Income distribution

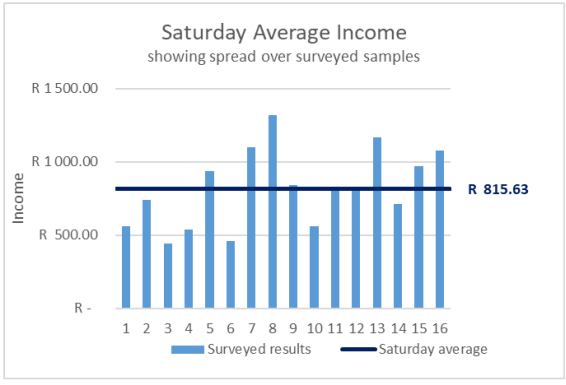


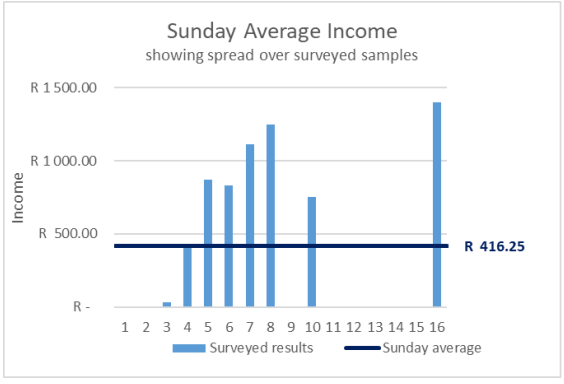




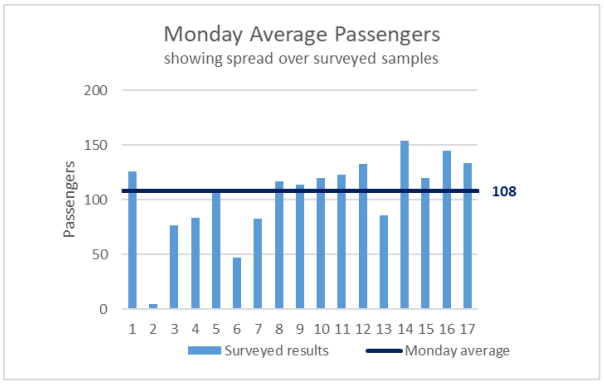


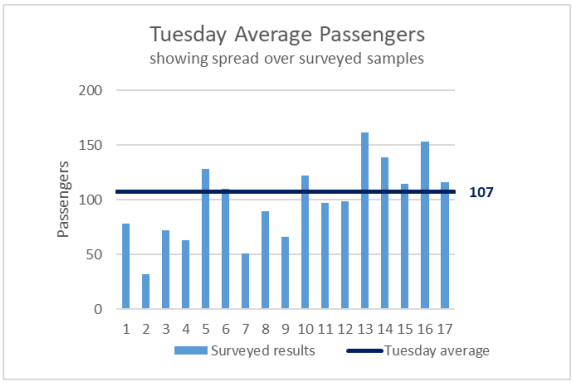


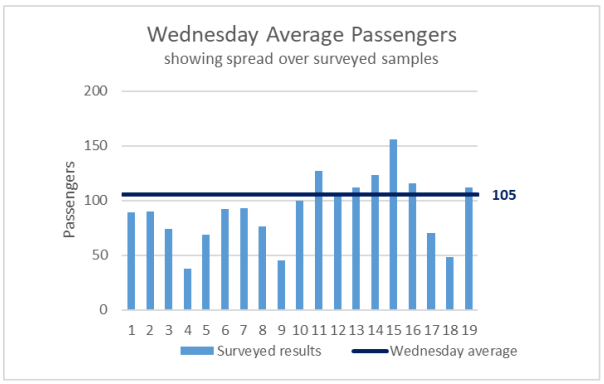


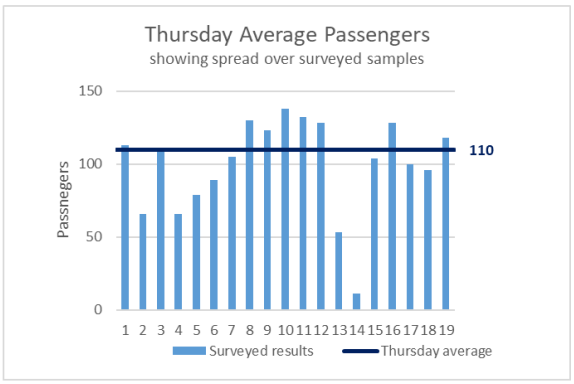


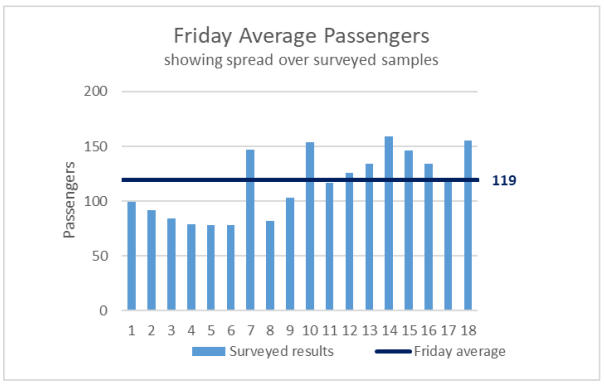
4.2. Passenger number distribution

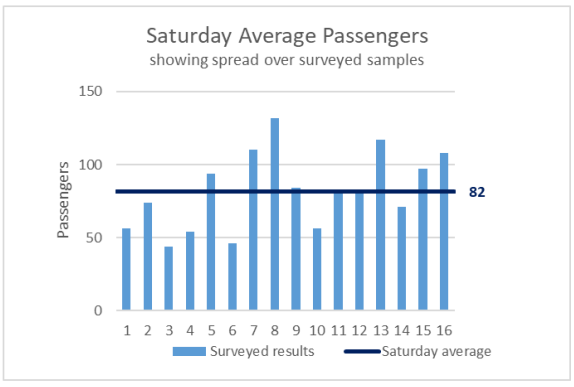


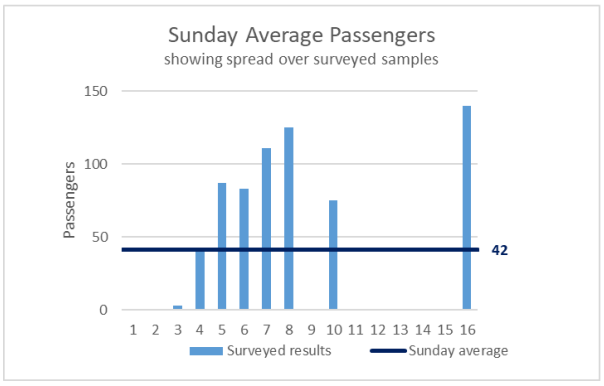










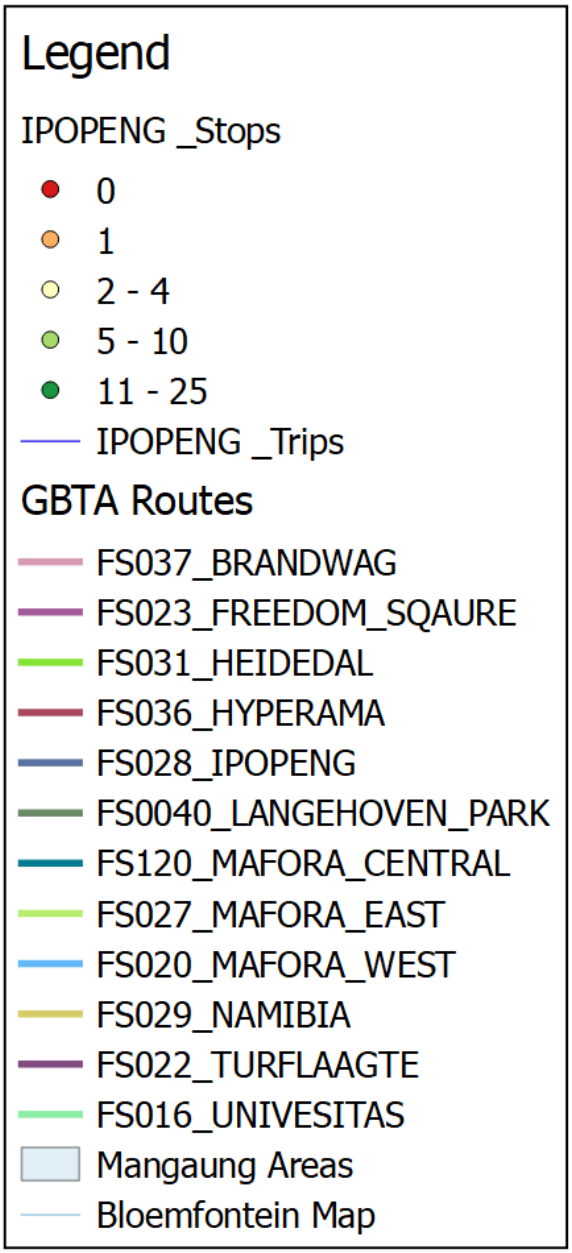


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps



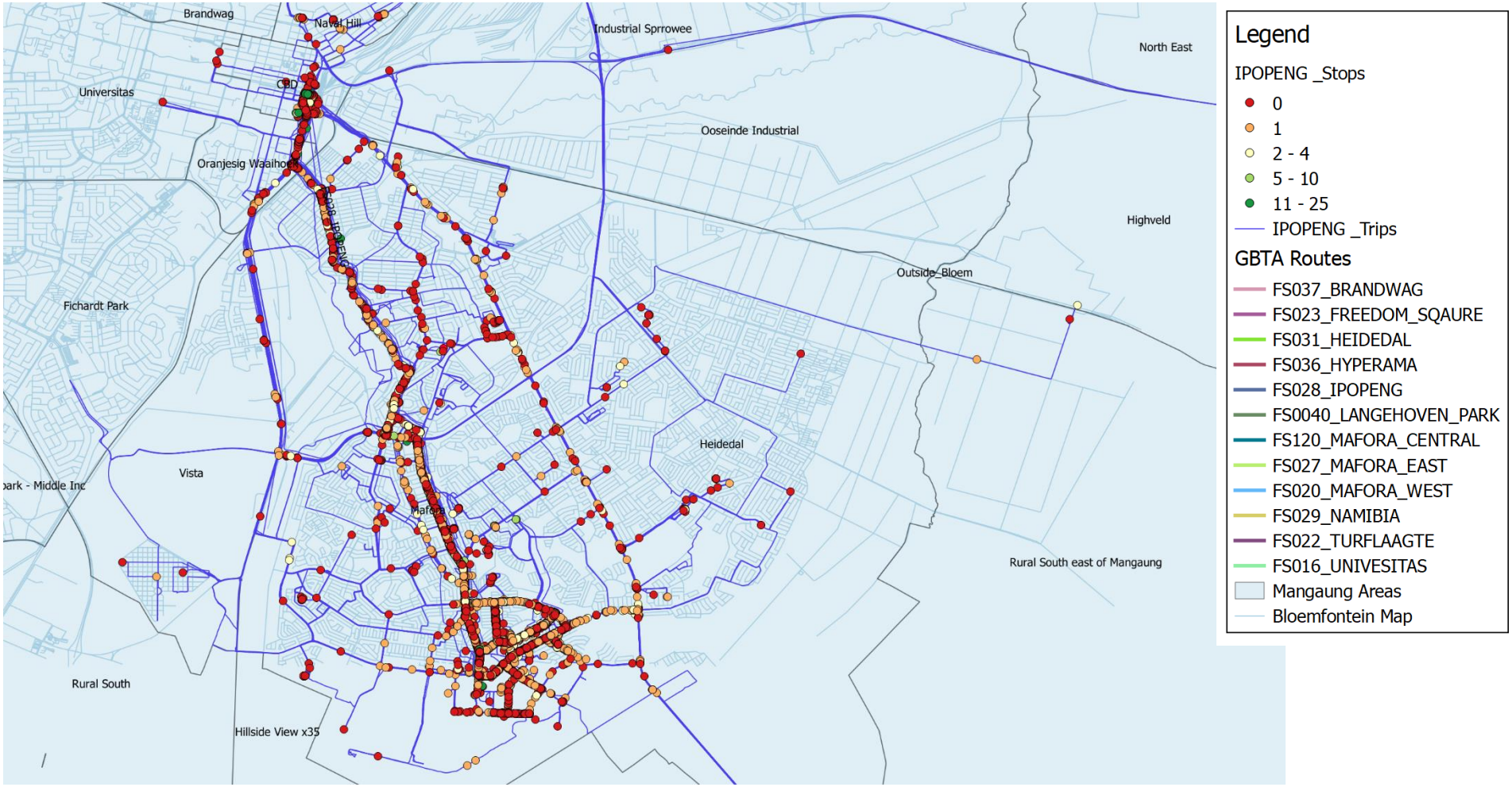
5.1. All surveyed operations

The tracks in blue illustrates the operations of all the surveyed taxis.

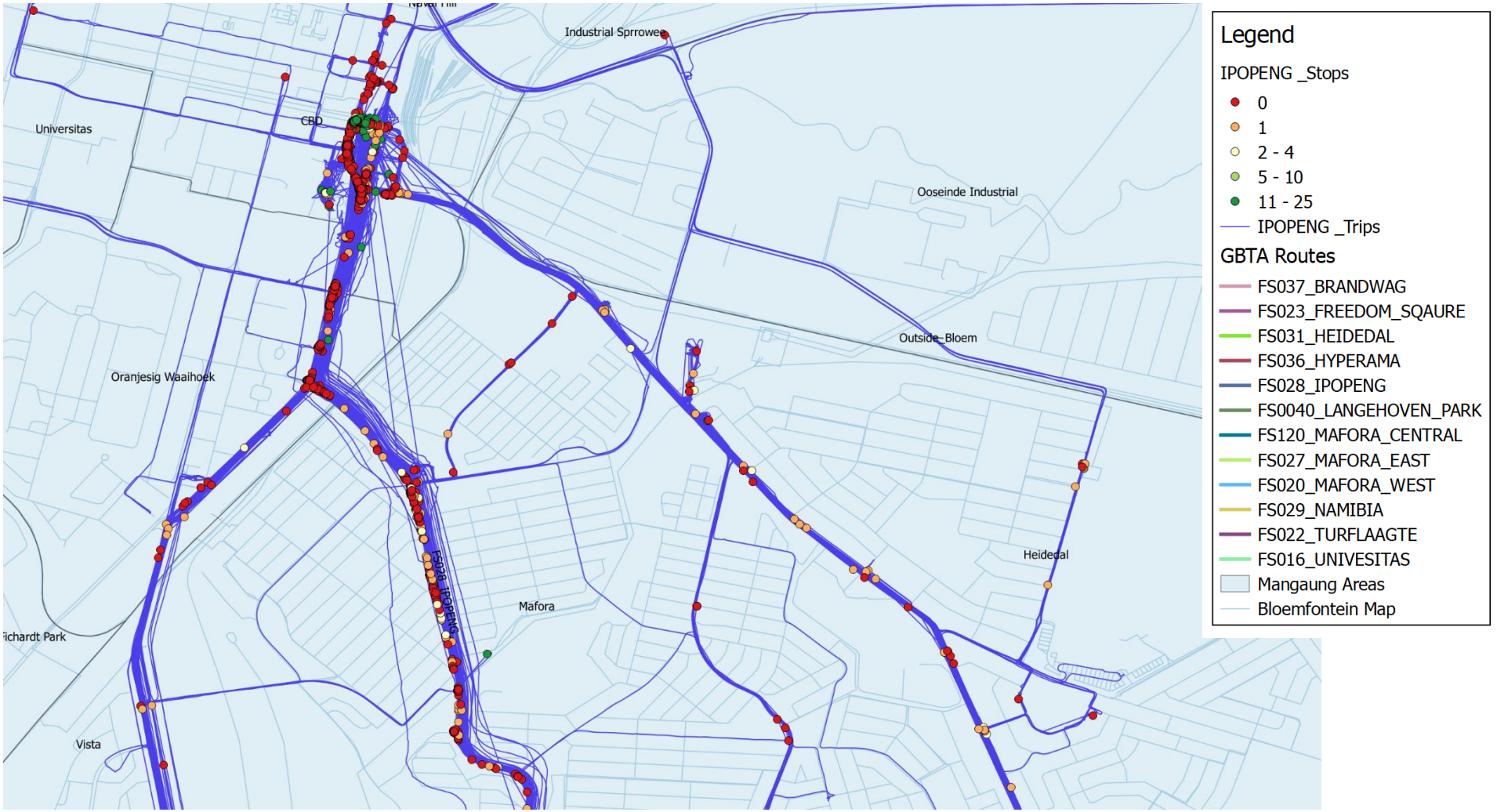
All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

