



**REMAINDER OF PORTION 129 OF FARM RIETFONTEIN 301-IQ
TRAFFIC IMPACT ASSESSMENT
MARCH 2020**

**Rapid Land Release Programme: Packages A & B-Stage 2
RLRP-2019/07-06**

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List of Acronyms

ACRONYM	DESCRIPTION
CoJ	City of Johannesburg
COTO	Committee of Transport Officials
NMT	Non-motorised Transport
JRA	Johannesburg Roads Agency
UA	Universal Access
TIA	Traffic Impact Assessment
SDP	Site Development Plan
LoS	Level of Service
PCU	Passenger Car Unit
d.u.	Dwelling Unit
v/c	Volume to Capacity Ratio

1 EXECUTIVE SUMMARY

GladAfrica Consulting Engineers (Pty) Ltd was appointed by the Gauteng province Departments of Human Settlements to undertake the Traffic Impact Assessment (TIA) for the Rapid Land Release Programme (RLRP) for a mixed development on remainder of Portion 129 of the farm Rietfontein 301-IQ, Johannesburg, Gauteng consisting of:

- Social housing (5 900 dwelling units, 2 business nodes, a creche, a primary school and a secondary school).

The purpose of this report is to identify the traffic impacts of the new development on the surrounding road network, intersections, Non-motorised Transport (NMT) requirements and to propose mitigation measures for the effective traffic operations conditions of vehicle and pedestrian traffic in the area of the development. Therefore, the report describes an investigation of the status quo scenario of the traffic as well as future scenarios concerning the Rapid Land Release mixed development. The location of the new mixed development is shown in the figure below.

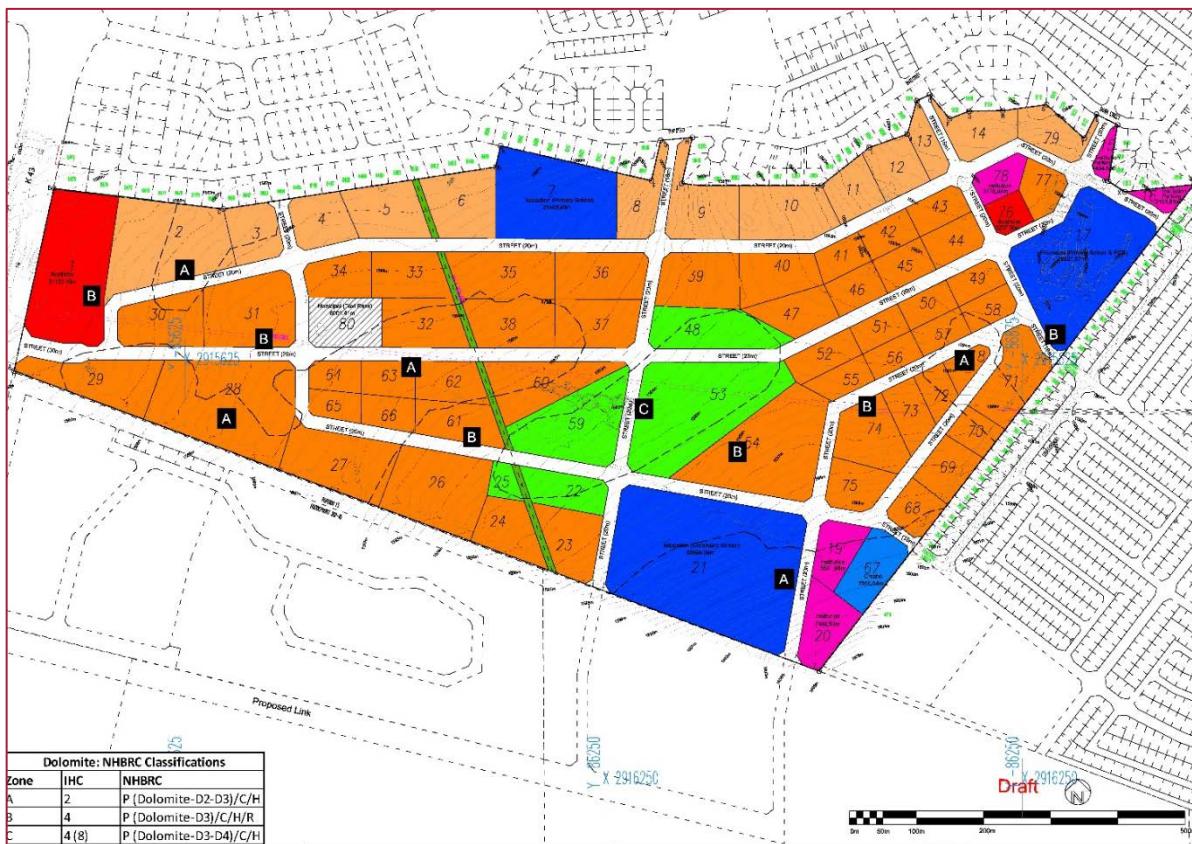


Figure 1: Rietfontein Development Area

The capacity analysis was performed by using SIDRA Intersection software at Locations 1 to 11.

The results of the analysis showed that an upgrade is required at the intersection of M10 Klipspruit Valley Road (Rd) and Vaal Street (St) for the existing 2019 evaluation and that no other upgrades are required at the other remaining intersections.

The results of the 2024 traffic evaluation shows that a new T-junction access intersection is required on the M10 (K43), since the traffic demand to/ from the north through Lenasia Extension 10 should be severely discouraged by the introduction of severe traffic calming, even to the extent of one-way pinch points (limiting capacity). Further upgrading is required at the following intersections:

- a) M10 and new Muslim School access intersection.
- b) M10 and the new T-junction intersection mentioned above.
- c) M10 and Volta Road.
- d) M10 and Vaal Street.
- e) R553 Golden Highway and R554 intersection.

The Rietfontein 301 development requires the full upgrading of M10 Klipspruit Valley Road from the new T-junction intersection to at least the N12 interchange by the addition of one lane per direction. (to 4 lanes) This is because the 2019 traffic demand along the single lane per direction of the M10 in the peak direction is operating at oversaturated conditions.

This oversaturated traffic operating condition is also the case for the R553 Golden Highway during the peak hour and peak direction. Therefore, the Golden highway should also be upgraded to 4 lanes, at least between the R554 and the N12 interchange.

2 BACKGROUND

The Gauteng Province Human Settlements Department has decided to implement the roll out of a Rapid Land Release programme for a mixed development on remainder of Portion 129 of the farm Rietfontein 301-IQ, as part of the National Public Low-Cost Housing Program. The proposed mixed development area will require supporting ancillary infrastructure such as laybys, public transport stops, pedestrian walkways and strategically placed pedestrian crossings, and speed calming measures.

GladAfrica Consulting Engineers (Pty) Ltd was appointed by the Gauteng Province Department of Human Settlements to undertake the remainder of Portion 129 of the farm Rietfontein 301-IQ Mixed Development Traffic Impact Assessment (TIA).

This TIA was preceded with a Rietfontein 301-IQ Access Study, which concluded by testing various alternative scenarios, that a new T-junction intersection on the M10 Klipspruit Valley Road between the Muslim School and Volta Street intersections was warranted in terms of traffic distribution and acceptable in terms of TRH26 Access Management principles. This was specifically necessary to limit the development through traffic of Lenasia Extension 10 for safety reasons. There are four schools and many of the local streets have traffic calming, pedestrian crossings near and away from these schools. Such through traffic would also change the character of the peaceful residential neighbourhood.

The purpose of this report is to identify the traffic impacts of the new development project on the surrounding road network, intersections and at properties accesses points, and to propose mitigation measures for the effective satisfactory traffic operating conditions of vehicle and pedestrian traffic in the region of the development. Therefore, the report describes the investigation of the traffic status quo scenario as well as future scenarios concerning the implementation of the new mixed development project.

2.1 Location

The proposed development site is located on the remainder of Portion 129 of the farm Rietfontein 301 IQ on the southern side of the Themb'Elihle and Lenasia Extension 10 township, City of Johannesburg, Gauteng Province. The site is situated to the south of Limpopo St, Shari St, east of M10 Klipspruit Valley Rd and north of the Lenasia Muslim School. The coordinates of the new mixed development project are 26°20'50.66"S and 27° 51'.45.81"E. Refer to **Figure 2** for the regional context locality map.

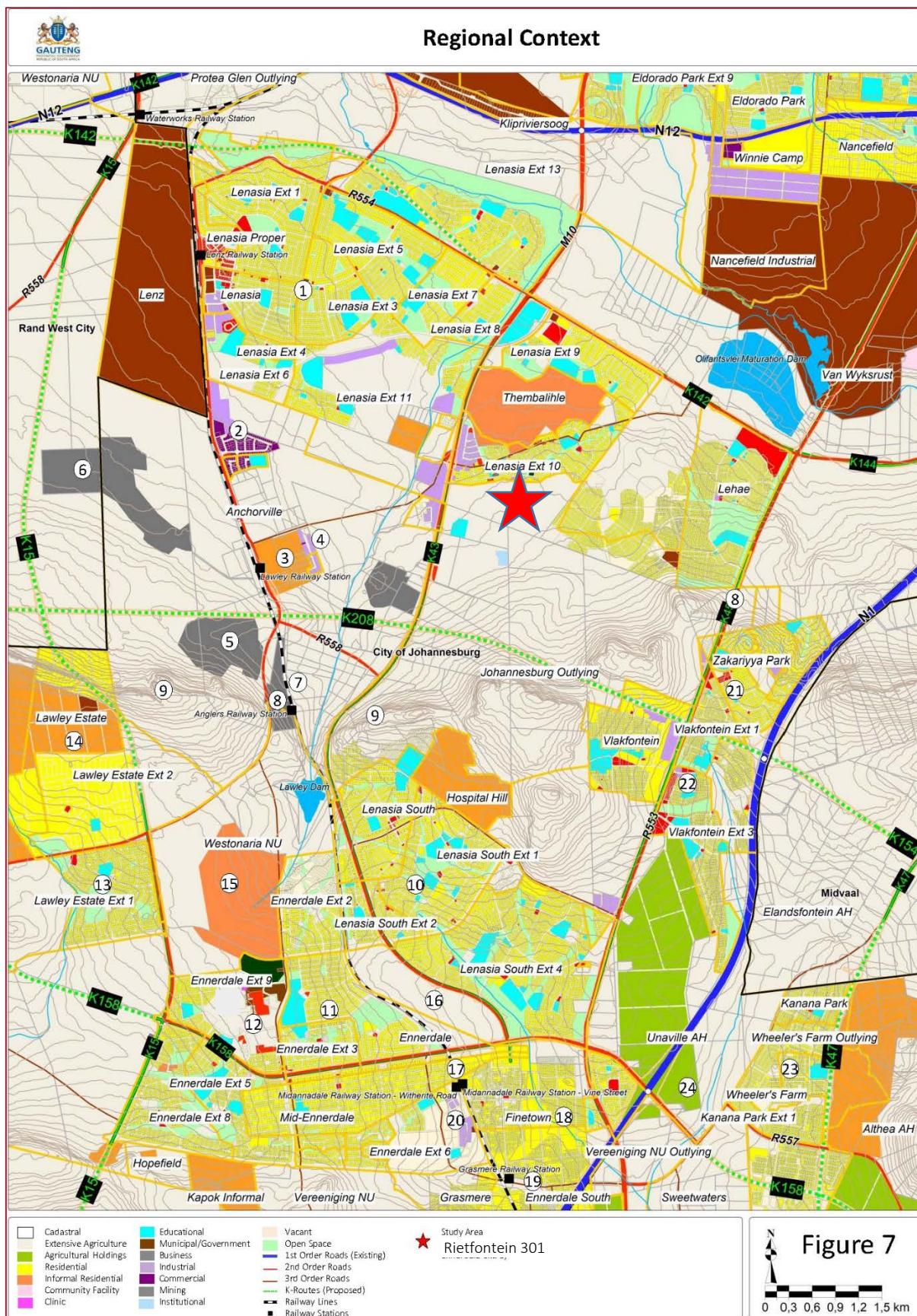


Figure 2: Regional Context Locality Plan

QMF-GC-EN-287-REVO-20191114

Remainder of Portion 129 of Rietfontein 301-IQ-New Mixed Development TIA,
February 2020

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2.2 Project Brief

The study area is restricted to several intersections around the proposed development that the traffic and pedestrians would use to access the proposed development (refer to **Figure 2**). This TIA includes the following:

- Analysis of the status quo-scenario 2019.
- Analysis of the traffic impact of the development 2024
- Analysis of the Public Transport and NMT
- Link capacity analysis
- Recommendation for traffic impact mitigation where required.