Operations of all surveyed taxis including stops

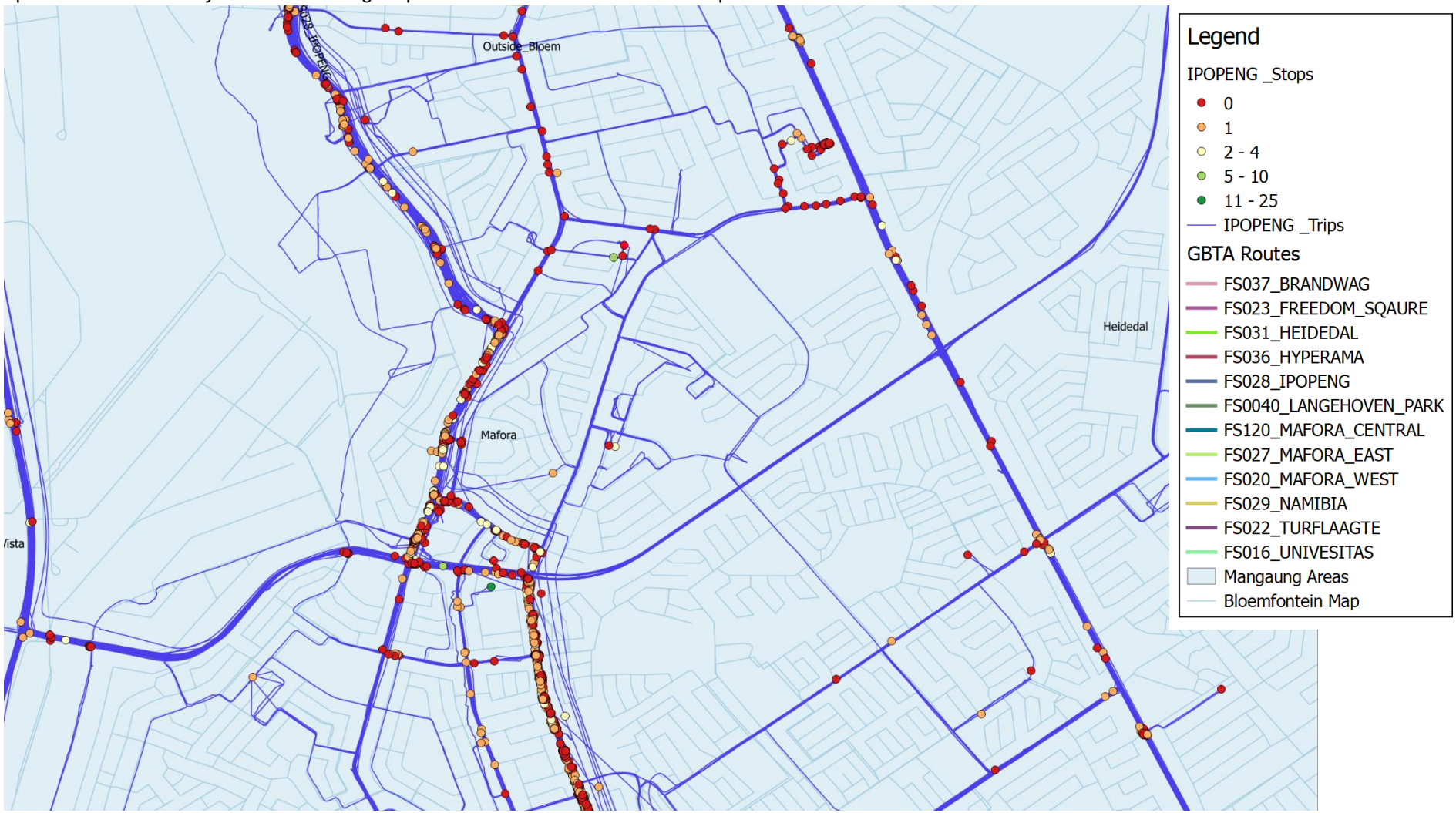
Operations of all surveyed taxis including stops – Focused on the IPOPENG route



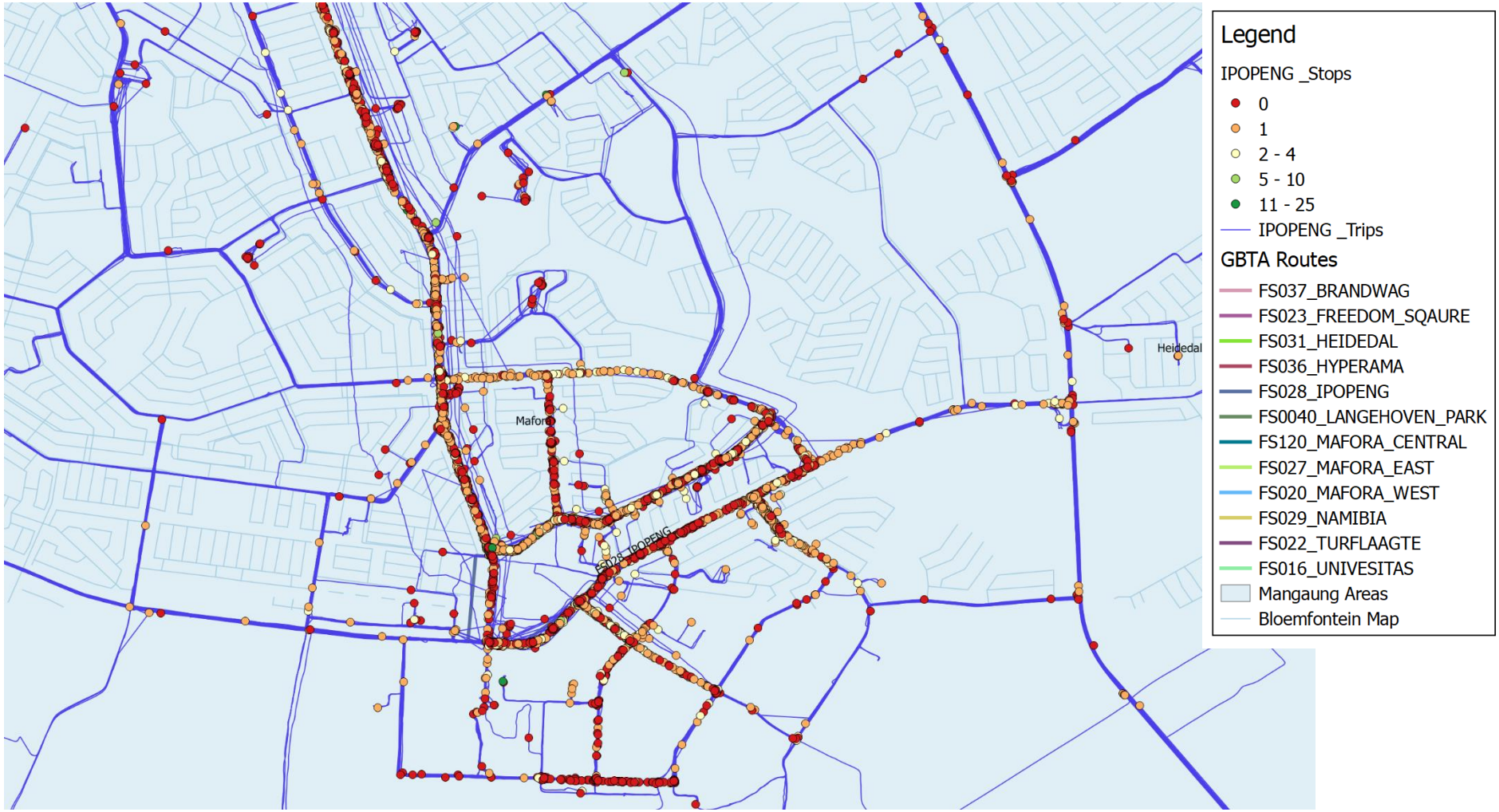
Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the Corner of Maphisa Rd and Moshoeshoe St on the IPOPENG route



Operations of all surveyed taxis including stops – Focused on the IPOPENG area



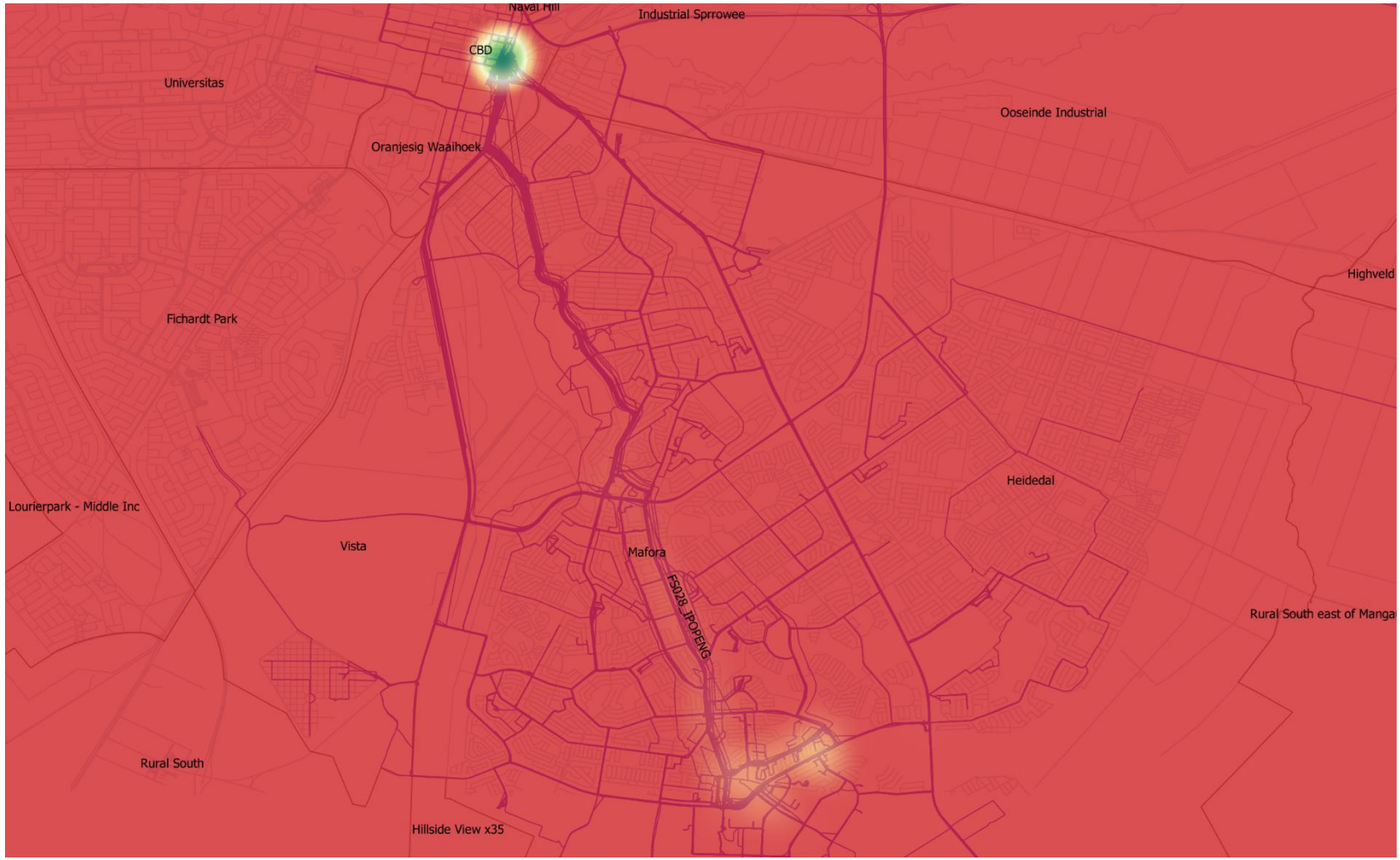
5.2. Heatmaps of taxi operations

The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

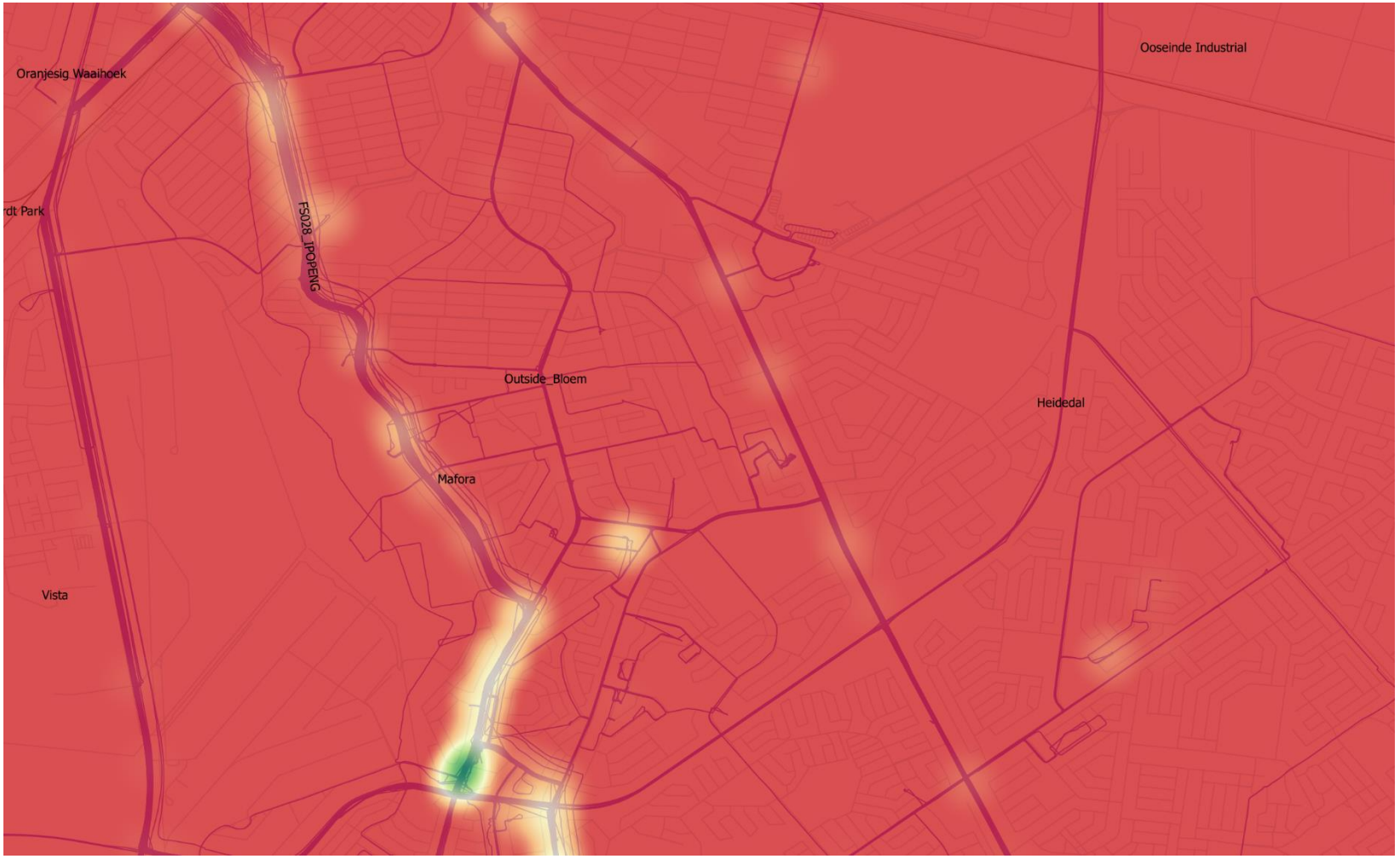
Heatmap of total surveyed area.

Heatmap of total surveyed area – Focused on the IPOPENG route

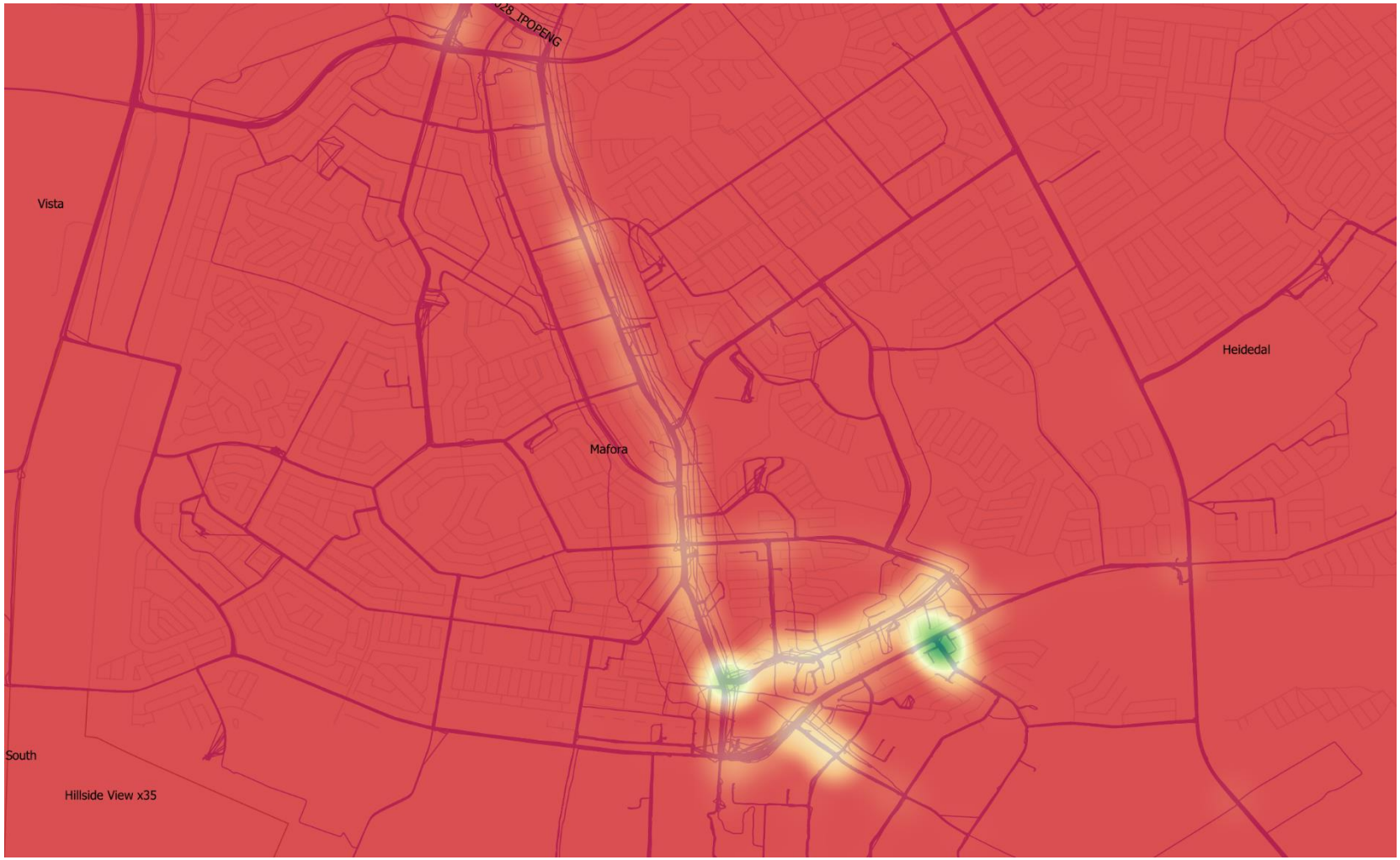


Heatmap of total surveyed area – Focused on the CBD

Heatmap of total surveyed area – Focused on the Corner of Maphisa Rd and Moshoeshoe St on the IPOPENG route



Heatmap of total surveyed area – Focused on IPOPENG



ANNEXURE A

Taxi Operational Profit Calculations (Estimate)

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – LANGENHOVEN PARK

iSAHA

Table of Contents

ROUTE: **LANGENHOVEN PARK**
REPORT DATE: **27 November 2017**

1. INTRODUCTION

The electronic on-board survey results for Langenhoven Park Taxi Route have been used as inputs for the operational profit calculation estimates in this annexure.

At the time of this document the assumptions used in the cost calculations have not been verified by the Langenhoven Park Taxi Route members. An Excel spreadsheet is available where these assumption values can be changed which will reflect a more accurate value for operational profits and or losses.

In all the results, there are 3 possible options, Option A, Option B and Option C.

Option A gives the Operational Profit for a Quantum 14 to 15-seater vehicle.

Option B gives the Operational Profit for an older Siyaya / Hi-Ace 13 – 14-seater vehicle.

Option C gives the Operational Profit for a Sprinter or similar 22-seater vehicle.

There are also 2 scenarios for each Option.

Scenario 1: The Owner pays the driver a salary.

Scenario 2: The driver pays the owner a daily usage fee to operate the taxi. The driver pays for fuel and oil and the owner pays for the rest.

2. CALCULATED RESULTS

2.1. Average Monthly Operating Profit

Below demonstrates the Average operating profit for a vehicle.

	Option A		*Option C*	
Average operating income per month	**R 31 963.34**		**R 43 302.53**	
Average operating income per day		R 1 054.55		R 1 428.65
Cost of operations per month	**R 20 330.14**		**R 24 545.47**	
Cost of operations per day		R 667.66		R 806.09
Operational cost - Fuel & Oil	*R 9 060.46*	*R 297.55*	*R 9 622.54*	*R 316.01*
Operational cost - Maintenance	*R 4 090.34*	*R 134.33*	*R 5 034.59*	*R 165.34*
Fixed cost	*R 6 721.00*	*R 220.72*	*R 9 430.00*	*R 309.69*
Overhead cost	*R 458.33*	*R 15.05*	*R 458.33*	*R 15.05*
Average monthly operating profit*	**R 11 633.20**		**R 18 757.06**	
Average daily operating profit *		R 386.89		R 622.56

** Excluding driver salary*
Excluding payments to owner

2.2. Scenario 1 result

Below demonstrates Scenario 1.

Scenario 1

Driver Salary	**R 5 000.00**	**R 5 000.00**
Average monthly operating profit	**R 11 633.20**	**R 18 757.06**
Driver Salary	**R 5 000.00**	**R 5 000.00**
Monthly profit to Owner	**R 6 633.20**	**R 13 757.06**

2.3. Scenario 2 result

Below demonstrates Scenario 2.

Scenario 2

Daily usage fee paid by the driver to the owner:				
Total usage fee paid to owner per month	**R**	**17 617.50**	**R**	**21 097.50**
Average operating income per month	**R**	**31 963.34**	**R**	**43 302.53**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**21 097.50**
Usage cost per month (fuel, oil)	**R**	**9 060.46**	**R**	**9 622.54**
Monthly profit to Driver	**R**	**5 285.37**	**R**	**12 582.48**
Monthly usage fee to Owner	**R**	**17 617.50**	**R**	**21 097.50**
Maintenance cost per month	R	4 090.34	R	5 034.59
Fixed cost per month	R	6 721.00	R	9 430.00
Overhead cost per month	R	458.33	R	458.33
Monthly profit to Owner (scenario 2)	**R**	**6 347.83**	**R**	**6 174.57**

3. INCOME SUMMARY

The income average used is based on the results from the electronic on-board survey.

Daily income			
	Option A	*Option B*	*Option C*
	Average income per day	Average income per day	Average income per day
Monday	R 1 228.33	R -	R 1 161.67
Tuesday	R 1 000.00	R -	R 1 436.00
Wednesday	R 1 165.00	R -	R 1 390.00
Thursday	R 1 172.50	R -	R 1 361.25
Friday	R 1 104.00	R -	R 1 986.67
Saturday	R 1 206.00	R -	R 1 530.00
Sunday	R 506.00	R -	R 1 135.00
Total weekly income	**R 7 381.83**	**R -**	**R 10 000.58**
Average daily income	**R 1 054.55**	**R -**	**R 1 428.65**

4. COST CALCULATIONS

4.1. General information

	Option A			*Option C*		
General information						
Vehicle type	Quantum 15 Seater			Sprinter 22 Seater		
Average km driven per day	183		km	195		km
Cost of fuel	R	14.00	per litre	R	14.00	per litre
Cost of oil	R	60.00	per 500 ml	R	60.00	per 500 ml

4.2. Operational Cost

Operational cost assumptions - usage cost, fuel and oil
Operational cost

Usage cost assumptions					
Scenario 2					
Fuel consumption	10	km / litre		10	km / litre
Oil consumption: one 500ml can of oil every	2	days		2	days
Fuel and Oil usage per day	**R**	**297.55**		**R**	**316.01**
Fuel and Oil usage per month	**R**	**9 060.46**		**R**	**9 622.54**

Maintenance cost assumptions					
These expenses are always for the owner's account					
Main service cost	R	3 500.00		R	6 000.00
Number of main services		2	per year		1	per year
Minor service cost	R	1 400.00		R	4 000.00
Number of minor services		6	per year		2	per year
Wheel maintenance cost	R	2 000.00		R	5 000.00
(brake pads, wheel cylinder, etc)					
Number of wheel maintenances		4	per year		3	per year
Wheel alignment cost	R	360.00		R	360.00
Number of wheel alignments		12	per year		12	per year
Price of tyres	R	1 350.00	per tyre	R	2 500.00	per tyre
Tyre lifespan		30 000.00	km		60 000.00	km
Upholstery, cost of replacement	R	2 200.00		R	2 200.00
Number of times upholstery is replaced		2	per year		2	per year
Unforeseen cost (average per event)	R	2 300.00		R	2 300.00
(interior, parts, exhaust, auto-electrical, windows, starter, etc)					
Number of times of unforeseen expenses		1	per year		1	per year
Cost of cleaning, per event	R	50.00		R	50.00
Number of times cleaning is done		52	per year		52	per year
Maintenance: average cost per day	**R**	**134.33**		**R**	**165.34**
Maintenance: average cost per month	**R**	**4 090.34**		**R**	**5 034.59**

4.3. Fixed cost

Fixed cost *operations of the vehicle*						
Insurance installment	R	18 000.00	per year	R	22 000.00	per year
Insurance excess amount in case of a claim	R	5 000.00	per year	R	5 000.00	per year
Monthly vehicle installments (financing)	R	55 560.00	per year	R	83 340.00	per year
Vehicle licence fees cost	R	1 500.00	per year	R	1 700.00	per year
Roadworthy test cost	R	480.00	per year	R	960.00	per year
Operating licence cost, once every 5 years	R	12.00		R	60.00	
Monthly association fee	R	100.00	per year	R	100.00	per year
Fixed cost: average cost per day	**R**	**220.72**		**R**	**309.69**	
Fixed cost: average cost per month	**R**	**6 721.00**		**R**	**9 430.00**	

4.4. Overhead Cost

Overhead cost assumptions	*Overhead cost is the ongoing expenses of operating the business*					
Number of taxis in fleet			3			3
Equipment and tools	*(computers, software, tools)*	R	2 000.00	per year	R	2 000.00 per year
Communication	*(landlines, cellphones, internet connections)*	R	2 000.00	per year	R	500.00 per year
Security	*(security, parking fees)*	R	500.00	per year	R	500.00 per year
Bank cost	*(monthly bank account fees, cash deposit fees)*	R	1 000.00	per year	R	1 000.00 per year
Overhead cost: average cost per day per taxi		**R**	**15.05**		**R**	**15.05**
Overhead cost: average cost per month per taxi		**R**	**458.33**		**R**	**458.33**

ELECTRONIC ON-BOARD SURVEY

Results

MANGAUNG

AT THE HEART OF IT ALL

Survey results for

Taxi Route – LANGENHOVEN PARK

iSAHA

Table of Contents

ROUTE: LANGENHOVEN PARK
REPORT DATE: 23 November 2017

1. BACKGROUND

An on-board survey was conducted by means of electronic in-vehicle equipment and back-office processing and analysis.

The data collected from the survey included the routes travelled by the taxis and the passenger numbers boarding and alighting the taxis recorded with time and position information.

The positional information is recorded with an electronic on-board GPS device, which was fitted into the vehicle. The GPS information started recording only when the taxi was switched on.

The aim of the survey is to record the normal daily operations of minibus taxis for a period of 12 days and report on 7 days of operation. Operations for each day of the week was recorded and the average results for each day of the week are portrayed in this report.

2. SURVEY INFORMATION

2.1. Period

12 taxis were surveyed between the following dates:
Cycle 1: 21 February 2017
Cycle 10: 20 July 2017

2.2. Assumptions

The following assumptions were made in the analysis and calculations:

1. **A flat fare was paid per passenger per trip**
   a. Bloemfontein uses a flat fare of R10.00 on this route.
2. **Private** passengers were defined as follow:
   a. Private passengers 1: Passengers transported outside of the normal working area or time of the taxi. E.g. friends of the driver travelling late at night to a residence.
   b. Private passengers 2: Passengers traveling on a trip which originates or ends outside the official routes of the relevant association. E.g. passengers on a trip to Johannesburg.
3. **% Private passengers:** The number of passenger on a trip outside the official routes as a percentage of the total number of passengers who boarded the taxi
4. **PasKm:** Passenger Kilometre (PKM) is a measure of movement of passengers by a mode of

transport. It is calculated as: PKM = TPC x TDC. Where, TPC is Total Passengers Carried measured in terms of number of passengers and, TDC is the Total Distance Covered measured in kilometres.

PasKM = Onboard x Operating Km

5. **SeatKms:** Seat kilometres (SK) is a measure of a minibus's passenger carrying capacity. It is equal to the number of seats available multiplied by the number kilometres travelled.

   SeatKms = Capacity of vehicle x Operating Km

6. **Occupancy:** The proportion of seats occupied or used.

   Occ = PasKm / SeatKms

7. **DeadKm:** The number of Kms travelled with no passengers onboard
8. **PrivateKm:** The number of Kms travelled outside of the survey area.
9. **Trip:** The route travelled between one stop to the next stop.