Development access including NMT and internal road requirements.

3 STATUS QUO ASSESSMENT

3.1 Data Collection

The manual turning movements traffic counts were undertaken on Tuesday 27 August 2019. These comprised 12 hours classified turning movement counts for the period 06:00-18:00, recorded in 15 minutes intervals at the following key intersections/ locations (locs) (refer to **Figure 2**):

- Loc 1: R558/ M10 Klipspruit Valley Road.
- Loc 2: M10 Klipspruit Valley Road/ Lenasia Muslim School.
- Loc 3: M10 Klipspruit Valley Road/ Volta St.
- Loc 4: M10 Klipspruit Valley Road / Vaal St.
- Loc 5: Volta St/ Zambesi St.
- Loc 6: Volta St/ Vaal St.
- Loc 7: Volta St/ Shari St.
- Loc 8: Shari St/ Limpopo St.
- Loc 9: Shari St/ Alabama St.
- Loc 10: Shari St/ Shaba St.
- Loc 11: Dingo Crescent (Cres)/ Unknown St.

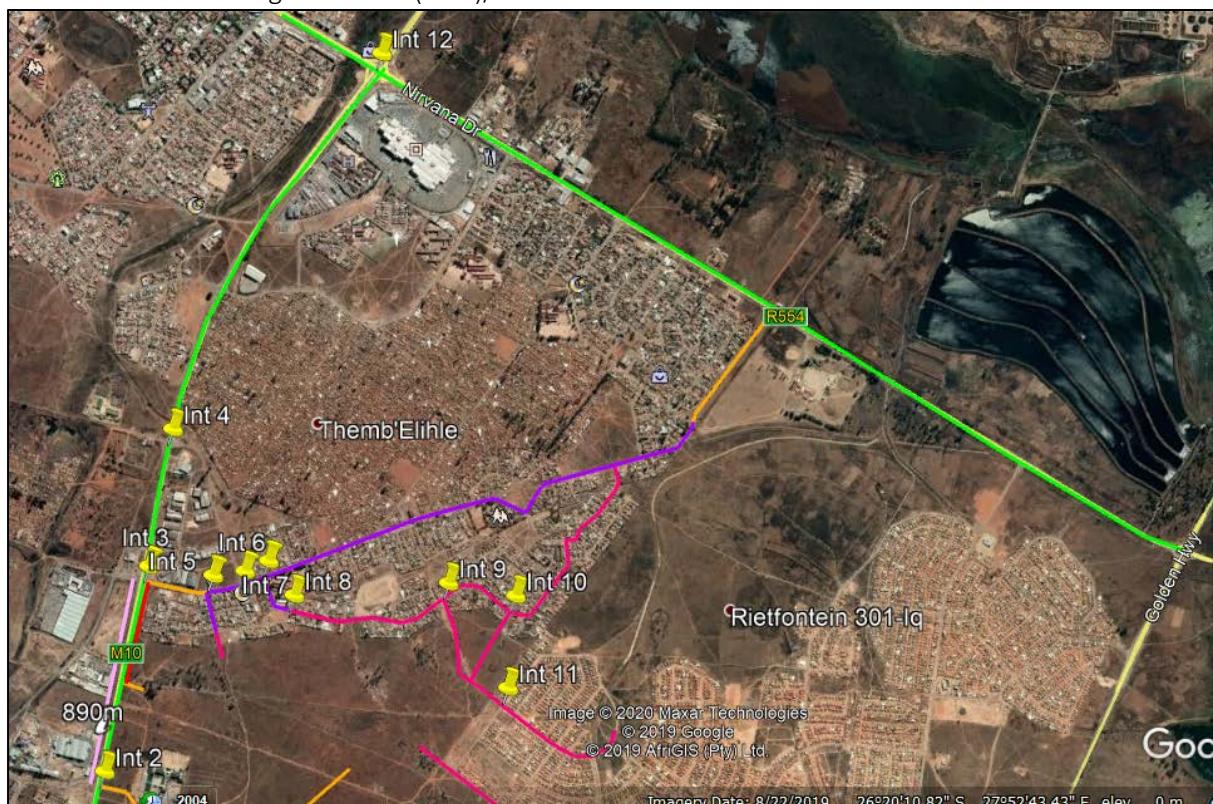


Figure 3: Key Intersection Locations for Data Collection

The morning (a.m.) peak and afternoon (p.m.) peak hour background traffic counts are shown schematically in **Annexure B**.

3.2 Descriptions of Key Intersections

- Loc 1: M10 Klipspruit Valley Road/ R558 Road

This is a 3-leg signal-controlled intersection. The M10 Klipspruit Valley Road is a Class 3 minor arterial main road and has one lane per direction on the northern side of the intersection and a one lane per direction on the southern side, with no access to properties. The R558 is a Class 3 minor arterial main road and has one lane per direction on the western side of the intersection, with no access to properties.

- Loc 2: M10 Klipspruit Valley Road/ Access Road to Muslim School

This is a signal-controlled 4-leg intersection. The M10 Klipspruit Valley Road is a Class 3 minor arterial main road and has one lane per direction on the northern side of the intersection and a one lane per direction on the southern side, with no access to properties. The access road to Lenasia Muslim school is a Class 3 minor arterial main road on the eastern approach with one lane per direction and access road to the Muslim School is a Class 5a and has one lane per direction east/ west with raised pedestrians crossing including on street parking with access to the Muslim School property.

- Loc 3: M10 Klipspruit Valley Road/ Volta St

This is a 4-leg signal-controlled intersection. The M10 Klipspruit Valley Road is a Class 3 minor arterial main road and has one lane per direction on the northern side of the intersection and a one lane per direction on the southern side, with no access to properties. Volta St is a Class 4b residential minor collector with access to properties, traffic calming measures, speed humps and has one lane per direction east/ west with a travel speed of 40 km/h to 50 km/h.

- Loc 4: M10 Klipspruit Valley Road/ Vaal St

This is a 4-leg signal-priority-controlled intersection. The M10 Klipspruit Valley Road is a Class 3 minor arterial main road and has one lane per direction on the northern side of the intersection and a one lane per direction on the southern side, with no access to properties. Vaal St is a Class 4a collector commercial with access to larger properties and on street parking and has one lane per direction.

- Loc 5: Volta St & Zambesi St

This is a 3-leg priority-controlled intersection. Volta St is a Class 4b residential minor collector with access to properties, traffic calming measures, speed humps and has one lane per direction east and west with a travel speed of 40 km/h to 50 km/h. Zambesi St is a Class 5b local street residential with access to properties and pedestrians using roadway (no pedestrians walkway) and mountable kerb.

- Loc 6: Volta St/ Vaal St

This is a 3-leg priority-controlled intersection. Volta St is a Class 4b residential minor collector with access to properties, traffic calming measures, speed humps and has one lane per direction east and west with a travel speed of 40 km/h to 50 km/h. Vaal St is a Class 4a collector commercial with access to larger properties and on street parking and has one lane per direction.

- Loc 7: Volta St/ Shari St
This is a 3-leg priority-controlled intersection. Volta St is a Class 4b residential minor collector with access to properties, traffic calming measures, speed humps and has one lane per direction east and west with a travel speed of 40 km/h to 50 km/h. Shari St is a Class 4b residential minor collector with access to properties and has one lane per direction with speed calming measures and pedestrians pathway.
- Loc 8: Shari St/ Limpopo St
This is a 3-leg priority-controlled intersection. Shari St is a Class 4b residential minor collector with access to properties and has one lane per direction with speed calming measures and pedestrian pathway. The Limpopo St is a Class 5b local residential street with accesses to properties and has one lane in the eastbound and one lane in the westbound direction.
- Loc 9: Shari St/ Alabama St
This is a 3-leg priority-controlled intersection. Shari St is a Class 4b residential minor collector with access to properties and has one lane per direction. Alabama St is a Class 5b local residential street with accesses to properties and has one lane per direction.
- Loc 10: Shari St/ Shaba St
This is a 3-leg priority-controlled intersection. Shari St is a Class 4b residential minor collector with access to properties and has one lane per direction. Shaba St is a Class 5b local residential street with access to properties with vehicle mountable kerb and has one lane per direction.
- Loc 11: Dingo Crescent / Unknown St (Taxi Rank)
This is a 4-leg priority-controlled intersection. Dingo Crescent is a Class 4b residential minor collector with access to properties and has one lane per direction. The unknown St is a Class 4b residential minor collector with access to properties and has one lane per direction.

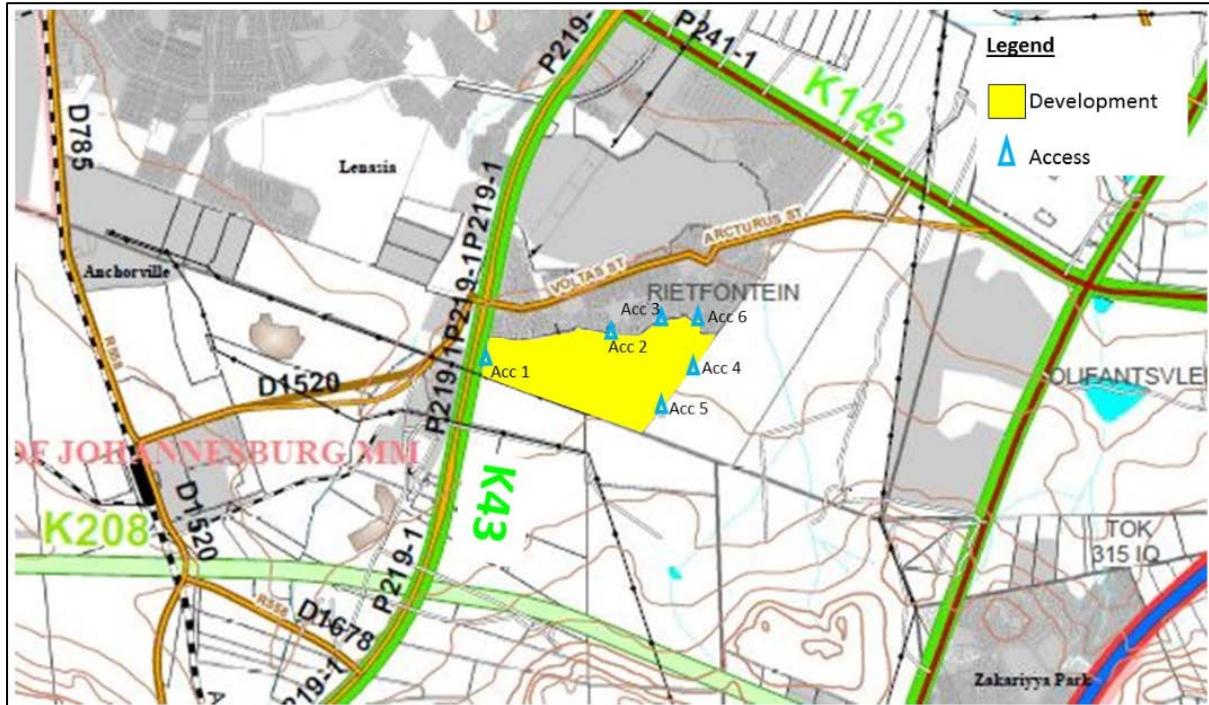


Figure 4: Future Provincial Planning and Road Hierarchy

The proposed future local roads network on the Rietfontein mixed development will be connected to the north on Zambesi Street, Ottawa Street and on Shaba Street, to the east on Dingo Crescent and on one of the Unknown roads to the east of the development. To the south, a proposed new road should be connected via the Muslim School road access and to the west a proposed new access along the M10 Klipspruit Valley Rd 400 m south of Volta St. Although the above figure indicates Volta St as a Class 3 road, it has been downgraded to a Class 5 street because of the access to four schools along its length.

All the intersections for the Rietfontein mixed development will be side road stop-controlled except for the signalised intersection of the M10 Klipspruit Valley Rd, the access road to the new development, the signalised intersection of the M10 Klipspruit Valley Rd and the Lenasia Muslim School road.