2.3. Remark about the survey

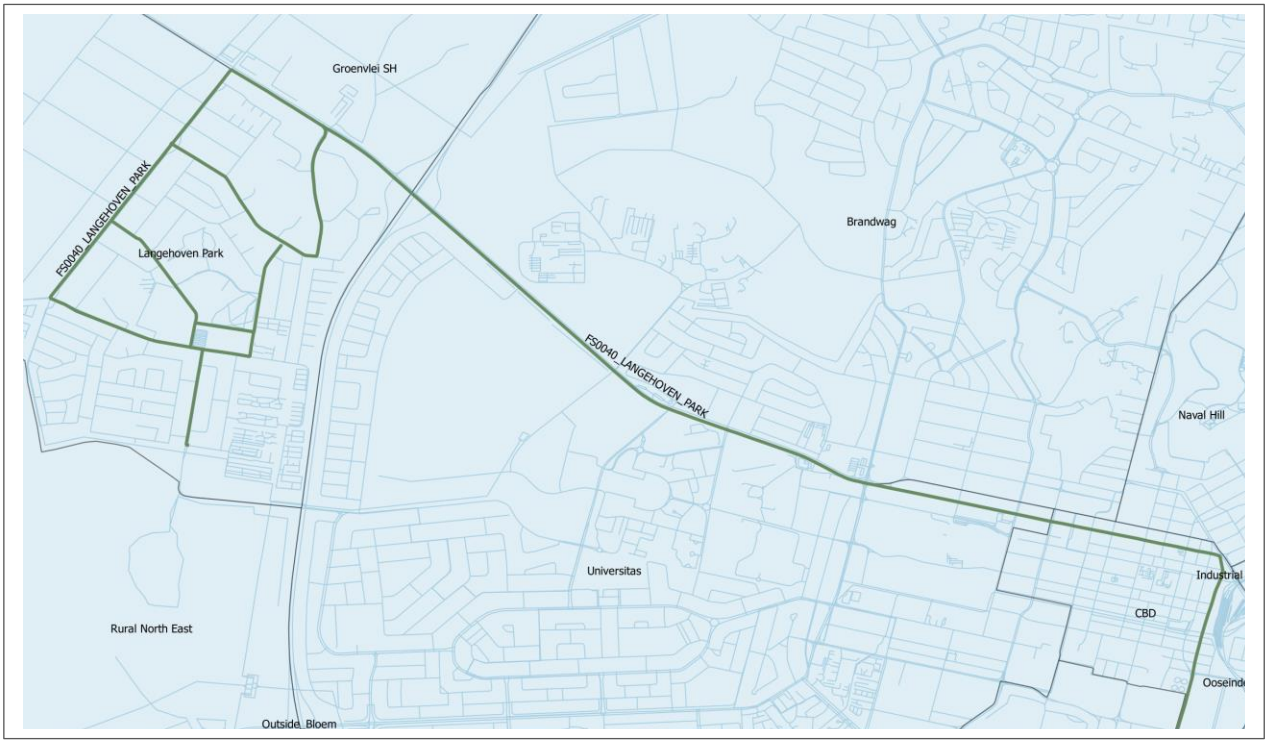
A total of 12 vehicles were surveyed between cycle 1 and cycle 10. 11 vehicles had 6 or more consecutive days of data and 1 vehicle did not have sufficient data.

3. RESULTS

3.1. Summary

The following average income from fare-paying passengers is the result from the on-board survey analysis:

Period	Value	Note
Average daily income	R 1 261.23	Per day for 7 days, covering each day of the week As determined from survey
Average weekly income	R 8 828.61	Per week As determined from survey
Average monthly income	R 38 227.86	Calculated from weekly result Formula: 4.33 x weekly average
Average annual turnover	R428 187.39	Calculated from weekly result Formula: 48.5 x weekly average

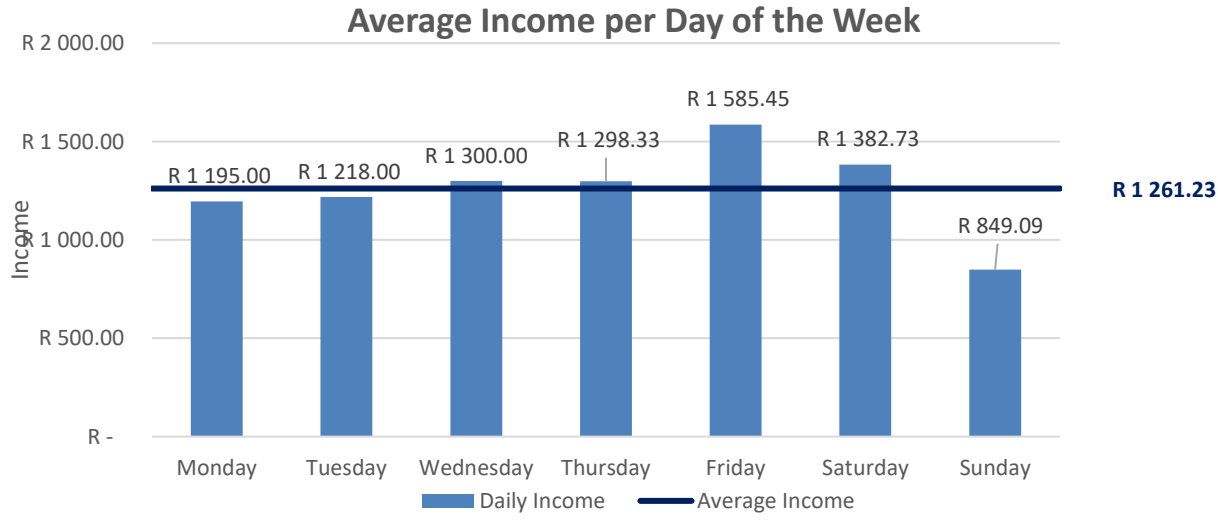


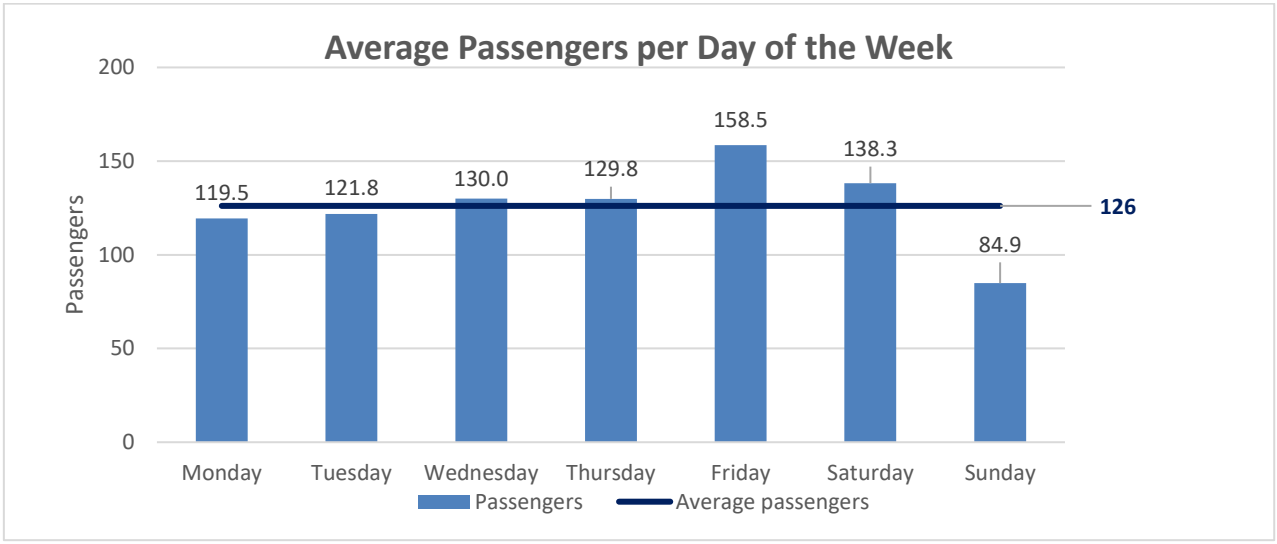
Corridor served by LANGENHOVEN PARK Route

3.2. Daily average income

The average income per day over a spread of seven days are supplied in the table below:

	Average number of fare-paying passengers per day	Average Fare	Average daily income
Monday	120	R 10.00	R 1 195.00
Tuesday	122	R 10.00	R 1 218.00
Wednesday	130	R 10.00	R 1 300.00
Thursday	130	R 10.00	R 1 298.33
Friday	159	R 10.00	R 1 585.45
Saturday	138	R 10.00	R 1 382.73
Sunday	85	R 10.00	R 849.09
Weekly total	883		R 8 828.61
Average	126	R 10.00	R 1 261.23
Weekday Avg	132	R 10.00	R 1 319.36

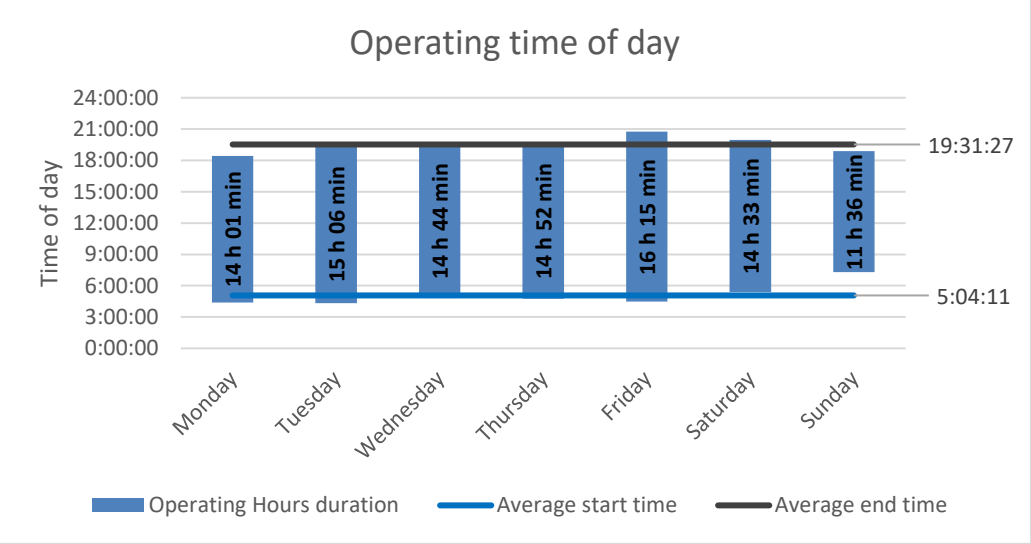



Average Passengers per Day of the Week
200
150
100
50
0
Passengers
119.5
121.8
130.0
129.8
158.5
138.3
84.9
126
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Passengers
Average passengers

3.3. Daily operating times

The following table and graph show the starting and ending times of the taxis surveyed.

Operating time			
	Average start time	**Average end time**	**Operating Hours duration**
Daily (Mon - Sun) avg	5:04:11	19:31:27	14:27:16
Weekday (Mon-Fri) avg	4:33:41	19:33:47	15:00:05
Monday	4:24:09	18:25:36	14:01:27
Tuesday	4:20:35	19:26:38	15:06:03
Wednesday	4:49:54	19:34:37	14:44:44
Thursday	4:44:42	19:37:27	14:52:45
Friday	4:29:07	20:44:36	16:15:28
Saturday	5:23:14	19:57:05	14:33:51
Sunday	7:17:36	18:54:11	11:36:35



3.4. Distances travelled

The average distances travelled during operations are illustrated in the table below, together with the average vehicle occupancy per km.

Distances travelled and vehicle occupancy					
	Average of total km travelled	Average of operating km on Mangaung network	Average revenue per km		Vehicle Occupancy
Daily (Mon - Sun) avg	189	189	R	6.68	48%
Weekday (Mon-Fri) avg	186	186	R	7.11	50%
Monday	166	166	R	7.22	48%
Tuesday	175	175	R	6.98	49%
Wednesday	176	176	R	7.40	50%
Thursday	186	186	R	6.96	48%
Friday	226	226	R	7.02	54%
Saturday	251	251	R	5.52	46%
Sunday	142	142	R	5.98	41%

3.5. Operational analysis

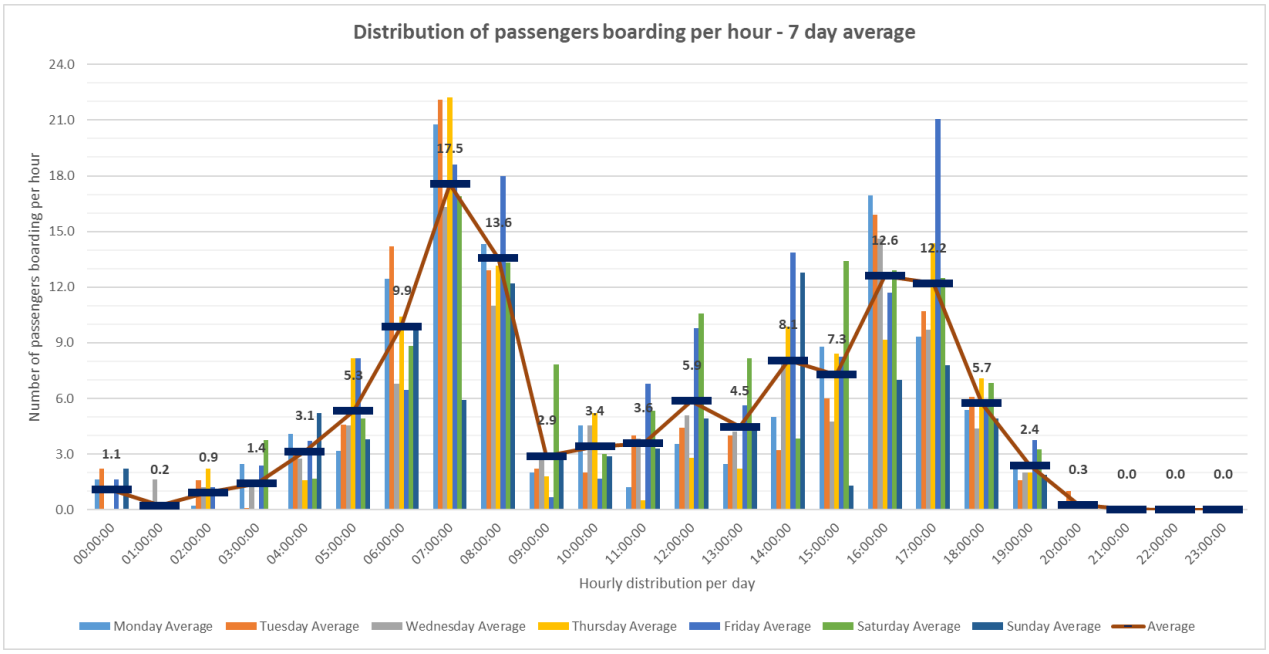
Operational analysis								
	Average of operating km on Mangaung network	Average number of paying passengers per day	Kms / Passenger	Service Frequency	Operating Speed	Passenger km	Seat kms	Vehicle Occupancy
Daily (Mon - Sun) avg	188.7	126	1.50	00:11:12	13.2	1865.9	3859.3	48%
Weekday (Mon-Fri) avg	185.7	132	1.41	00:11:14	12.8	1806.2	3573.9	50%
Monday	165.6	120	1.39	00:10:56	13.7	1544.1	3177.5	48%
Tuesday	174.5	122	1.43	00:12:48	11.6	1657.6	3422.5	49%
Wednesday	175.7	130	1.35	00:11:13	12.1	1560.5	3083.4	50%
Thursday	186.5	130	1.44	00:11:11	12.5	1632.7	3455.2	48%
Friday	226.0	159	1.43	00:10:03	13.9	2447.3	4460.5	54%
Saturday	250.7	138	1.81	00:09:16	17.7	2252.9	4960.4	46%
Sunday	142.0	85	1.67	00:12:58	10.9	1572.7	3780.9	41%