3.3 Intersection Capacity Analysis

The SIDRA Intersection V7.0 software was used to analyse the operation and capacity of the individual intersections under investigation. The SIDRA software is widely used as a micro-analytical evaluation tool to assess the performance measures of an intersection, including the level of service (LoS), delays and volumes to capacity (v/c) ratio.

SIDRA was used to analyse each intersection as discussed in Section 3.3 for current 2019 traffic operations and future scenarios. The 2019 morning and afternoon peak hour background traffic volumes are shown schematically in **Annexure D**. The following scenarios have been tested:

- Status quo scenario 2019 was analysed with SIDRA to test the level of service and other performance measurements of the current intersection operations.
- The other scenario analysed was to determine the impact of the traffic that will be generated by the new development on the road network with 5 years of background traffic growth 2024.
- The recommendations in terms of the traffic signal design optimisation and intersection geometric interventions were identified and conceptual designs were included.

The LoS depends on the traffic delays at the intersection, either due to low capacity on the approaches, or due to inadequate signal timings for signalised intersections. LoS A represents the best operating conditions with minor or no delays while LoS F represents the worst operating condition with serious delays. Delays of 55, 50 and 35 seconds for signalised, roundabout and sign control intersection respectively are deemed acceptable as it is not lower than LoS D. The criterion for acceptable LoS is shown in **Table 1**. The Volume Demand to Capacity Ratio (v/c) is a measure that compares roadway demand (vehicle volumes) with roadway supply (carrying capacity). For example, v/c of 1 indicates that the roadway facility is operating at its capacity. The output modelling summaries and comments in terms of the interventions that could take place to improve the operations are provided in **Table 2**.

Table 1: SIDRA Level of Service Criterion and Definition

Level of Service	Control delay per vehicle in seconds (d)		
	Signals	Roundabout	Sign Control
A	d ≤ 10	d ≤ 10	d ≤ 10
B	10 < d ≤ 20	10 < d ≤ 20	10 < d ≤ 15
C	20 < d ≤ 35	20 < d ≤ 35	15 < d ≤ 25
D	35 < d ≤ 55	35 < d ≤ 50	25 < d ≤ 35
E	55 < d ≤ 80	55 < d ≤ 70	35 < d ≤ 50
F	80 < d	70 < d	50 < d

The following peak hours were considered for traffic volumes in the SIDRA capacity analysis:

- Morning peak hour: 07:00- 08:00
- Afternoon peak hour: 17:00-18:00.

The intersections and road geometry were derived from Google Earth images and confirmed on site observations for each intersection layout and configuration.

The intersections' performance measures are summarised in **Table 2**. Existing traffic profile for the a.m. and p.m. peak hours are given in **Annexure B** respectively. Detailed Sidra movement summaries for Intersections 1 to 11 are given in **Annexure F**.

Table 2: Existing 2019 Traffic Evaluation Results

Intersection			A.M. Peak					P.M. Peak				
			Volume	v/c	Delay (s)	LoS	Queue (veh)	Volume	v/c	Delay (s)	LoS	Queue (veh)
01: M10 Klipspruit Valley Rd/ R558 (Signal Control)	S	South	516	0,30	6	A	5	709	0,44	7	A	8
	S	North	260	0,21	6	A	3	668	0,58	8	A	12
	S	West	108	0,28	28	C	3	244	0,60	29	C	7
	S	Total	884	0,27	9	A		1621	0,52	11	B	
	Comment		Acceptable Level of Service									
02: M10 Klipspruit Valley Rd/ Muslim School Access Rd (Signal Control)	S	South	790	0,78	17	B	16	528	0,38	7	A	6
	S	East	335	0,78	31	C	7	219	0,51	28	C	4
	S	North	770	0,82	20	C	18	717	0,55	8	A	11
	S	West	142	0,38	24	C	4	108	0,32	27	C	3
	S	Total	2037	0,77	21	C		1572	0,47	12	B	
	Comment		Acceptable Level of Service									
03: M10 Klipspruit Valley Rd/ Volta St. (Signal Control)	S	South	903	0,80	30	C	19	745	0,38	14	B	8
	S	East	546	0,92	50	D	25	258	0,69	33	C	6
	S	North	847	0,93	50	D	45	809	0,68	16	B	17
	S	West	276	0,74	30	C	6	242	0,21	14	B	2
	S	Total	2572	0,86	41	D		2054	0,52	17	B	
	Comment		Acceptable Level of Service									
04: M10 Klipspruit Valley Rd/ Vaal (Priority Control)	P	South	1292	0,57	1	A	1	995	0,43	0	A	0
	P	East	69	10,80	9069	F	77	57	7,39	5971	F	50
	P	North	1130	0,56	6	A	17	963	0,45	2	A	1
	P	West	37	2,03	1330	F	18	28	1,11	569	F	7
	P	Total	2528	0,87	270	F		2043	0,64	175	F	
	Comment		Requires Upgrading by Signalisation									
05: Volta St/ Zambesi (Priority Control)	P	South	77	0,10	11	B	0	39	0,03	9	A	0
	P	East	463	0,25	0	A	0	242	0,13	0	A	0
	P	West	307	0,19	2	A	1	218	0,12	1	A	0
	P	Total	847	0,21	2	A		499	0,12	1	A	
	Comment		Acceptable Level of Service									
	P	East	330	0,19	1	A	1	240	0,13	1	A	0
	P	North	285	0,37	11	B	2	133	0,13	9	A	1

06: Volta St/ Vaal St. (Priority Control)	P	West	261	0,11	2	A	0	179	0,09	0	A	0
	P	Total	876	0,22	5	A		552	0,12	3	A	
	Comment	Acceptable Level of Service										
07: Volta St/ Shari St (Priority Control)	P	South	120	0,11	9	A	1	65	0,06	9	A	0
	P	East	225	0,12	0	A	0	200	0,11	0	A	0
	P	West	231	0,13	2	A	1	270	0,16	2	A	1
	P	Total	576	0,12	3	A		535	0,13	2	A	
08: Shari St/ Limpopo St (Priority Control)	Comment	Acceptable Level of Service										
	P	South	31	0,03	9	A	0	19	0,02	8	A	0
	P	East	166	0,09	1	A	0	82	0,04	1	A	0
	P	West	66	0,03	1	A	0	108	0,05	0	A	0
	P	Total	263	0,07	2	A		209	0,04	1	A	
09: Shari St/ Alabama St (Priority Control)	Comment	Acceptable Level of Service										
	P	South	58	0,05	9	A	0	27	0,02	8	A	0
	P	East	108	0,07	1	A	0	61	0,03	2	A	0
	P	West	84	0,04	1	A	0	86	0,05	2	A	0
	P	Total	250	0,06	3	A		174	0,04	3	A	
10: Shari St/ Shaba St (Priority Control)	Comment	Acceptable Level of Service										
	P	South	1	0,00	8	A	0	0	0,00	8	A	0
	P	East	91	0,05	0	A	0	63	0,03	1	A	0
	P	North	15	0,01	9	A	0	10	0,01	8	A	0
	P	West	96	0,05	1	A	0	59	0,03	1	A	0
	P	Total	203	0,05	1	A		132	0,03	2	A	
11: Dingo Crescent/ Unknown St (Priority Control)	Comment	Acceptable Level of Service										
	P	South	36	0,03	8	A	0	19	0,01	8	A	0
	P	East	46	0,02	2	A	0	30	0,01	2	A	0
	P	North	19	0,01	8	A	0	8	0,01	8	A	0
	P	West	14	0,01	1	A	0	43	0,02	2	A	0
	P	Total	115	0,02	5	A		100	0,01	4	A	
	Comment	Acceptable Level of Service										

3.4 Status Quo Traffic Appraisal

Location 1: M10 Klipspruit Valley Rd/ R558 Road(K43): The LOS A is acceptable for the overall intersection and all the approaches during the a.m. peak and p.m. peak hours for the existing scenario at a LoS A/B/C.

Location 2: M10 Klipspruit Valley Rd/ Muslim School Access Road: This intersection operates at an acceptable LoS C/B for the overall intersection and all the approaches during the a.m. peak and p.m. peak hours at an acceptable LoS A/B/C.

Location 3: M10 Klipspruit Valley Rd/ Volta St: This intersection during the a.m. peak and p.m. peak is operating at an overall acceptable LoS B/D and all the approaches at acceptable LoS B/C/D for both peak hours.

Location 4: M10 Klipspruit Valley Rd/ Vaal St/ Peshawar St: This intersection during the a.m. peak and p.m. peak is operating at an overall unacceptable LoS F, the east/west approaches operating at a none acceptable LoS F during the a.m. peak and p.m. peak and the northern/ southern approach at a LoS A for the a.m. and p.m. peak hours. Signalisation is proposed for the upgrading of this intersection.

Location 5: Volta St/ Zambesi St: This intersection is operating at an overall acceptable LoS A for the a.m. peak and the p.m. peak and all approaches at an acceptable LoS A/B during the a.m. peak and p.m. peak hour.

Location 6: Volta St/ Vaal St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A. All approaches operate at acceptable LoS A/B for the a.m. and p.m. peak hour.

Location 7: Volta St/ Shari St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A and all approaches at acceptable LoS A for the a.m. and p.m. peak hour.

Location 8: Shari St/ Limpopo St: This intersection is operating at an acceptable LoS B/ A for the a.m. and p.m. peak hours with all approaches at acceptable LoS A during the a.m. and p.m. peak hours.

Location 9: Shari St/ Avon Ave: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A for the a.m. and p.m. peak hours.

Location 10: Shari St/ Shaba St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A for the a.m. and p.m. peak hours.

Location 11: Dingo Crescent/ Unknown St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A for the a.m. and p.m. peak hours.

A traffic count was undertaken at the M10/R554 intersection. This indicated that the single carriageway of Klipspruit Valley Road during the peak direction was operating at oversaturated conditions with v/c =1,1 assuming 1 630 vehicles per hour (vph) during the a.m. peak and v/c= 1,2 with 1 815 vph during the p.m. peak and a capacity of 1 500 vph.

Traffic observations along the R553 Golden Highway north of the R554 are even worse, being oversaturated at a v/c of 1,3 for the single lane carriageway.

To the south of the R554 along Klipspruit Valley Road, the peak volume of 1 350 vph does not exceed the assumed 1 500 vph capacity (v/c=0,9).

4 PROPOSED DEVELOPMENT MODELLING

4.1 Trip Generation

The trip generation is based on the number of vehicles to be generated by the new development. In terms of calculating the vehicles expected to be generated by the proposed new mixed development, the criteria specified in COTO manual "Committee of Transport Officials" TMH17 South Africa Trip Data Manual, September 2013 were applied in conjunction with other assumed basic criteria being:

- Vehicle trip generation rate for Apartments and Flats, 1 dwelling/ unit = 0,65
- Vehicle Trip generation rate for Public Primary School 1 Student= a.m.=0,85 / p.m.=0,30
- Vehicle Trip generation rate for Pre-school a.m.=1/ p.m.=0,8
- Vehicle trip generation rate for Business Centre 100 sqm GLA= 1,50.

Trip Adjustment Factors

- Trip generation adjustment factor for very low car ownership (Apartments and Flats) at 50%
- Trip generation adjustment factor for very low car ownership (Public Primary School) at 80%
- Trip generation adjustment factor for very low car ownership (Pre- School) at 80%
- Trip generation adjustment factor for very low car ownership (Business centre) at 30%
- Public transit node reduction factor at 15% assuming that a large facility bus/ taxi rank will be provided near the centre of the development and M10, R554 and R553 are SPTN routes for the planned provision of significant capacity Trunk Public Transport Routes.

2 638 Trips will be generated during the peak hour for remainder of Portion 129 of the Rietfontein 301-IQ farm mixed development.

The current inbound to outbound split to be used is the same as contained in the COTO manual and the number of trips generated is shown in the table below.

Table 3: Trip Generation

Description	Size/ Units	Period Weekday	Trip Generation						Trip (veh/h)			
			Trip Rate	Reductio n Factor for low car ownersh ip	Reduc. transit corridor	Combined Reduction Factor	Final Trip Gen. rate	Gen. Traffic	Directional Movement		In	Out
									In/out (%)	Peak hour factor		
<i>Residential 3 (d.u.)</i>	5 900	AM Peak	0,65	0,5	0,15	0,575	0,276	1630	25/75	1	407	1222
		PM Peak	0,65	0,5	0,15	0,575	0,276	1630	70/30	1	1141	489
<i>Public Primary School (pupils)</i>	2 000	AM Peak	0,85	0,8	0,15	0,83	0,145	289	50/50	0,55	263	263
		PM Peak	0,3	0,8	0,15	0,83	0,051	102	50/50	1	51	51
<i>Public Secondary School (pupils)</i>	1 200	AM Peak	0,75	0,8	0,15	0,83	0,128	153	50/50	0,55	139	139
		PM Peak	0,25	0,8	0,15	0,83	0,043	51	50/50	1	26	26
<i>Pre-School (pupils)</i>	400	AM Peak	1	0,8	0,15	0,83	0,170	68	50/50	0,85	40	40
		PM Peak	0,8	0,8	0,15	0,83	0,136	54	50/50	0,8	34	34
<i>Business Centre (100 sqm GLA)</i>	14 800	AM Peak	1,5	0,3	0,15	0,405	0,893	132	85/15	1	112	20
		PM Peak	1,5	0,3	0,15	0,405	0,893	132	20/80	1	26	106
									AM PEAK IN	962		
									AM PEAK OUT		1684	
									PM PEAK IN	1278		
									PM PEAK IN		705	

In terms of trip distribution, it was assumed that traffic expected to be generated by the proposed developments would distribute onto the existing road network in accordance with traffic distribution evident in terms of existing a.m. peak and p.m. peak traffic demands as determined from the 2019 traffic count surveys for remainder of Portion 129 of Rietfontein 301-IQ farm.

The existing traffic profile for the Rietfontein development is shown in **Figure 1/2 Annexure B**, the background traffic is shown in **Figure 3/4 Annexure C**, the generated traffic is shown in **Figure 5/6 Annexure D** and the forecast total traffic 2024 in **Figure 7/8 Annexure E**.

The trip distribution was based on the major surrounding employment areas and these were determined in the Access Study, which resulted in the following realistically safe condition trip distribution:

- a) Vanderbijlpark, Vereeniging and Sasolburg (M10 south) **5%**
- b) Lenasia, Industrial Park West, Protea Glen, Lufhereng (R554 west)**5%**
- c) M10 Klipspruit Valley Road to north also via N12. **57,3%**
- d) R553 Golden Highway to north and via N12. **26,7%**
- e) R554 East via Swartkoppies to Alrode, Wadeville, etc. **6%**.

When adding the development related traffic onto the existing traffic the latter trip movements were also increased to account for existing traffic growth between the time the traffic counts were conducted until the time when the developments could be expected to be completed. In this regard, the assumed background traffic growth rate only along the major routes was 2% per annum for five years.

The maximum scenario has been modelled together with the background traffic for the highest impact to be evaluated.

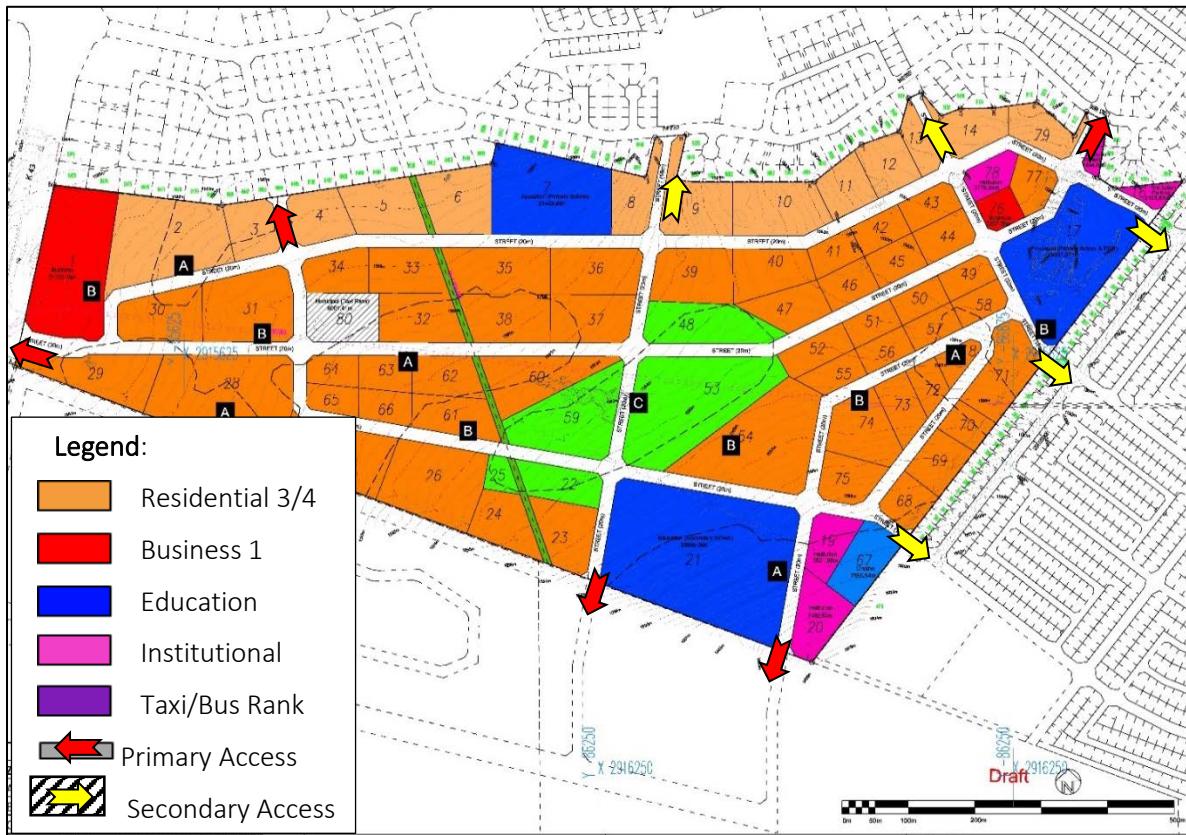
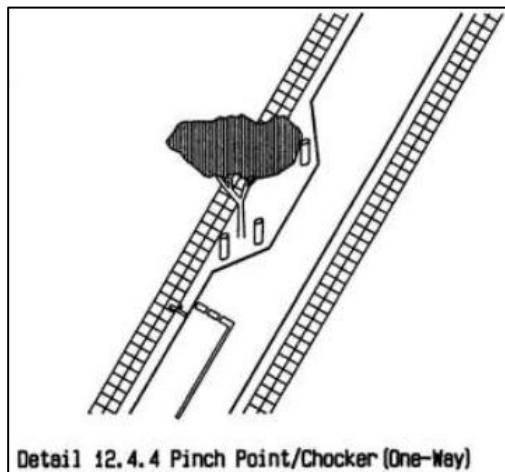


Figure 5: Proposed Township Layout with Primary and Secondary Accesses

Since Lenasia Ext 10 is located just north of the Rietfontein Development and Lehae is located just east of it, the traffic demand through these residential areas will be limited by severe traffic calming and capacity restraints with 16 m road reserve widths and traffic calming/capacity limiting single point chockers(see Figure below). This would be applied to all the secondary accesses. All other road reserve widths are proposed to be 20 m wide with the new access onto the M10 being 30 m wide to accommodate 4 lanes.



5 TRAFFIC IMPACT ASSESSMENT

5.1 2024 Forecast Traffic Evaluation

The trip assignment for the forecast year 2024 scenarios was further analysed to evaluate the impact on the intersection capacity and discussed under this chapter. The capacity analysis was performed using SIDRA Intersection V7.0 software package. The results for the mixed development 2024 traffic, morning and afternoon peak hour are shown in the following section.

5.1.1 Intersection Capacity Analysis

The intersections performance measures are summarised in **Table 4**. The forecast development traffic profile for the a.m. and p.m. peak hour is given in **Annexure E** respectively. Detailed SIDRA movement summaries for Intersections 1 to 12 are provided in **Annexure G**.

Table 4: Results of 2024 Forecast Intersection Evaluation

Intersection			a.m. Peak				a.m. Peak					
			Volume	v/c	Delay (s)	LoS	Queue (veh)	Volume	v/c	Delay (s)		
01: M10 Klipspruit Valley Rd/ R558 (Signal Control)	S	South	618	0,36	5	A	6	867	0,55	7	A	11
	S	North	371	0,29	5	A	5	786	0,70	9	A	14
	S	West	119	0,37	30	C	3	269	0,71	32	C	8
	S	Total	1 108	0,34	8	A		1 922	0,63	11	B	
	Comment		Acceptable Level of Service									
02: M10 Klipspruit Valley Rd/ Muslim School Access Rd (Signal Control)	S	South	920	0,85	22	C	21	667	0,45	10	B	9
	S	East	712	0,85	28	C	15	441	0,70	27	C	8
	S	North	1 067	0,72	19	B	15	1 116	0,68	12	B	15
	S	West	157	0,24	15	B	3	119	0,28	23	C	3
	S	Total	2 856	0,77	22	C		2 343	0,60	15	B	
	Comment		Acceptable Level of Service									
03: M10 Klipspruit Valley Rd/ Volta St (Signal Control)	S	South	1 697	1,13	148	F	93	1 198	0,57	16	B	18
	S	East	953	1,59	501	F	177	460	1,55	447	F	77
	S	North	1 485	1,63	467	F	256	1 943	1,59	401	F	295
	S	West	305	1,08	81	F	11	267	0,39	20	C	4
	S	Total	4 440	1,39	326	F		3 868	1,19	261	F	
	Comment		Requires Local lane Upgrading									
03: M10 Klipspruit Valley Rd/ Volta St (Signal Upgraded)	S	South	1 697	0,87	6	A	9	1 198	0,69	1	A	2
	S	East	953	0,61	48	D	9	460	0,37	35	C	4
	S	North	1 485	0,75	20	C	9	1 943	0,90	24	C	46
	S	West	305	0,12	20	B	1	267	0,09	21	C	1
	S	Total	4 440	0,72	21	C		3 868	0,72	18	B	
	Comment		Acceptable Level of Service									
	P	South	2 248	7,49	420	F	93	1 649	0,99	852	F	946

04: M10 Klipspruit Valley Rd/ Vaal (Priority Control)	P	East	176	29,52	25 740	F	162	113	19,25	16 517	F	103
	P	North	1 847	3,21	394	F	260	2 213	1,19	172	F	245
	P	West	41	7,19	5 774	F	37	31	2,43	1 554	F	17
	P	Total	4 312	6,55	1 493	F		4 006	1,63	923	F	
	Comment		Requires Upgrading to Signal Control									
	S	South	2 248	0,94	41	D	66	1 649	0,69	1	A	2
04: M10 Klipspruit Valley Rd/ Vaal (Signal Control)	S	East	176	0,46	55	D	5	113	0,19	34	C	2
	S	North	1 847	0,67	16	B	30	2 213	0,90	24	C	46
	S	West	41	0,12	20	B	1	31	0,09	21	C	1
	S	Total	4 312	0,80	31	C		4 006	0,79	15	B	
	Comment		Acceptable Level of Service									
05: Volta St/ Zambezi (Priority Control)	P	South	485	0,78	21	C	8	268	0,52	17	C	3
	P	East	560	0,30	1	A	0	561	0,30	1	A	0
	P	West	513	0,41	6	A	3	591	0,54	9	A	5
	P	Total	1 558	0,49	9	A		1 420	0,44	7	A	
	Comment		Acceptable Level of Service									
06: Volta St/ Vaal St. (Priority Control)	P	East	409	0,25	2	A	1	265	0,15	1	A	0
	P	North	365	0,56	14	B	4	247	0,28	10	A	1
	P	West	284	0,15	3	A	0	248	0,13	1	A	0
	P	Total	1 058	0,33	6	A		760	0,19	4	A	
	Comment		Acceptable Level of Service									
07: Volta St/ Shari St. (Priority Control)	P	South	170	0,17	9	A	1	72	0,07	9	A	0
	P	East	248	0,13	0	A	0	221	0,12	0	A	0
	P	West	255	0,15	2	A	1	348	0,22	3	A	1
	P	Total	673	0,15	3	A		641	0,17	3	A	
	Comment		Acceptable Level of Service									
08: Shari St/ Limpopo St. (Priority Control)	P	South	81	0,07	9	A	0	19	0,02	9	A	0
	P	East	166	0,09	1	A	0	82	0,04	1	A	0
	P	West	66	0,03	1	A	0	158	0,09	2	A	0
	P	Total	313	0,07	3	A		259	0,07	2	A	
	Comment		Acceptable Level of Service									
09: Shari St/ Alabama St. (Priority Control)	P	South	108	0,10	9	A	0	27	0,02	8	A	0
	P	East	108	0,05	1	A	0	111	0,06	3	A	0
	P	West	84	0,04	1	A	0	86	0,05	2	A	0
	P	Total	300	0,07	4	A		224	0,05	3	A	
	Comment		Acceptable Level of Service									
10: Shari St/ Shaba St. (Priority Control)	P	South	201	0,29	10	B	1	143	0,20	10	A	1
	P	East	234	0,13	4	A	0	313	0,17	4	A	0
	P	North	15	0,01	9	A	0	10	0,01	9	A	0
	P	West	146	0,08	1	A	0	59	0,03	1	A	0
	P	Total	596	0,17	5	A		525	0,16	5	A	
	Comment		Acceptable Level of Service									