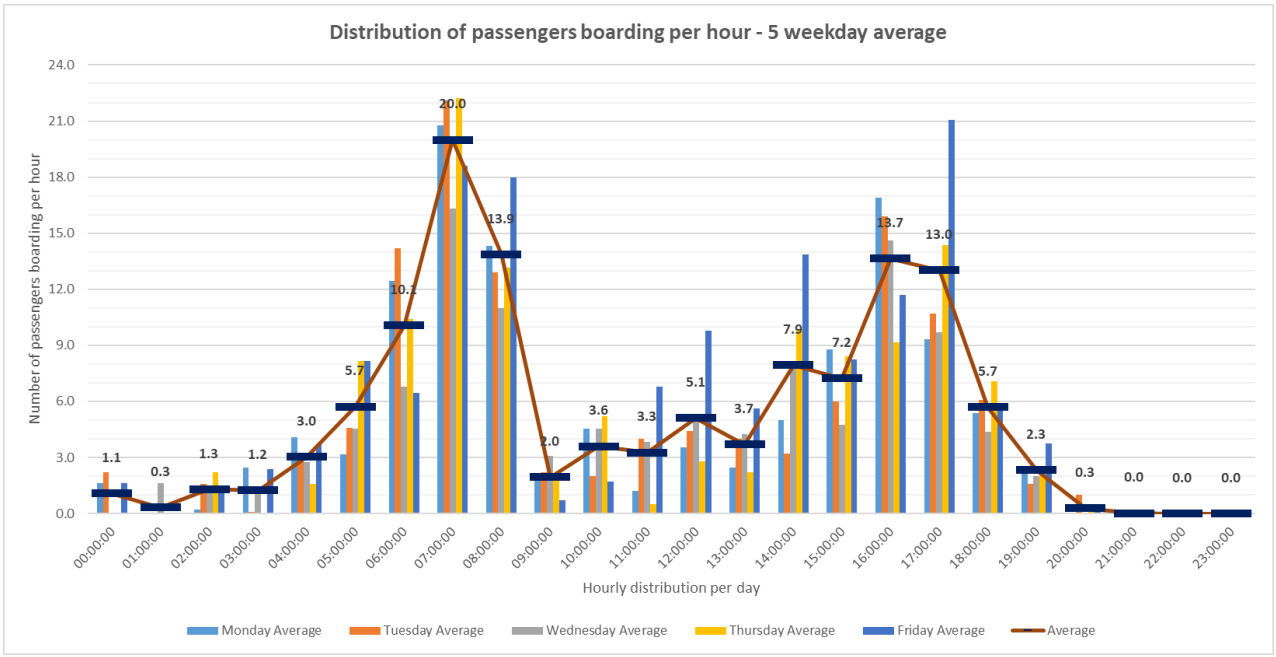
3.6. Fluctuations

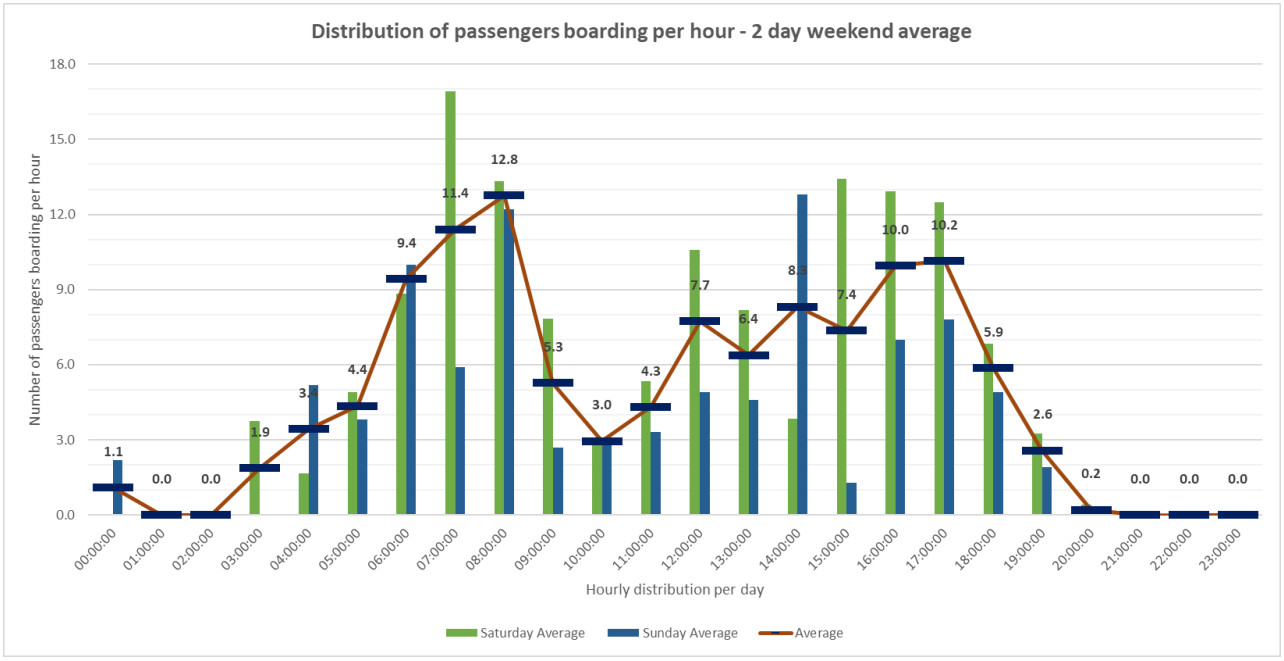
The operational fluctuations during a single day of operation is shown in the table and following graphs.

Operating slot		Number of passengers boarding per hour	Average income per hour	Occupancy per hour
From	To			
00:00	00:59	1.1	R 10.90	2%
01:00	01:59	0.2	R 2.31	0%
02:00	02:59	0.9	R 9.30	3%
03:00	03:59	1.4	R 14.18	6%
04:00	04:59	3.1	R 31.40	9%
05:00	05:59	5.3	R 53.29	19%
06:00	06:59	9.9	R 98.79	41%
07:00	07:59	17.5	R 175.46	45%
08:00	08:59	13.6	R 135.55	40%
09:00	09:59	2.9	R 28.98	16%
10:00	10:59	3.4	R 34.12	16%
11:00	11:59	3.6	R 35.68	22%
12:00	12:59	5.9	R 58.65	23%
13:00	13:59	4.5	R 44.70	22%
14:00	14:59	8.1	R 80.55	34%
15:00	15:59	7.3	R 72.73	29%
16:00	16:59	12.6	R 125.99	51%
17:00	17:59	12.2	R 122.05	37%
18:00	18:59	5.7	R 57.45	28%
19:00	19:59	2.4	R 23.93	12%
20:00	20:59	0.3	R 2.66	6%
21:00	21:59	0.0	R 0.11	3%
22:00	22:59	0.0	R -	0%
23:00	23:59	0.0	R -	0%

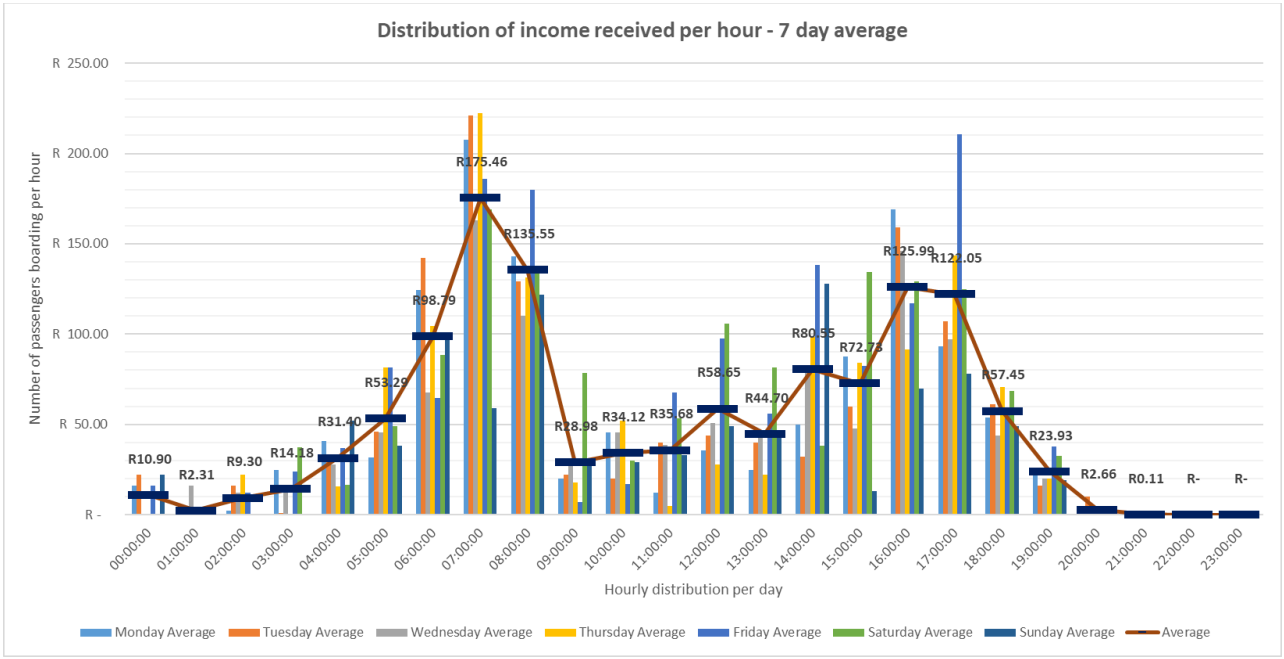
The following graphs show the average number of passengers boarding per hour over a 7-day period, a 5-day week period and 2-day weekend period.