11: Dingo Crescent/ Unknown St. (Priority Control)	P	South	36	0,05	10	A	0	19	0,02	10	A	0
	P	East	160	0,08	1	A	0	230	0,12	0	A	0
	P	North	19	0,03	10	A	0	8	0,01	9	A	0
	P	West	214	0,11	0	A	0	157	0,08	1	A	0
	P	Total	429	0,09	2	A		414	0,10	1	A	
	Comment	Acceptable Level of Service										
12: M10 Klipspruit Rd/ New Access Rd. (Signal Control Control)	S	South	1 325	0,56	7	A	11	962	0,35	4	A	5
	S	East	442	0,57	30	C	6	224	0,49	34	C	3
	S	North	1 245	0,58	7	A	12	1 443	0,51	5	A	9
	S	Total	3 012	0,57	10	B		2 629	0,45	7	A	
	Comment	Acceptable Level of Service										

5.1.2 2024 Forecast Opening Year Appraisal

Location 1: M10 Klipspruit Valley Rd/ R558 Road (K43): The LoS A is acceptable for the overall intersection and all the approaches during the a.m. peak and p.m. peak hours for the forecast scenario are operating at a LoS A/B/C.

Location 2: M10 Klipspruit Valley Rd/ Muslim School Access Road: This intersection operates at an acceptable LoS B/C for the overall intersection and all the approaches during the a.m. peak and p.m. peak hours at an acceptable LoS B/C.

Location 3: M10 Klipspruit Valley Rd/ Volta St: This intersection during the a.m. peak and p.m. peak is operating at an overall none acceptable LoS F and the western/ eastern approach is operating at a none acceptable LoS F for the a.m. peak and p.m. peak, the northern/ southern approach is operating at a none acceptable LoS F for the a.m. and p.m. peak hours.

The volume to capacity ratio (v/c) of 1,39/1,19 is not acceptable for the overall a.m. peak and the p.m. peak hours, and the v/c for all approaches is not acceptable. Therefore, geometry upgrade and signal optimisation are required for this intersection.

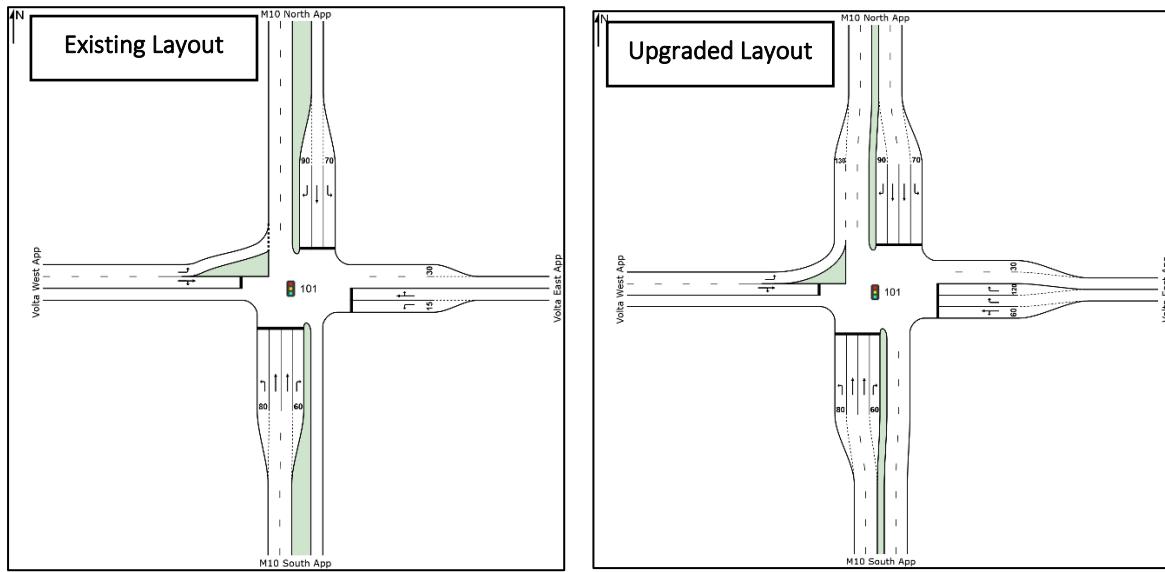


Figure 6: M10 Klipspruit Valley Rd & Volta St Geometry Upgrade

With an upgraded intersection, this junction operates at an overall acceptable LoS B/C for the a.m. peak and p.m. peak hours and all approaches operating at an acceptable LoS A/B/C/D for both peak hours. The volume to capacity ratio (v/c) is at 0,72 for the a.m. peak and p.m. peak hours respectively.

Location 4: M10 Klipspruit Valley Rd/ Vaal St/ Peshawar St: This intersection during the a.m. peak and p.m. peak is operating at an overall none acceptable LoS F and the western/ eastern approaches are operating at a none acceptable LoS F for the a.m. peak and p.m. peak, the northern/ southern approaches are operating at a none acceptable LoS F for the a.m. and p.m. peak hours.

The volume to capacity ratio of 6,55/1,63 is not acceptable for the overall a.m. peak and the p.m. peak hours. The v/c for all approaches is not acceptable. Therefore, a geometry upgrade and signal control upgrade are required for this intersection.

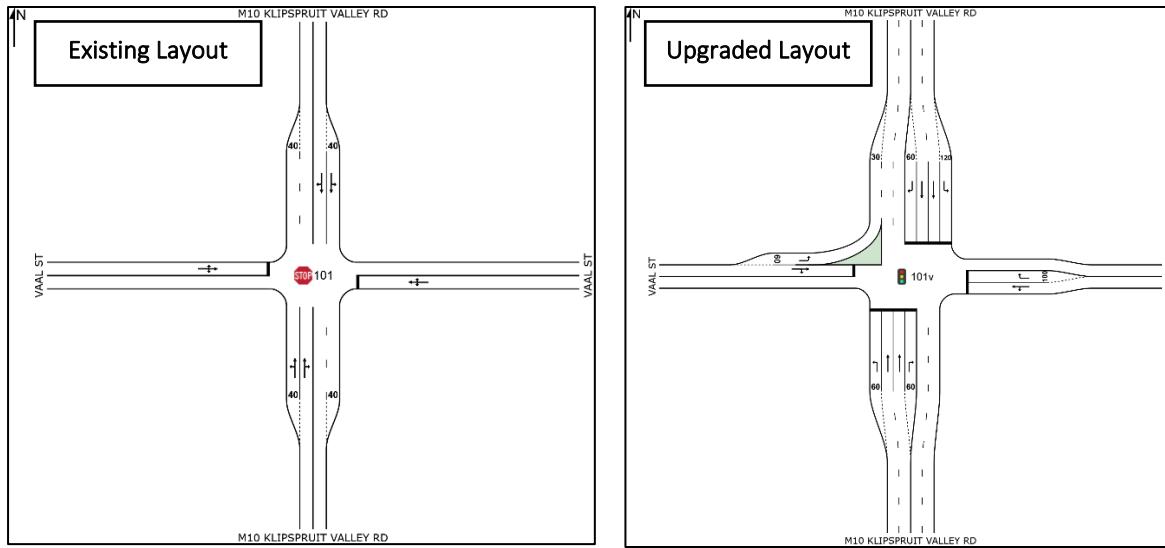


Figure 7: M10 Klipspruit Valley Rd & Vaal St Geometry Upgrade

With new upgrades, this intersection operates at an overall acceptable LoS C/B for the a.m. peak and p.m. peak hours and all approaches operating at an acceptable LoS A/B/C/D for both peak hours. The volume to capacity ratio is at 0,80 and 0,79 for the a.m. peak and p.m. peak hours respectively.

Location 5: Volta St/ Zambesi St: This intersection is operating at an overall acceptable LoS A for the a.m. peak and the p.m. peak and all approaches at an acceptable LoS A/C during the a.m. peak and p.m. peak hour.

Location 6: Volta St/ Vaal St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A. All approaches operate at acceptable LoS A/B for the a.m. and p.m. peak hours.

Location 7: Volta St/ Shari St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A and all approaches at acceptable LoS A for the a.m. and p.m. peak hours.

Location 8: Shari St/ Limpopo St: This intersection is operating at an acceptable LoS A for the a.m. and p.m. peak hour with all approaches at acceptable LoS A during the a.m. and p.m. peak hours.

Location 9: Shari St/ Avon Ave: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A for the a.m. and p.m. peak hours.

Location 10: Shari St/ Shaba St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A/B for the a.m. and p.m. peak hours.

Location 11: Dingo Crescent/ Unknown St: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS A with all approaches operating at acceptable LoS A for the a.m. and p.m. peak hour.

Location 12: M10 Klipspruit Valley Rd/ New Access Rd to Rietfontein: This intersection during the a.m. peak and p.m. peak is operating at an acceptable LoS B/A with all approaches operating at acceptable LoS C/A for the a.m. and p.m. peak hour. The proposed intersection configuration is shown below.

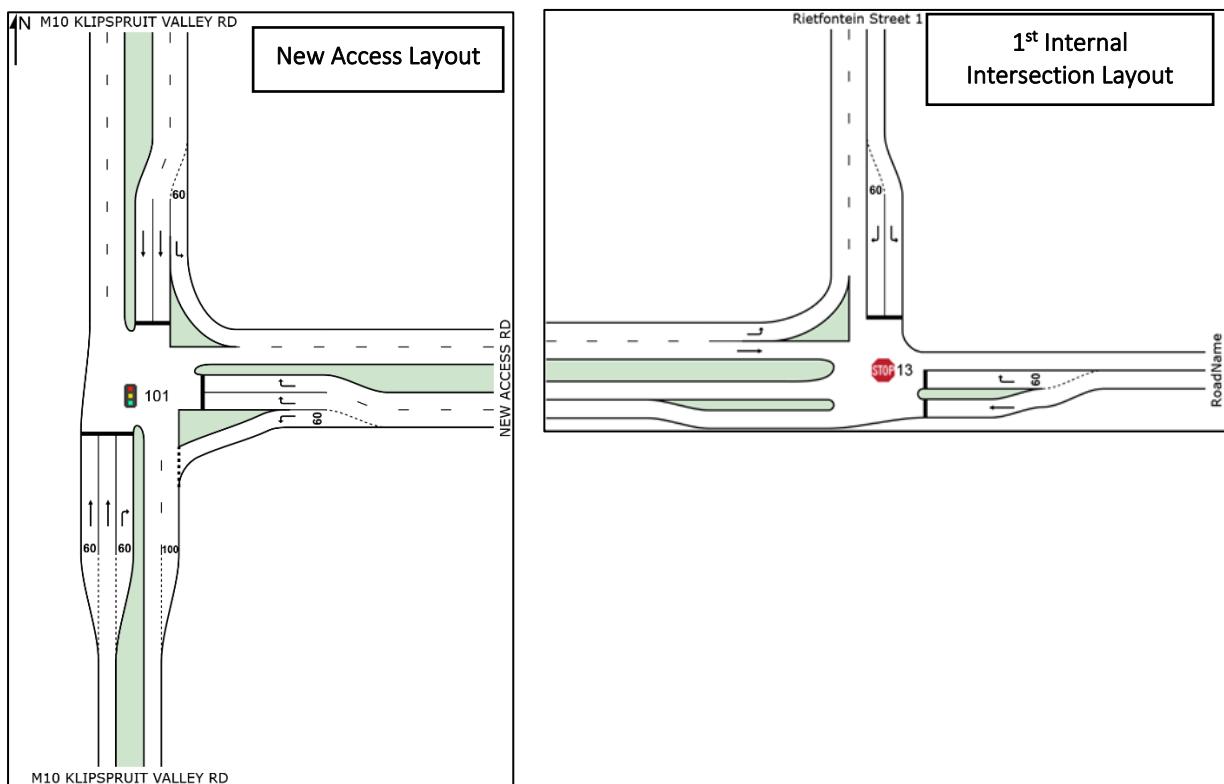


Figure 8: M10 Klipspruit Valley Rd/ New Access Rd (Int 12) & and the 1st paired internal intersection

5.2 Public Transport

The Rietfontein 301-IQ farm remainder of Portion 129 lies to the east of the M10 Klipspruit Valley Rd, north of the Lanseria Muslim School, west of the Lehae township and south of the Themb'Elihle and Lenasia Extension 10 townships. These four areas are served by predominantly mini-bus taxis public transport mode.

The Rietfontein 301- IQ farm remainder of Portion 129 is surrounded by an excellent public route networks, consisting of mobility spine, mobility roads and urban freeways. There is a need to introduce an efficient transportation system in this area to serve residents of the new mixed development to improve the linkage of the north/ south and east/ west, therefore making this region suitable to a consolidated extension of other surrounding areas.

The current predominant movement from Rietfontein new mixed development north and south towards the employment opportunities, i.e. to the Lenasia north (magistrate court, shopping centre, etc.), Anchor Ville industrial area, Johannesburg central, Alberton, City Deep, Sandton, Vereeniging area, Vanderbijlpark, etc. This further emphasises that most of the trips from the new development will be northbound and southbound.

it is expected that some of the Rietfontein 301-IQ farm remainder of Portion 129 new mixed development will use the Lenz Railway Station via the Lenasia Taxi Rank by mini-bus taxi.



Figure 9: Proposed Public Transport Routes

Residents of the new mixed development remainder of Portion 129 of Rietfontein 301-IQ farm will be served by existing public transport routes along the M10 Klipspruit Valley Rd, Volta St, Dingo Crescent and future public transport routes along the new road network passing through the new development.

The existing and future taxi routes and busses within the area are shown in the figure above. The predominant movement is expected for buses and minibus-taxis to feed passengers to the Lenz Rail Station or directly to places of work opportunities (mainly to the north).

For this scale of the new mixed development and the future demand in this area; a taxi rank facility should be erected along the main road in parcel number 80. The location of the proposed public transport facility is shown on the figure below.

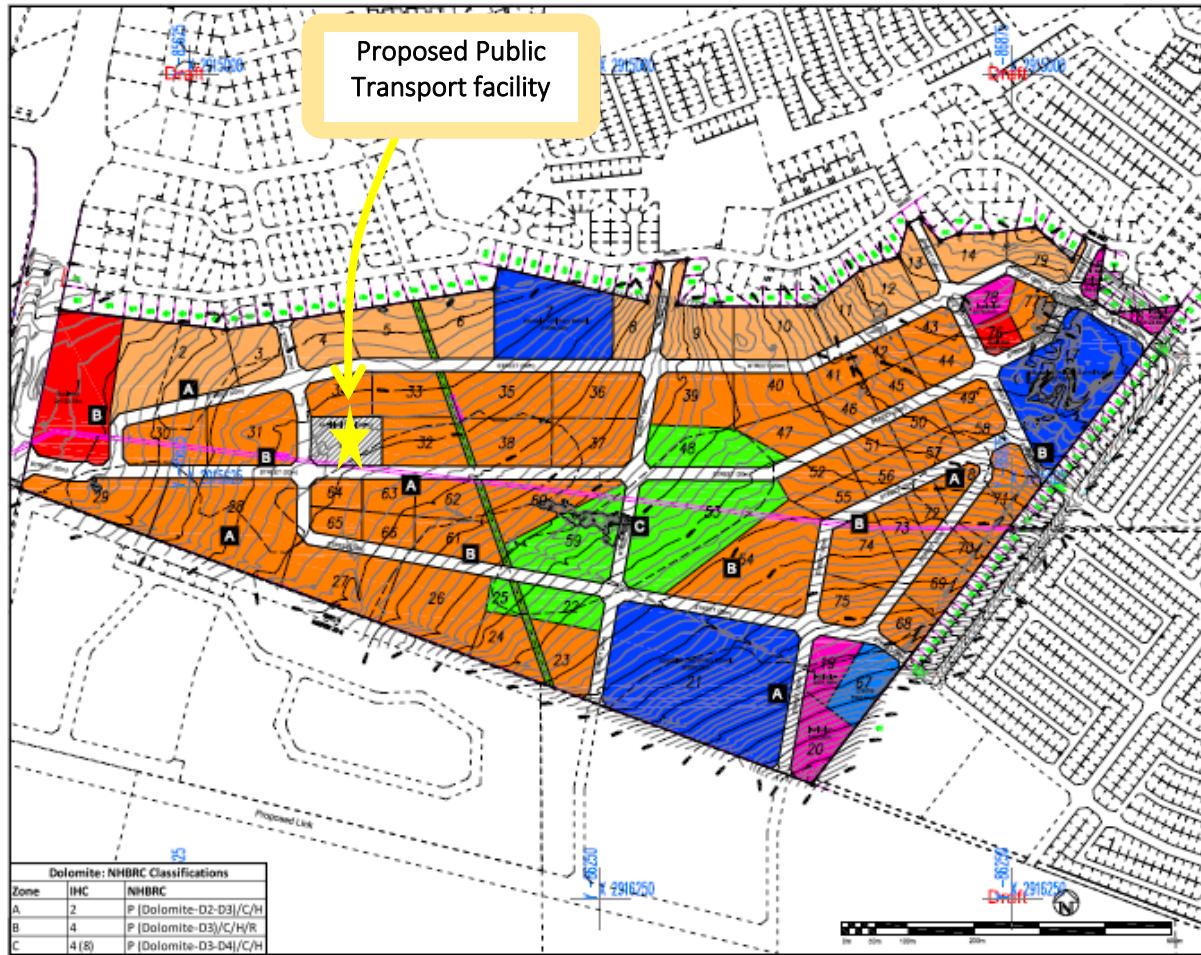


Figure 10:Proposed Public Transport Facility

One taxi/bus rank should be provided in parcel 80 to serve this new mixed development with proper public transport infrastructures as per standards requirements with access/ exit along the main road on this site development.

6 PARKING PROVISION FOR ENNERDALE EXTENSION 9

6.1 Parking Provision

The City of Johannesburg Land Use Scheme, 2017 “City planning and Development Division Premier’s draft June 2017” were applied in conjunction with other assumed basic criteria, these being:

- As per the Site Development Plans (SDPs) included in **Annexure A**, the parking provision for remainder of Portion 129 of Rietfontein 301-IQ farm.

As per trip generation table, a maximum of 2 638 trip vehicles will be generated for this development therefore a provision for parking bays will be required for this new mixed development project.

- It shall be noted that the Rietfontein mixed development falls under Social/ inclusionary for areas as defined in the Spatial Development Framework (SDF).
- This means that 5585 parking bays should be provided under this town planning scheme.
- The number of parking bays required is shown in the following table for the Rietfontein 301-IQ farm remainder of Portion 129 new mixed development.

Table 5:Parking Provision

Description	Units/ size	Standard	Remainder of City Parking Ratio	Parking Bays
Residential 3 (d.u.)	5900	Inclusionary	0,75	4425
2 Public Primary School (pupils)	1000 X 2	per class room/20 Pupils	1 bay per classroom,1 bay per teacher/ staff, 0,1 per learner	400
Public Secondary School (pupils)	1200	per class room/20 Pupils	1 bay per classroom,1 bay per teacher/ staff, 0,1 per learner	240
Pre-School (pupils)	400	per class room/ 20 Pupils	1 bay per classroom, 0,2 per Child	100
Business Centre (100 sqm GLA)	14 000	100 sqm GLA	3	420

7 DEVELOPMENT ACCESS AND INTERNAL CIRCULATION

The preliminary concept design of the Rietfontein access intersections are provided in **Annexure A**. From the capacity analysis it was concluded that all access intersections would be stop-controlled intersections. The intersection configuration proposed will allow efficient and effective/ safe use of the road reserve by residents (pedestrians and cyclists) and motorists.

The internal road circulation requires a 7 m wide paved road with road signs, traffic calming measures, speed humps of 50 m to 100 m spacing, 2 m wide paved pedestrian sidewalk at least one side of the road and a minimum speed of 15 km/hr.

Provision should be made for a refuse truck or fire truck to be able to use the internal road to avoid truck having to turn around.

If access control is considered at different parcels, a control boom should be placed some 12 m from the edge of the local street. Allowance must be made for one of the lanes (probably inbound) to be at least 4,5 m wide for fire truck access and no roof structure with a clearance less than 4,2 m would be allowed.

The 7 m wide access width at the property boundary (3,5 m per direction) would widen to 4,5 m inbound, 3 m outbound and a 2 m wide central median for a guard house placed at least 12 m inside the property boundary.

Annexure A shows the proposed Rietfontein new mixed development roads network connecting east/ west and north/ south.

8 NON-MOTORISED TRANSPORT

Non-motorised Transport (NMT) plays an important role in the first and last mile (kilometre) of travel, especially for public transport users. The implementation of NMT involves the application of universal access design; - a principle that enables all citizens to reach their destination without a hindrance in their physical environment.

With regards to the residents of this new housing development, travel by means of cycling, walking, including travel by persons living with any visual or physical disability, should be accommodated. This has the beneficial effect of promoting transportation equity, maximising independence and improving community liveability.

In order to provide NMT facilities all street infrastructures ought to comply with complete streets cross-section as per the City of Johannesburg standards requirement.

The various complete streets cross-sections are shown below for the required road reserve widths.

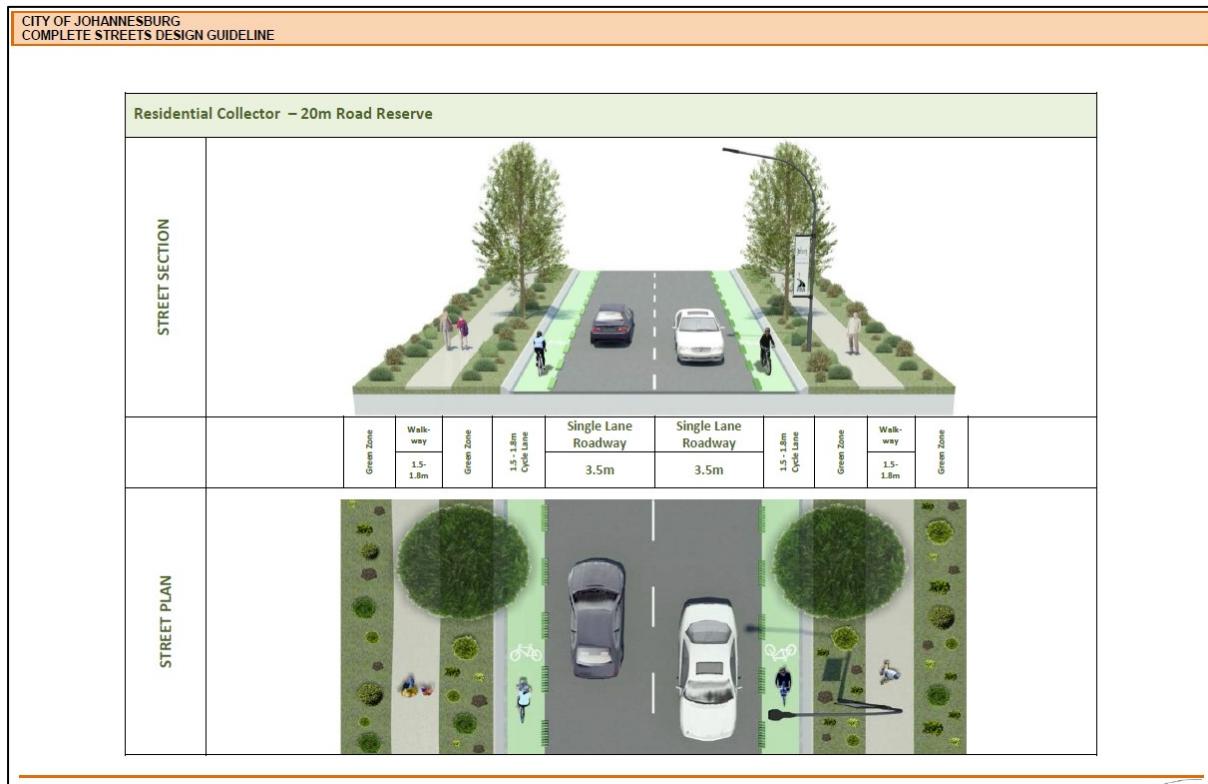


Figure 11: 20 m Wide Reserve Residential Collector

Safety and security to be included as two of the key aspects of the NMT facility designs. Safety of pedestrians over the level crossings/ security in general needs to be maximised through the infrastructure designs.