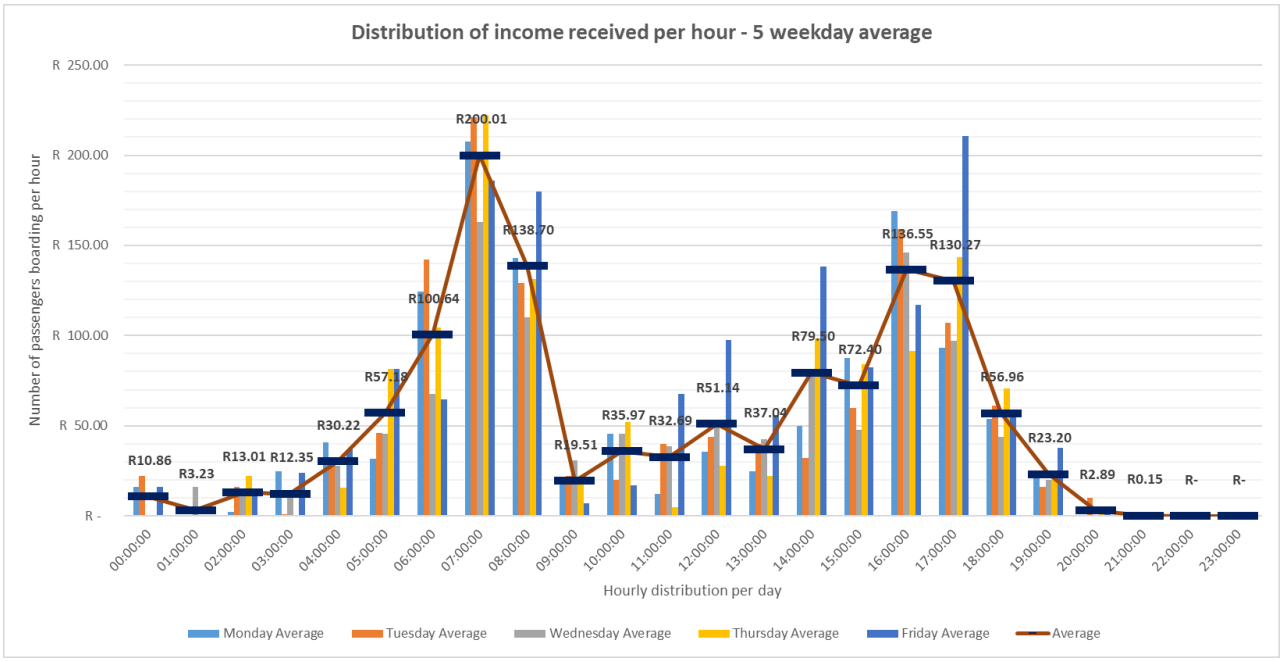


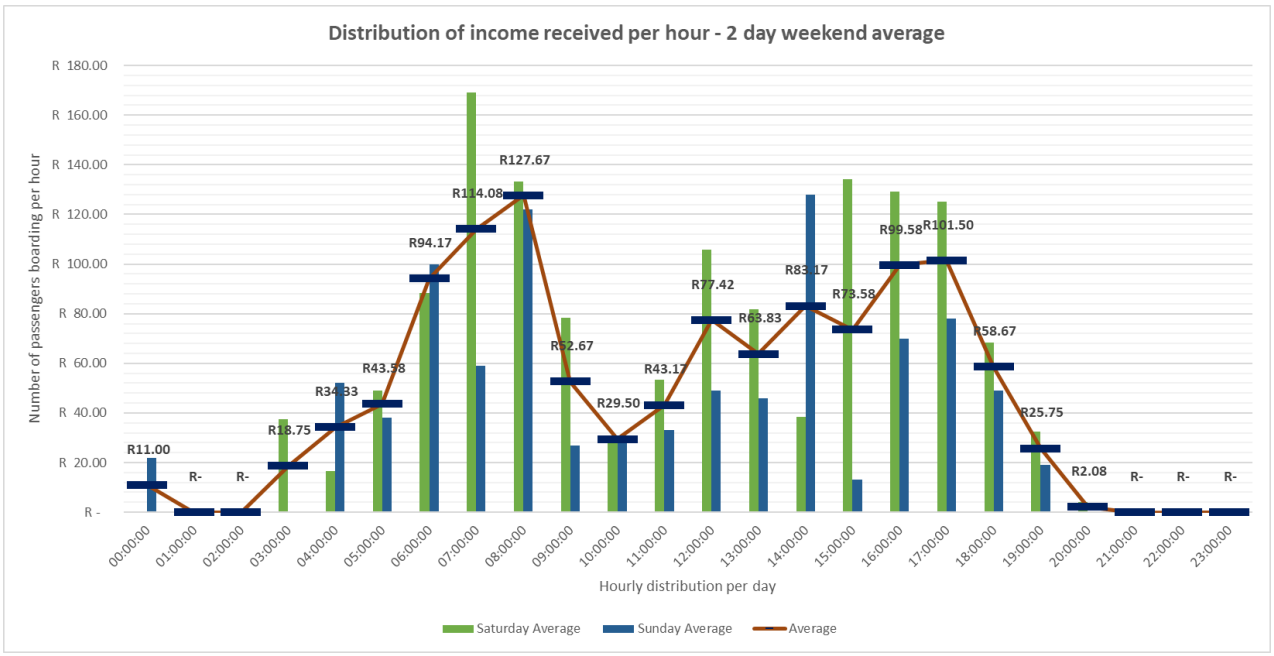




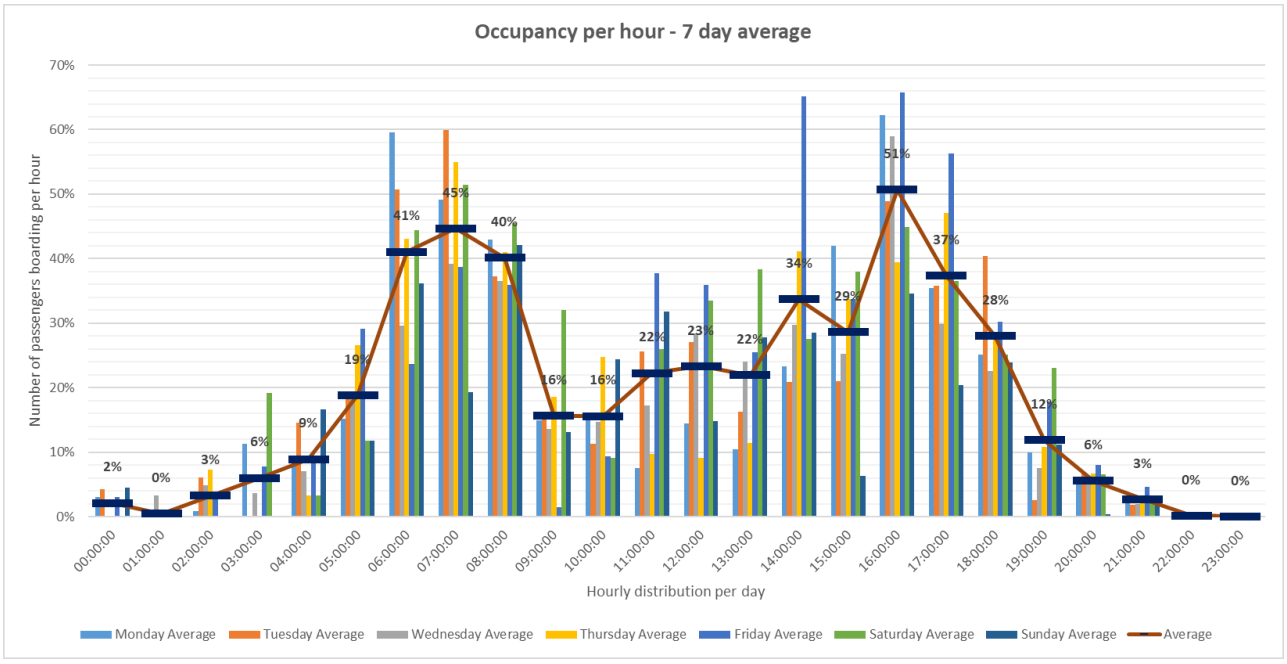
The following graphs show the average income per hour over a 7-day period, a 5-day week period and 2-day weekend period.

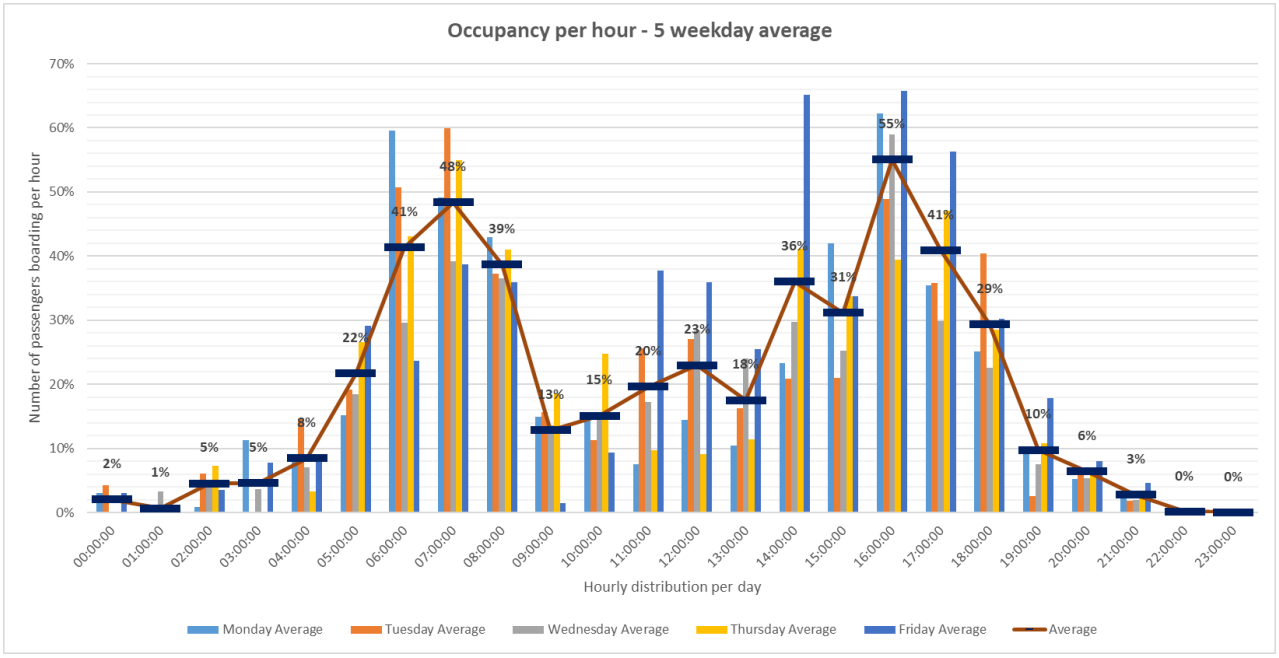


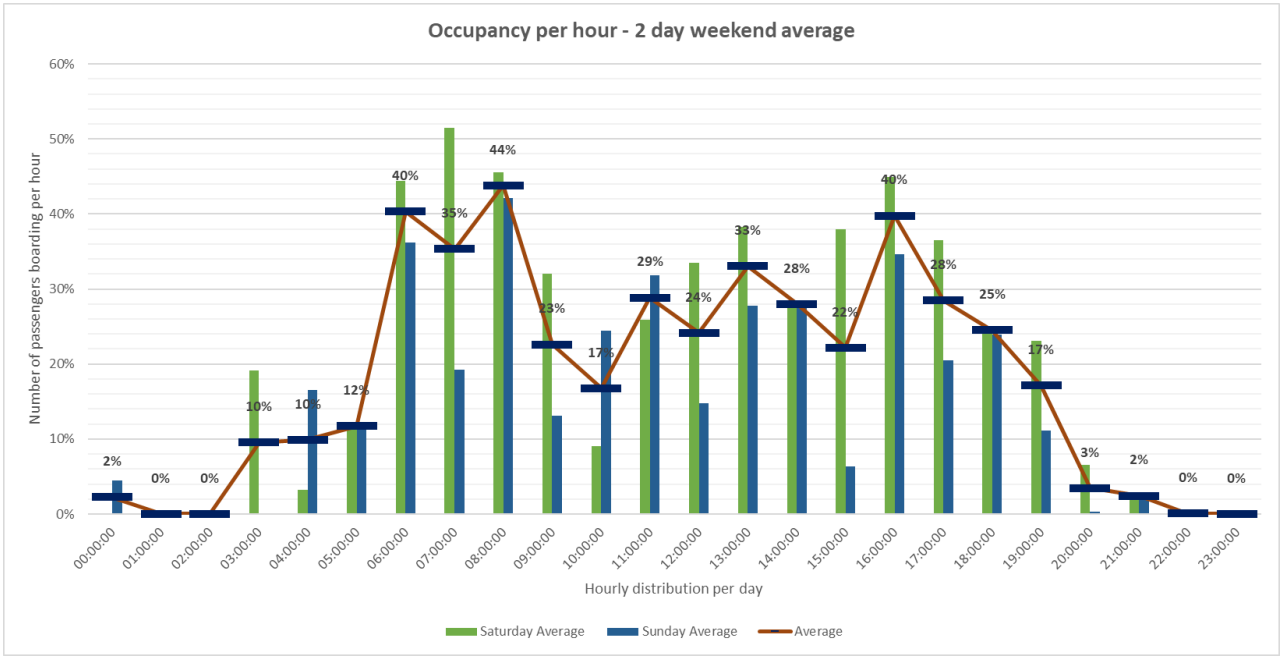

Distribution of income received per hour - 5 weekday average
Number of passengers boarding per hour
R 250.00
R 200.00
R 150.00
R 100.00
R 50.00
R -
R10.86
R3.23
R13.01
R12.35
R30.22
R57.18
R100.64
R200.01
R138.70
R19.51
R35.97
R32.69
R51.14
R37.04
R79.50
R72.40
R136.55
R130.27
R56.96
R23.20
R2.89
R0.15
R-
R-
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
Hourly distribution per day
Monday Average
Tuesday Average
Wednesday Average
Thursday Average
Friday Average
Average


Distribution of income received per hour - 2 day weekend average
Number of passengers boarding per hour
R 180.00
R 160.00
R 140.00
R 120.00
R 100.00
R 80.00
R 60.00
R 40.00
R 20.00
R -
R11.00
R-
R-
R18.75
R34.33
R43.58
R94.17
R114.08
R127.67
R62.67
R29.50
R43.17
R77.42
R63.83
R83.17
R73.58
R99.58
R101.50
R58.67
R25.75
R2.08
R-
R-
R-
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

The following graphs show the average occupancy per hour over a 7-day period, a 5-day week period and 2-day weekend period.

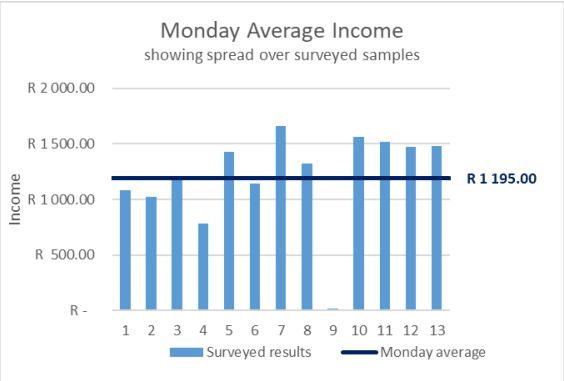


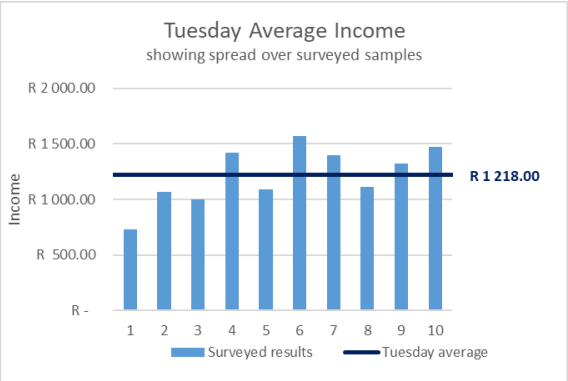


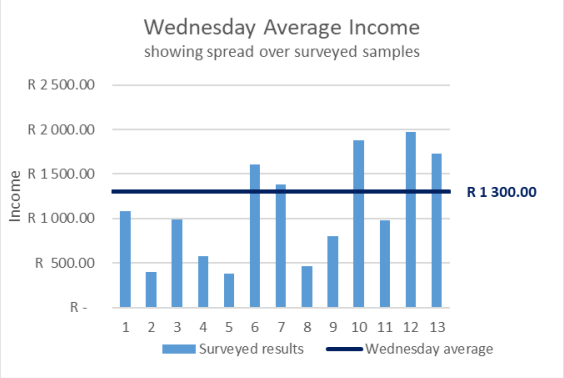

Occupancy per hour - 2 day weekend average
Number of passengers boarding per hour
60%
50%
40%
30%
20%
10%
0%
2%
0%
0%
10%
10%
12%
40%
35%
44%
23%
17%
29%
24%
33%
28%
22%
40%
28%
25%
17%
3%
2%
0%
0%
00:00:00
01:00:00
02:00:00
03:00:00
04:00:00
05:00:00
06:00:00
07:00:00
08:00:00
09:00:00
10:00:00
11:00:00
12:00:00
13:00:00
14:00:00
15:00:00
16:00:00
17:00:00
18:00:00
19:00:00
20:00:00
21:00:00
22:00:00
23:00:00
Hourly distribution per day
Saturday Average
Sunday Average
Average