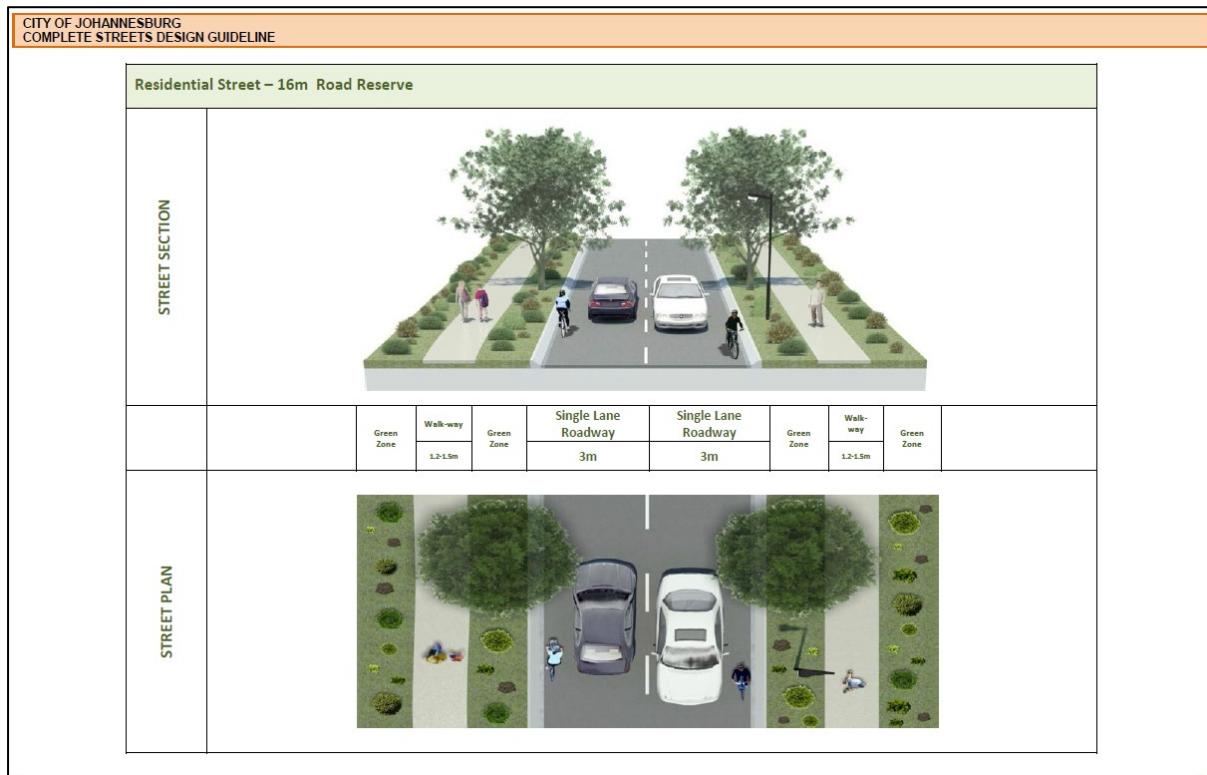


Figure 12: 16 m Wide Reserve Local Residential Street

All facilities that will be provided for public transport users and Non-motorised Transport users residing at the remainder of Portion 129 of Rietfontein 301-IQ farm new mixed development, should be accessible and safe.

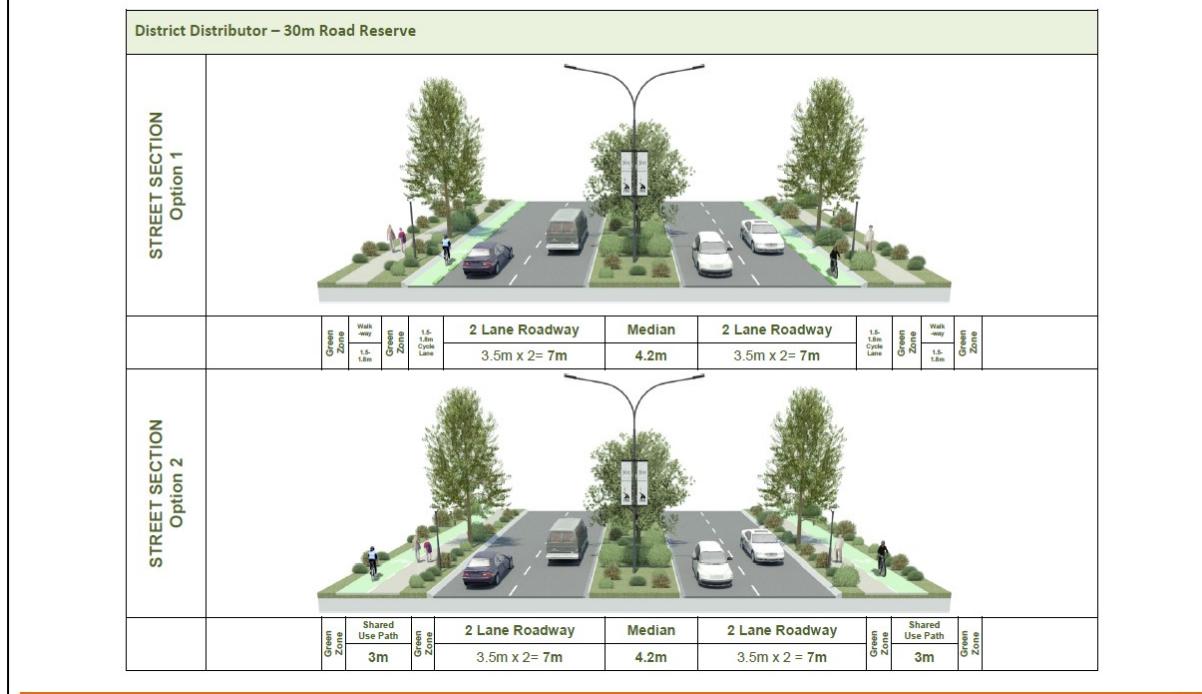


Figure 13: 30 m Wide Reserve District Distributor

8.1 Recommendations for Non-motorised Transport

The following recommendations should be provided from an NMT and public transport perspective:

- It is recommended that a minimum paved sidewalk width of 2 m be provided all around the farm remainder of Portion 129 of Rietfontein 301-IQ new mixed development.
- It is recommended that lighting along all future roads be provided to ensure that safety and security is enhanced for all NMT users of the new development.
- Providing tactile pavers at different intersections leading to the new mixed development for guidance and warning, making sure that the transfer of pedestrians from taxi/ bus to walking is done seamlessly and as safe as possible.
- Traffic calming measures (speed humps, yield controlled pedestrian crossing table, road signs, speed restriction and enough laybys for learner drop-off and collection) should be provided for the safety of NMT users and around all learning institutions.

9 CONCLUSIONS AND RECOMMENDATIONS

Summary of findings includes:

- All intersections for the Rietfontein new mixed development operate at acceptable LoS for the existing evaluation during the a.m. peak and p.m. peak hours except for the intersection 4., being the intersection of M10/ Vaal St.
- The intersection of M10 Klipspruit Valley Rd and Vaal St, Intersection 4, operates at unacceptable LoS for the east/ west approach. Hence, an upgrade to a signalised intersection is proposed for the future scenario and a geometry upgrade for the east approach.
- The forecast traffic evaluation for Intersections 1 to 11 did not require any geometric upgrades because of the Rietfontein new mixed development except for Intersections 3 and 4, Int 3 being M10 and Volta St.
- The number of trips generated for the new mixed development is 2 638 trips.

The remainder of Portion 129 of Rietfontein 301-IQ farm mixed development will require 5 585 parking bays. Parking utilisation was calculated by assuming that the Rietfontein mixed development fall under Social/ Inclusionary for areas as defined in the Spatial Development Framework (SDF).

The following conclusions and recommendations are made based on the forecast year 2024 modelling and capacity analysis of the intersections:

The intersection and road upgrades required due to the impact of the new housing development:

The results of the 2024 traffic evaluation shows that a new T-junction access intersection is required on the M10 (K43), since the traffic demand to/ from the north through Lenasia Extension 10 should be severely discouraged by the introduction of severe traffic calming, even to the extent of one-way pinch points (limiting capacity). Further upgrading is required at the following intersections:

- a) M10 and new Muslim School access intersection
- b) M10 and the new T-junction intersection mentioned above
- c) M10 and Volta Road
- d) M10 and Vaal Street
- e) R553 Golden Highway and R554 intersection.

The Rietfontein 301 development requires the full upgrading of M10 Klipspruit Valley Road from the new T-junction intersection to at least the N12 interchange by the addition of one lane per direction (to 4 lanes). This is because the 2019 traffic demand along the single lane per direction of the M10 in the peak direction is operating at oversaturated conditions.

This oversaturated traffic operating condition is also the case for the R553 Golden Highway during the peak hours, peak direction. Therefore, the Golden Highway should also be upgraded to 4 lanes between at least the R554 and the N12 interchange. These upgrades should be undertaken by the Gauteng Province for the Gauteng Human Settlements Rietfontein 301- development.

Public transport facility bus/ taxi rank should be erected in parcel 80 as planned.

Residents of the new mixed development are to use existing and future public transport routes and NMT facilities to be provided as discussed for residents of the Rietfontein new mixed development.

It is recommended that the roads and intersections be upgraded as described. It is recommended that the public transport facility be developed as proposed in parcel 80 as planned.

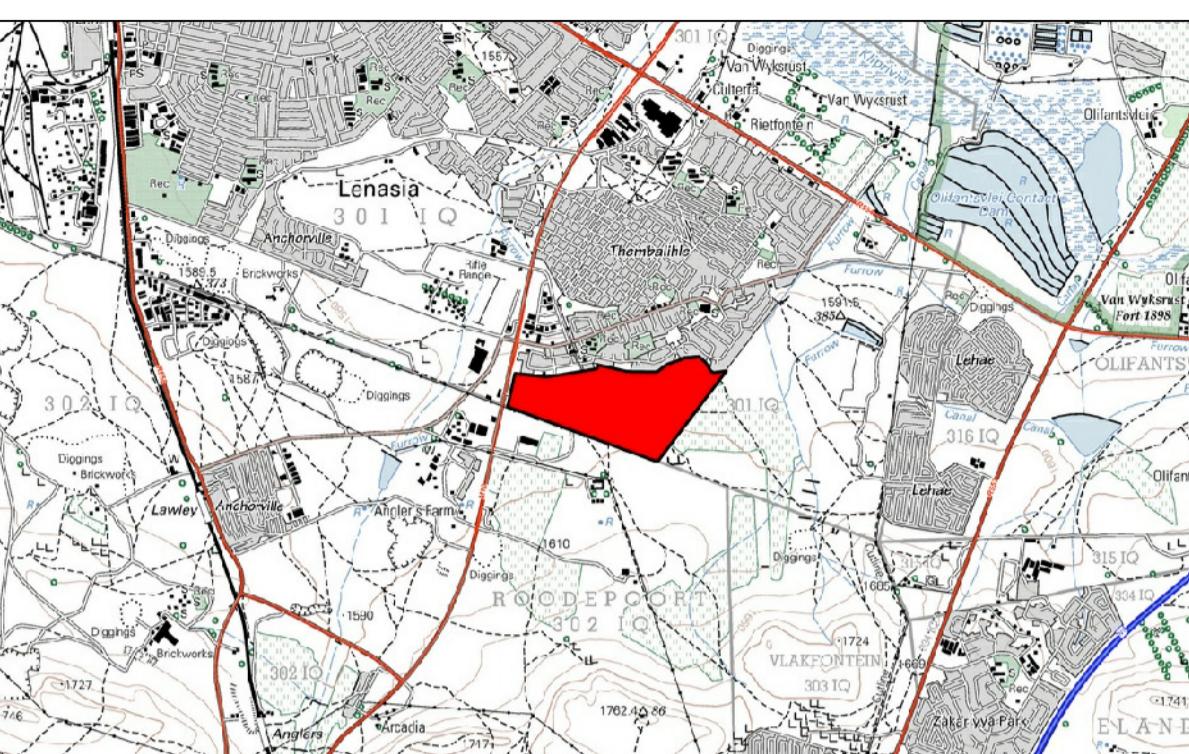
It is recommended that this Traffic Impact Study be accepted and approved for the new mixed development project on remainder of Portion 129 of the farm Rietfontein 301-IQ.