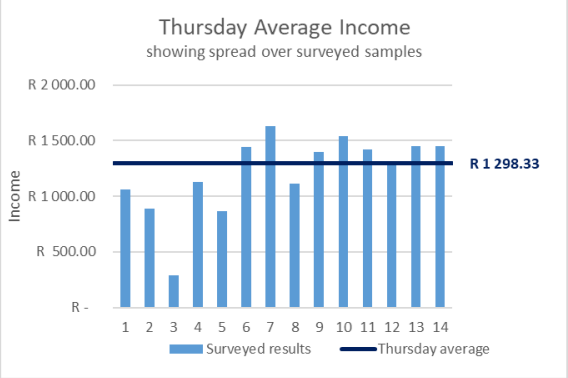
4. DETAILED SURVEY RESULTS

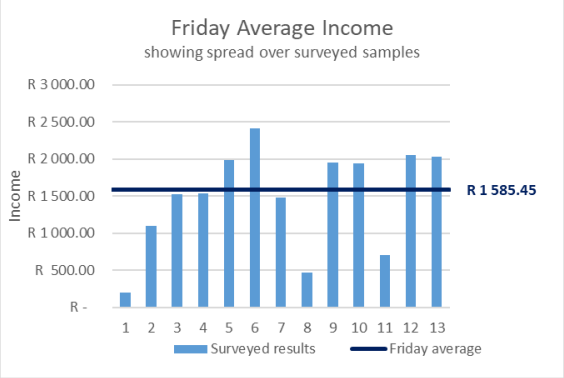
4.1. Income distribution

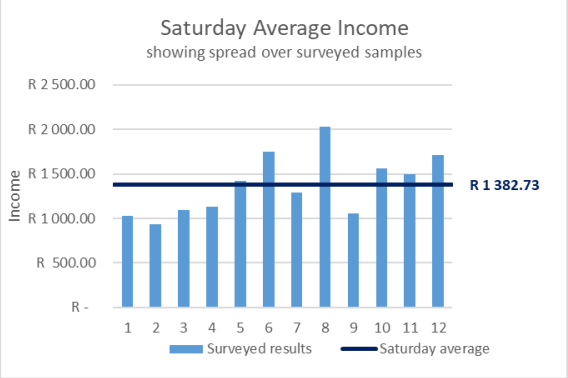


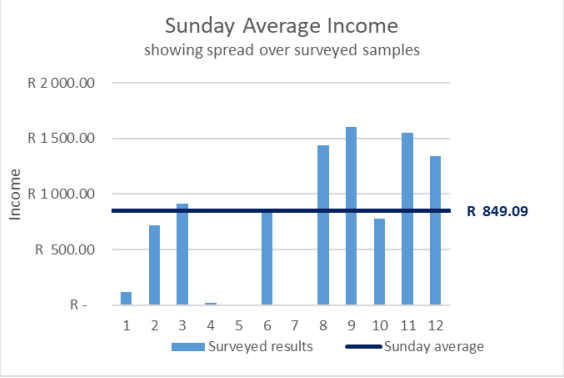




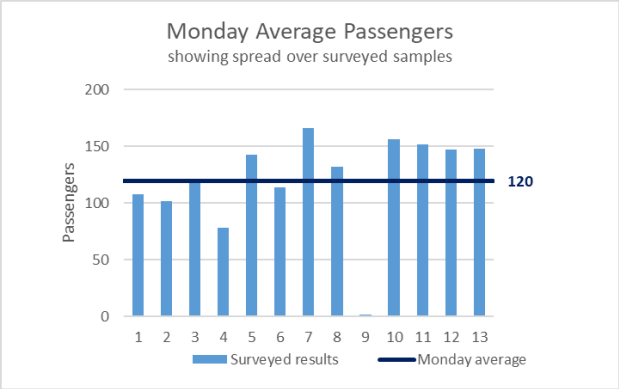


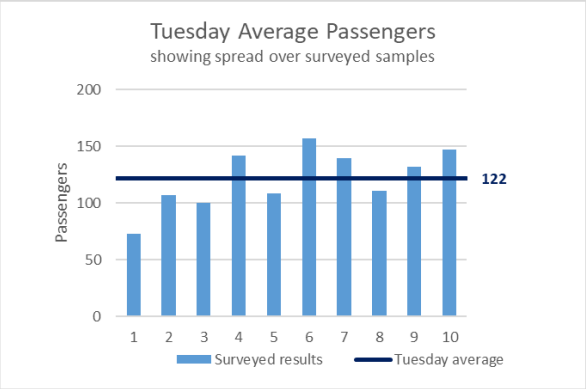


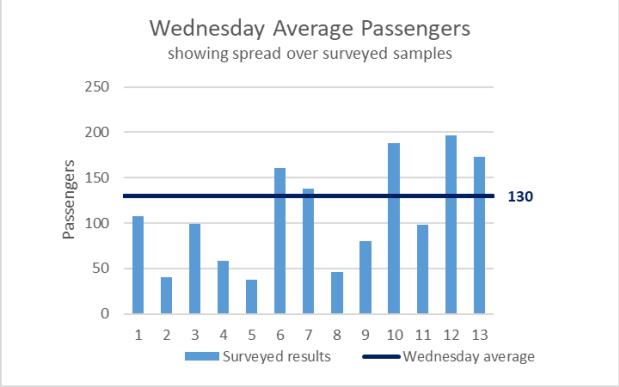


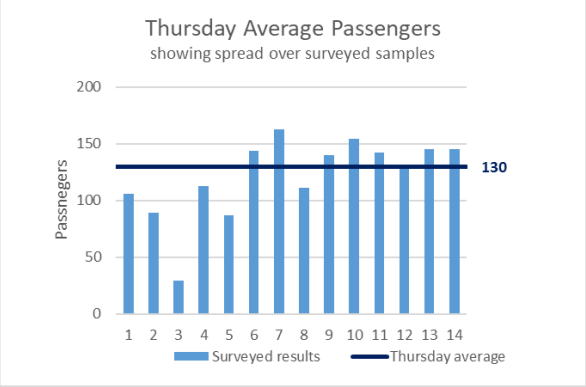


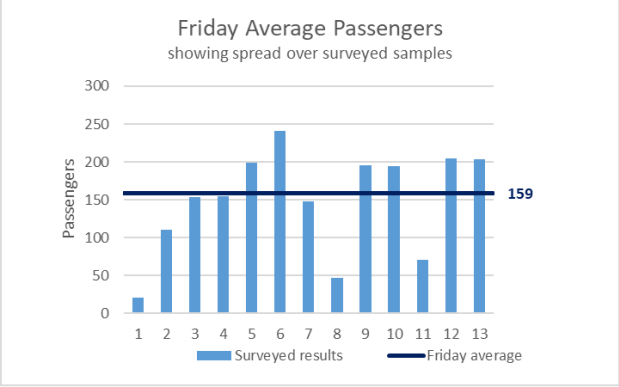
4.2. Passenger number distribution

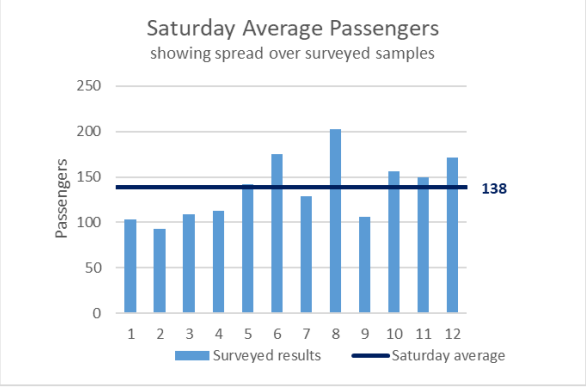


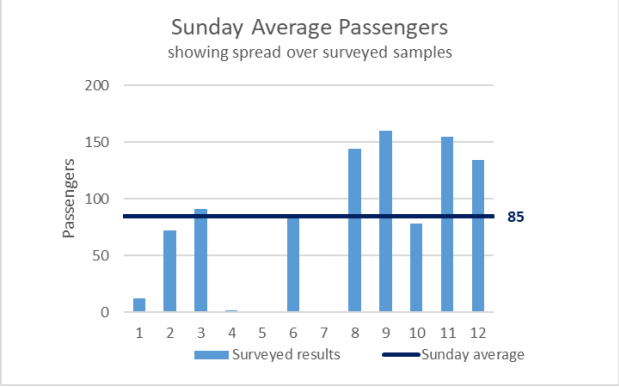










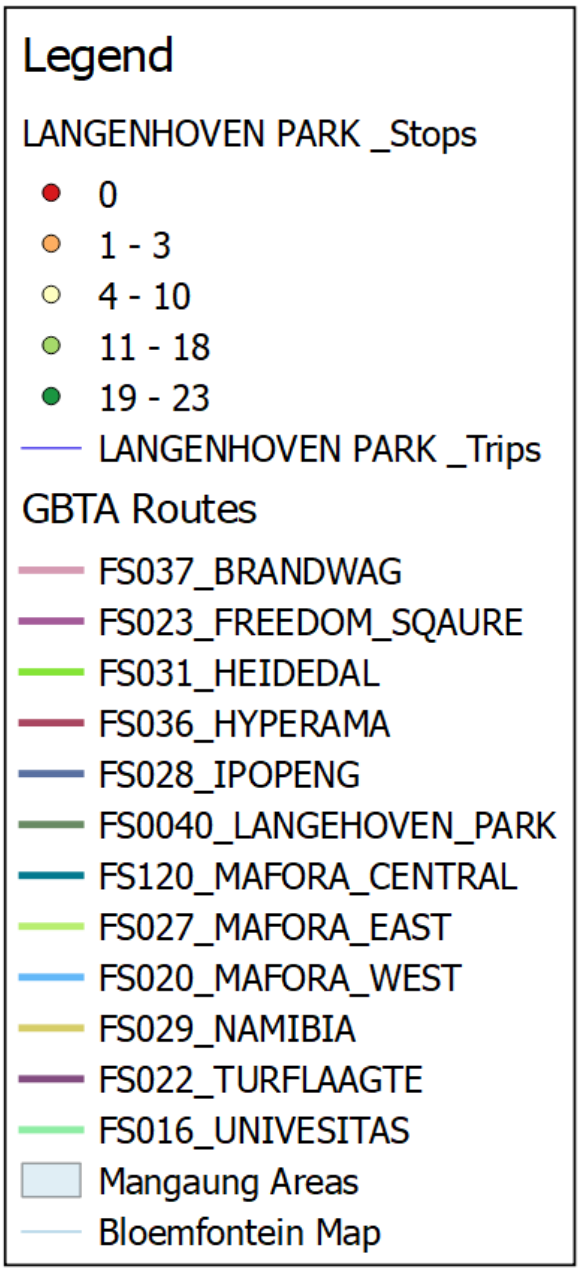


5. MAPS

The first maps show all the surveyed operations of the taxis alongside the Mangaung road network.

The maps following these indicate the a heatmap of the areas surveyed. These heatmaps demonstrate the zones of high volumes of boarding passenger.

Legend utilised for maps

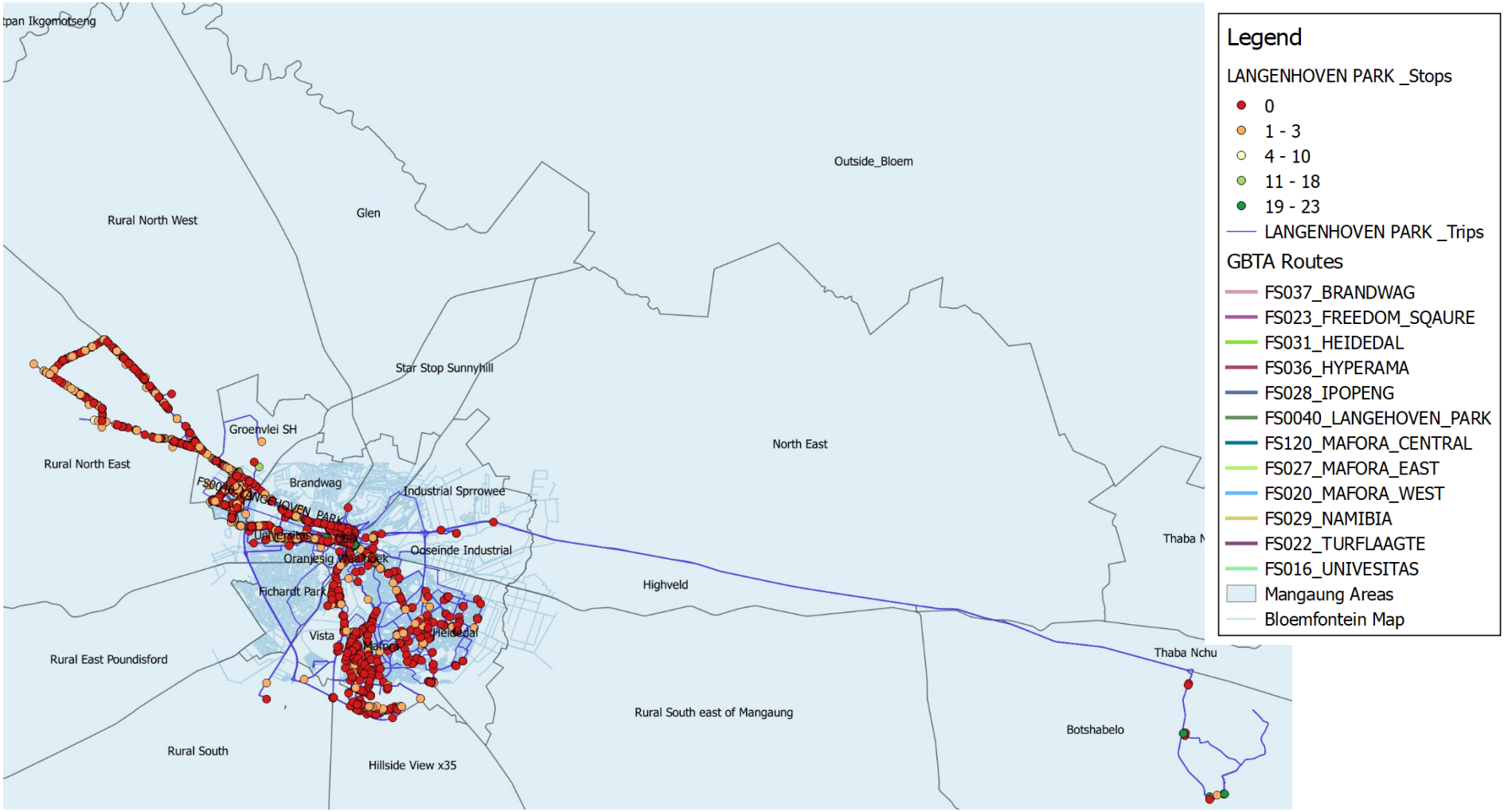


5.1. All surveyed operations

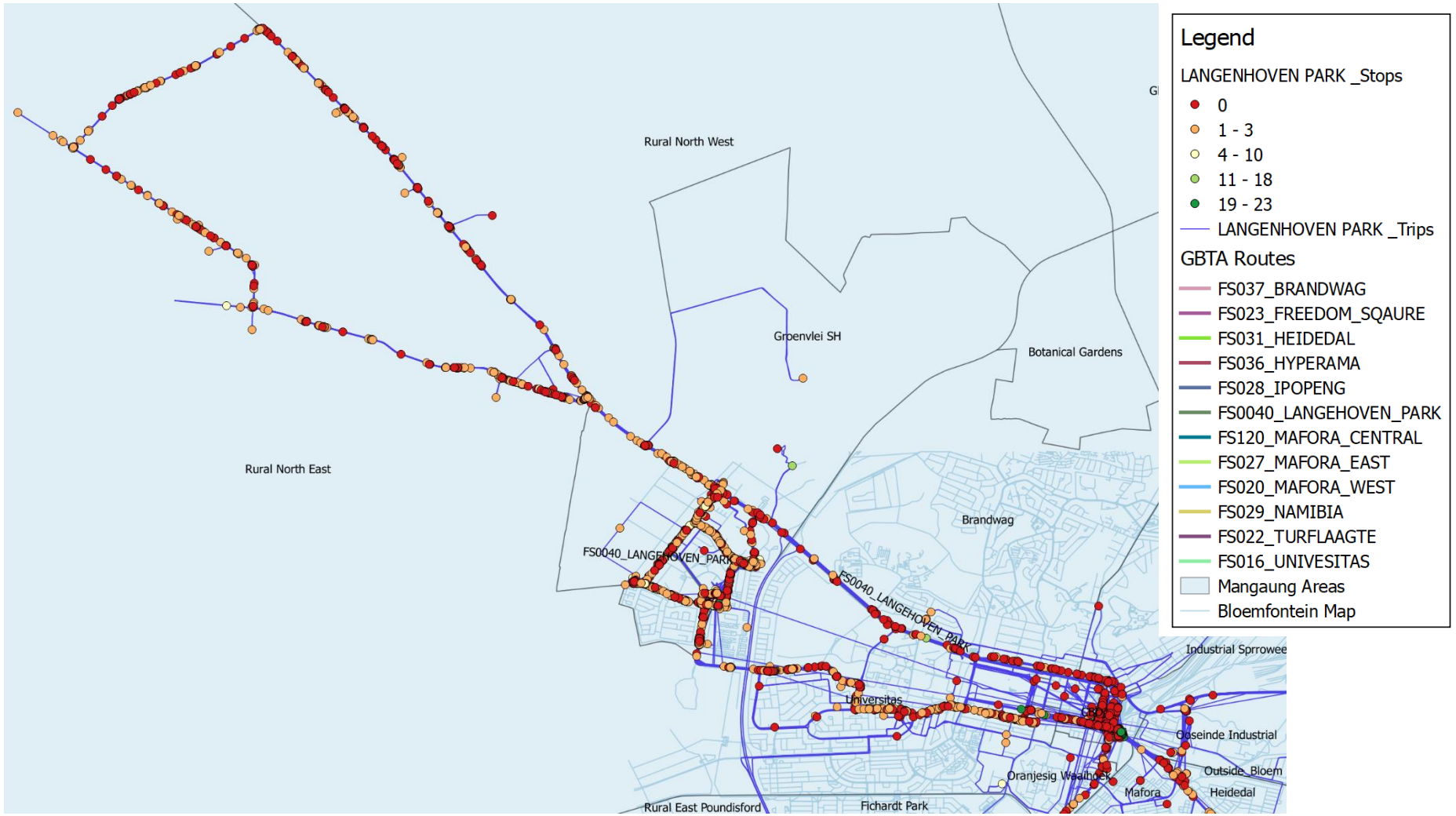
The tracks in blue illustrates the operations of all the surveyed taxis.

All the stops made by all the taxis to either pick up passengers or drop off passengers are indicated.

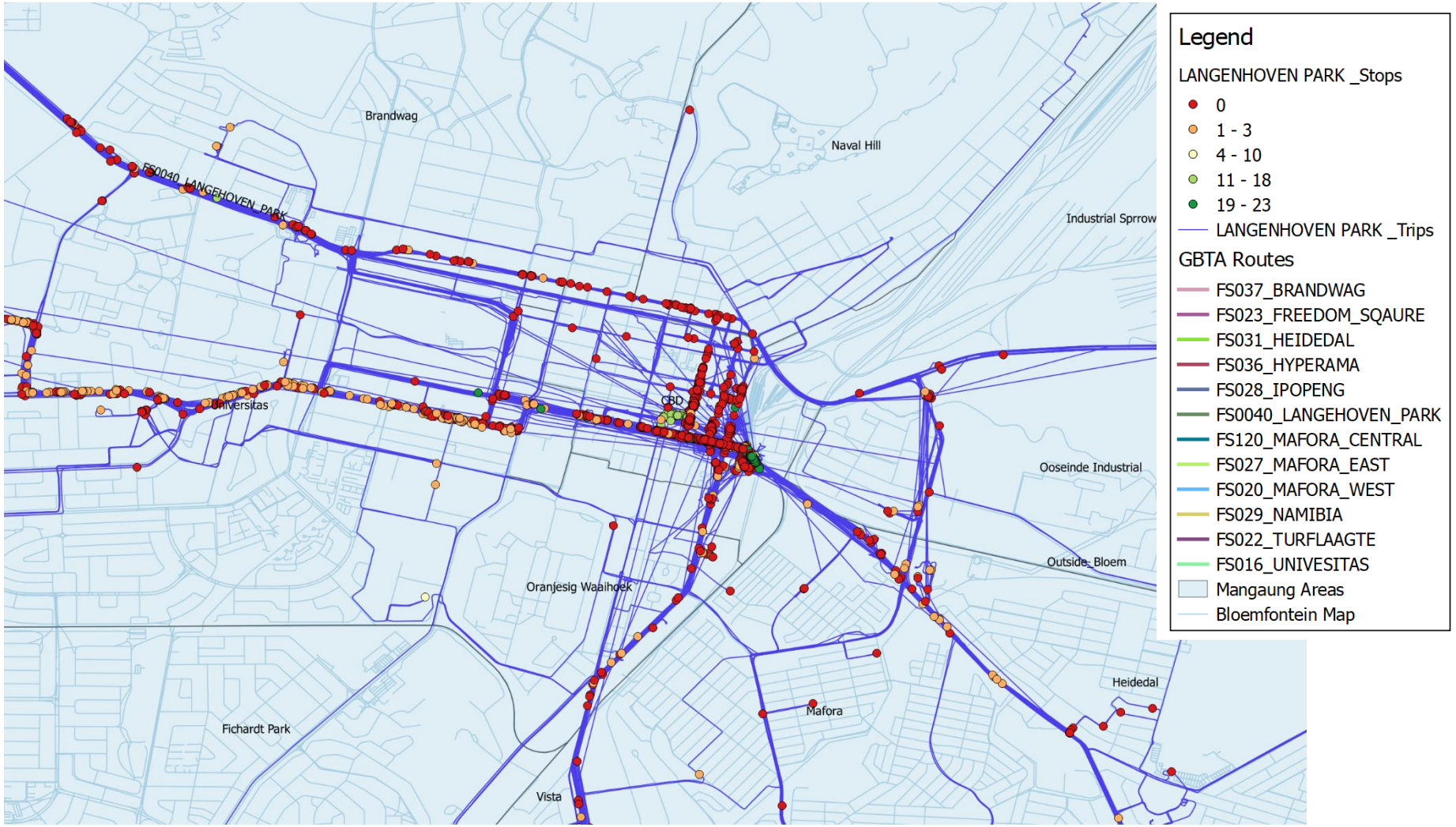
Operations of all surveyed taxis including stops



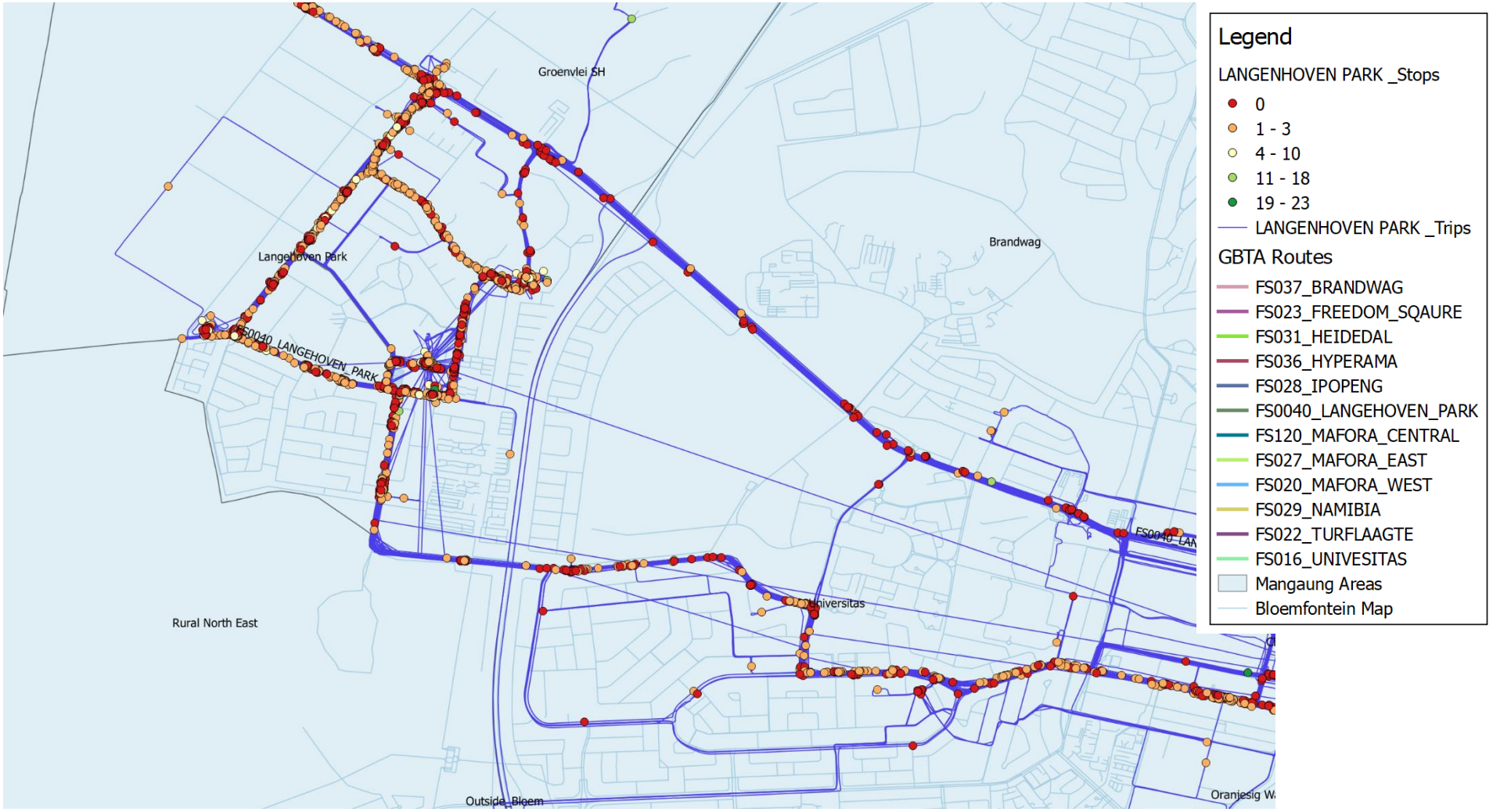
Operations of all surveyed taxis including stops – Focused on the LANGENHOVEN PARK route



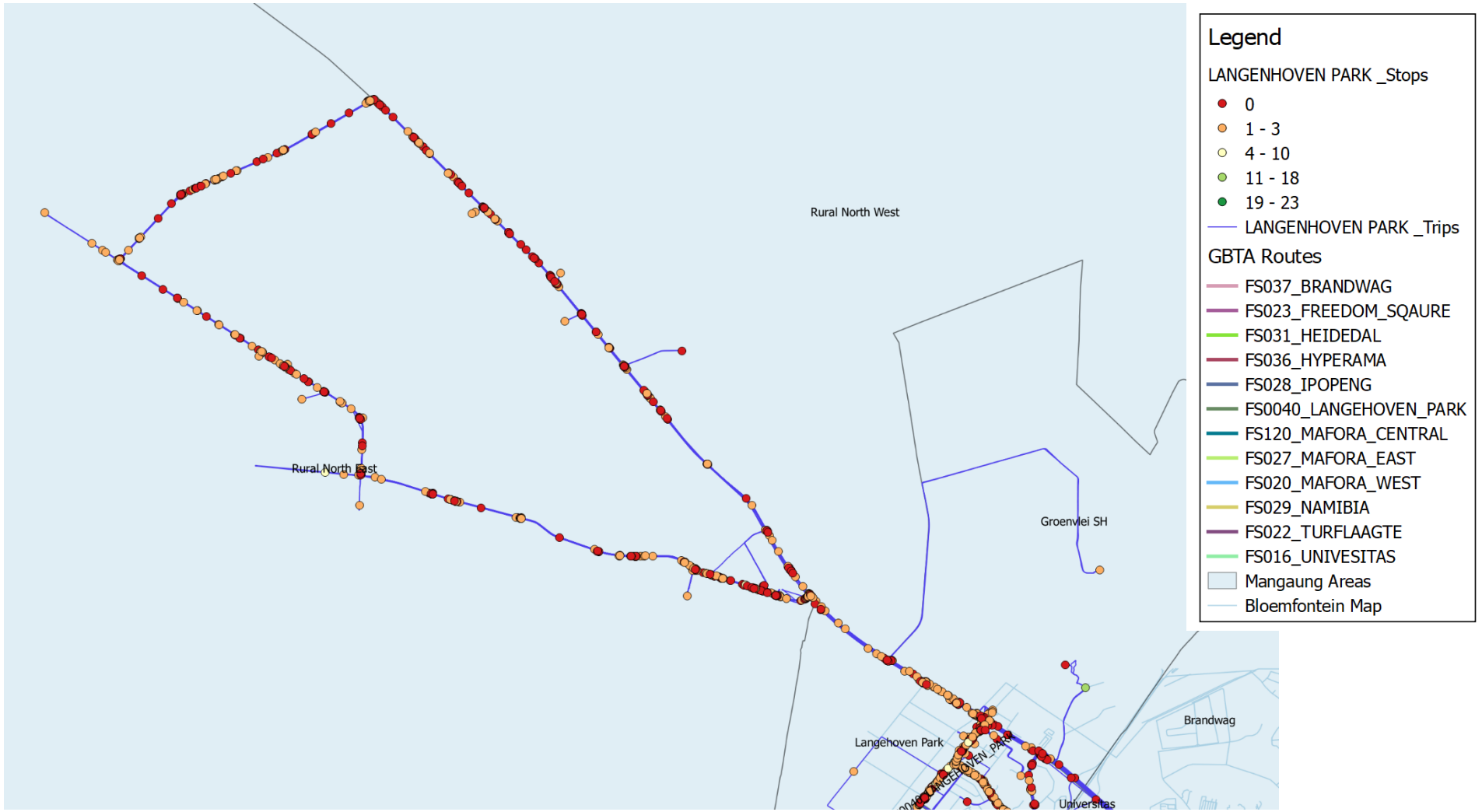
Operations of all surveyed taxis including stops – Focused on the CBD



Operations of all surveyed taxis including stops – Focused on the LANGENHOVEN PARK area



Operations of all surveyed taxis including stops – Focused on the Rural North East

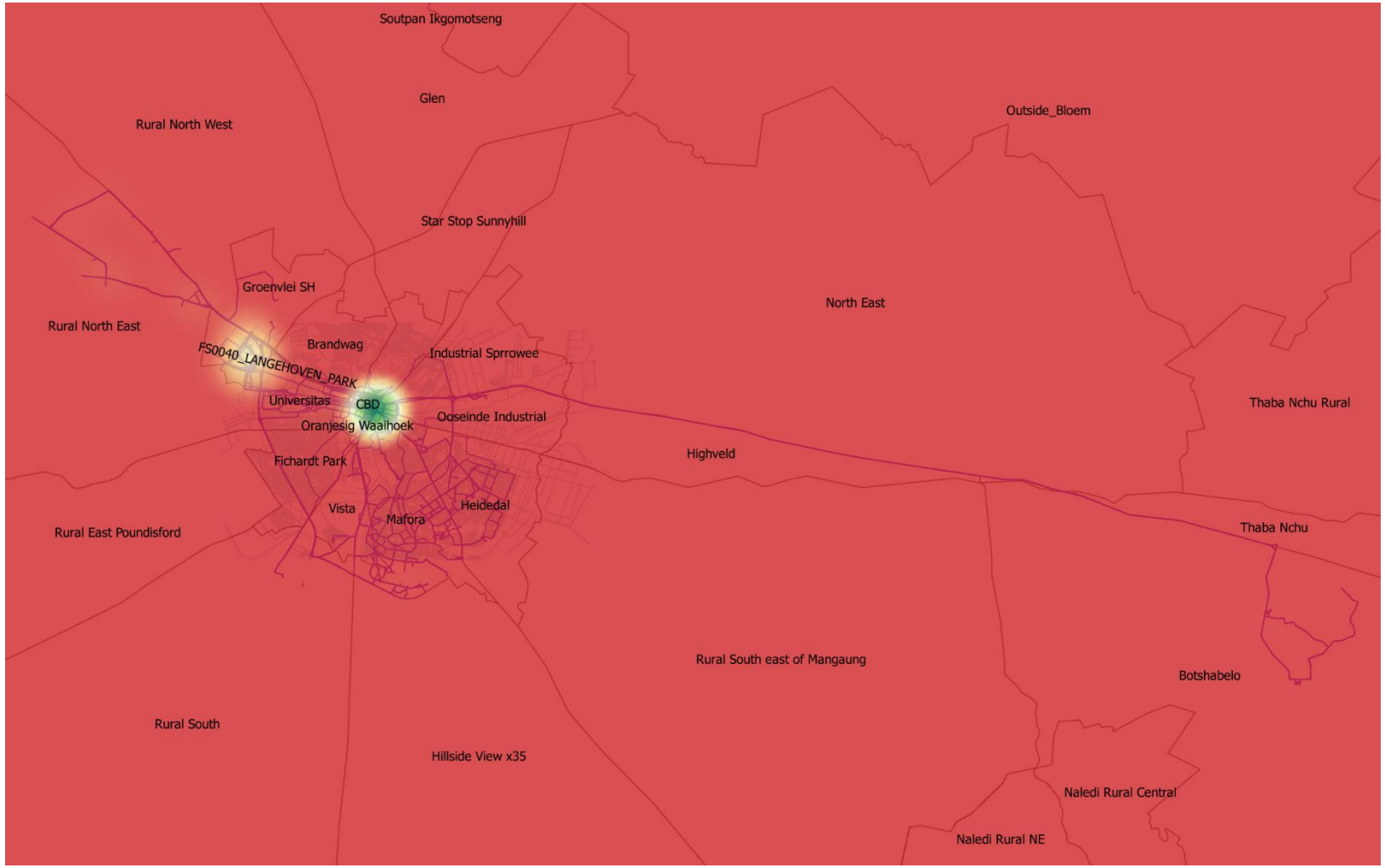


5.2. Heatmaps of taxi operations

The following maps demonstrate the volume of passengers in each area.

- Red indicates little to no activity compare to the rest of the area.
- Yellow indicates high activity compared to the rest of the area
- Green indicates the highest activity compared to the rest of the area

Heatmap of total surveyed area.



Heatmap of total surveyed area – Focused on the LANGENHOVEN PARK route