ANNEXURE A
PROPOSED TOWNSHIP LAYOUT PLANS

Draft Layout: Rietfontein Township

Situated on Portion Re 129 / 301 Rietfontein 301 Q approximately 83,821009 ha in extent, under the jurisdiction of Johannesburg City Municipality, Gauteng Province.

LOCALITY



NOTATION:

Town Planning Scheme:
City of Johannesburg Scheme 2019.

Legislation:
City of Johannesburg Planning By Law.

Land Use / Zoning	Notation	No of Erven	No of Units	Density	Average size in m ²	Area in m ²	% of Township
Residential 3 (Gap)		13	1000	93	8242,0	107146	13%
Residential 3 (RDP)		19	2450	138	9332,0	177308	21%
Residential 3 (Social)		31	2450	138	5950,6	184468	22%
Business		2			13580,0	27160	3%
Institution		5			4082,7	20413	2%
Education		3			34051,2	102154	12%
Municipal (Taxi Rank)		1			7355,5	7356	1%
Open Area		5			8001,4	8001	1%
Walk Way					12485,0	62425	7%
Road					5506	5506	1%
Total		80	5900		838210	100%	

NOTES:

- All erf sizes are approximate pending final survey.
- All road reserves are as indicated on the layout plan.
- Road splays are as indicated on the plan.
- All building lines are 5m along any boundary with a public street, and 2m along any boundary with a private road. All other building lines will be 2m except where the local authority approves its relaxation.
- All development will be subject to a further geo-technical assessment as required by the NHBRC where applicable.
- All erf numbers are temporary, and subject to final numbering by the office of the Gauteng Surveyor General.
- Line of no access are indicated by the following line:
- The proposed township boundary is indicated as follows on the layout plan by the figure A B C D E F G H J A:

SCALE: 1: 5500 (A1 Paper) PLAN NO: COJ RTF TN P/5

Town Planner: TH Strydom Date: 11/02/2020
Pr. Pln A/2027/2015

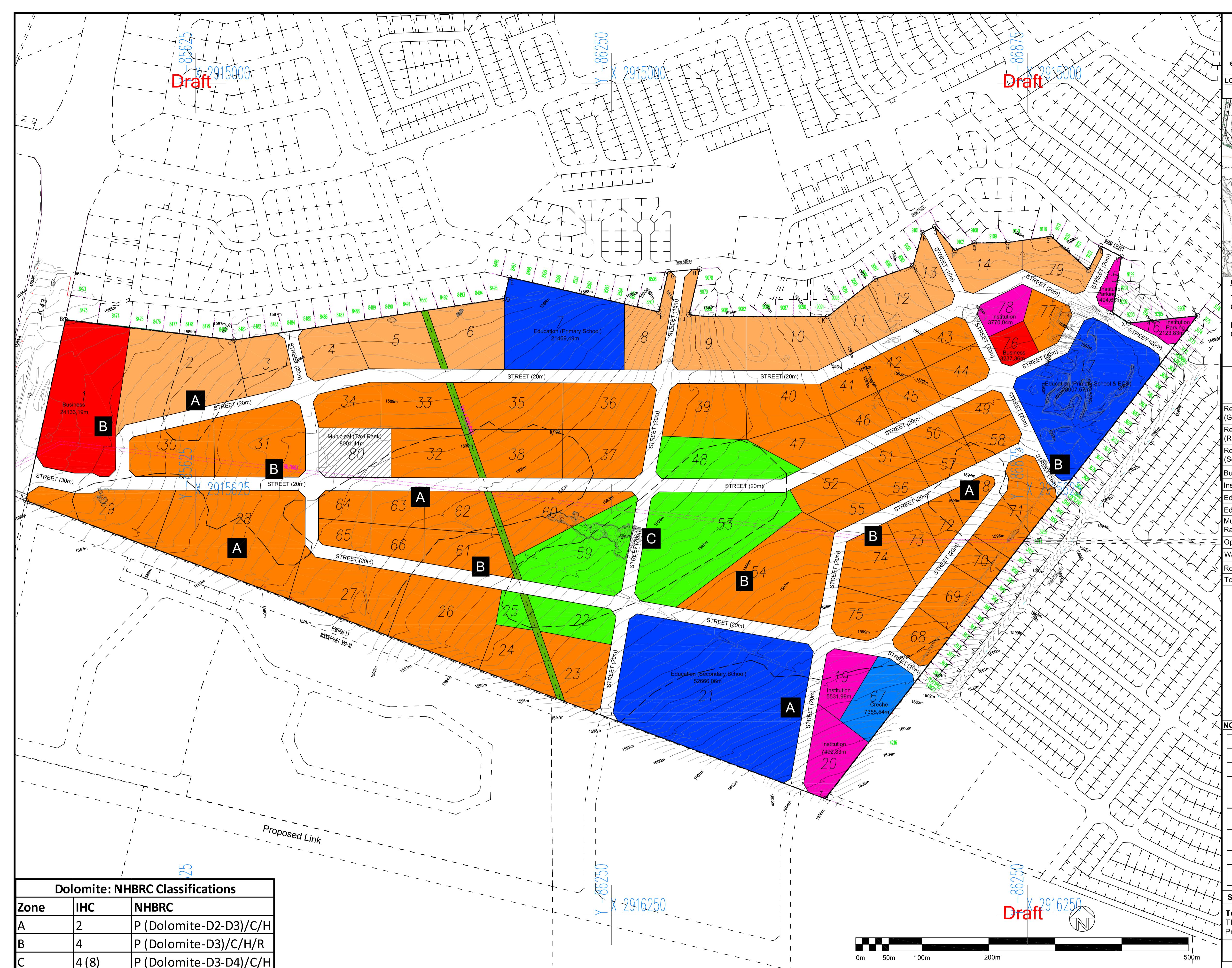
CLIENT:



GAUTENG PROVINCE
HUMAN SETTLEMENTS
REPUBLIC OF SOUTH AFRICA

PLAN MEDEWERKERS P L A N
PLAN ASSOCIATES

PRETORIA
Posbus / P O Box 14732
Hatfield 0028
Tel (012) 342 8701
Fax (012) 342 8714
E-mail / E-pos:
info@planassociates.co.za



Dolomite: NHBRC Classifications

Zone	IHC	NHBRC
A	2	P (Dolomite-D2-D3)/C/H
B	4	P (Dolomite-D3)/C/H/R
C	4 (8)	P (Dolomite-D3-D4)/C/H

GEOLOGICAL:
It is hereby certified that the layout of the township complies with the recommendations and requirements set out in the geotechnical report.

Firm: _____

Prof. Reg. Number: _____

Date: _____

Signature: _____

FLOOD LINE:

With reference to Section 144 of the National Water Act (Act no. 36 of 1998) it is hereby certified that the proposed development, as indicated on this drawing, is affected by flood lines representing the maximum flood level likely to be reached by flood water in the event of a flood with a recurrence interval of 100 years.

Signature: _____

Prof. Reg. Number _____ Date: _____

CONTOURS:

Interval: 0.25 m
Date AHSL: Sea level
Coordinate System: LO27
Provided by: Samsara Survey Solutions:

ENVIRONMENTAL:

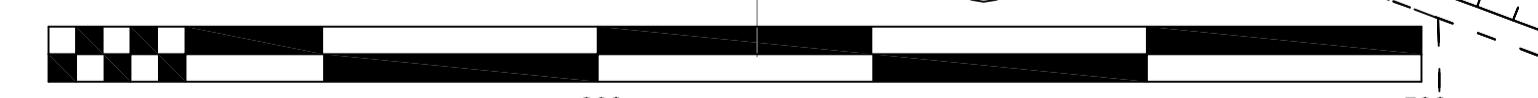
It is hereby certified that the layout of the township complies with the final recommendations set out in the Environmental Impact Assessment Report, _____

Firm: Environmentalist Geologist:

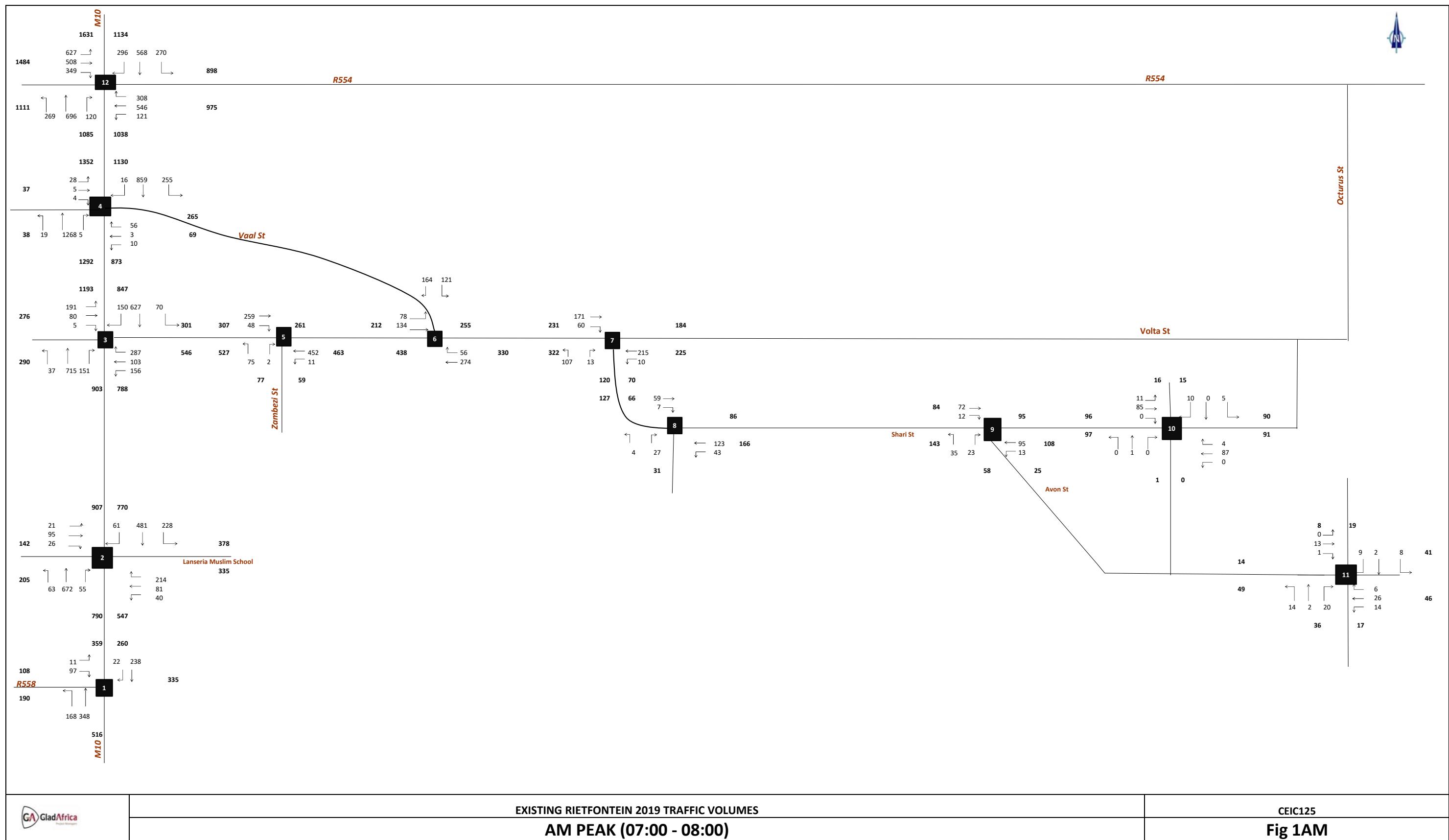
Prof. Reg. Number: _____

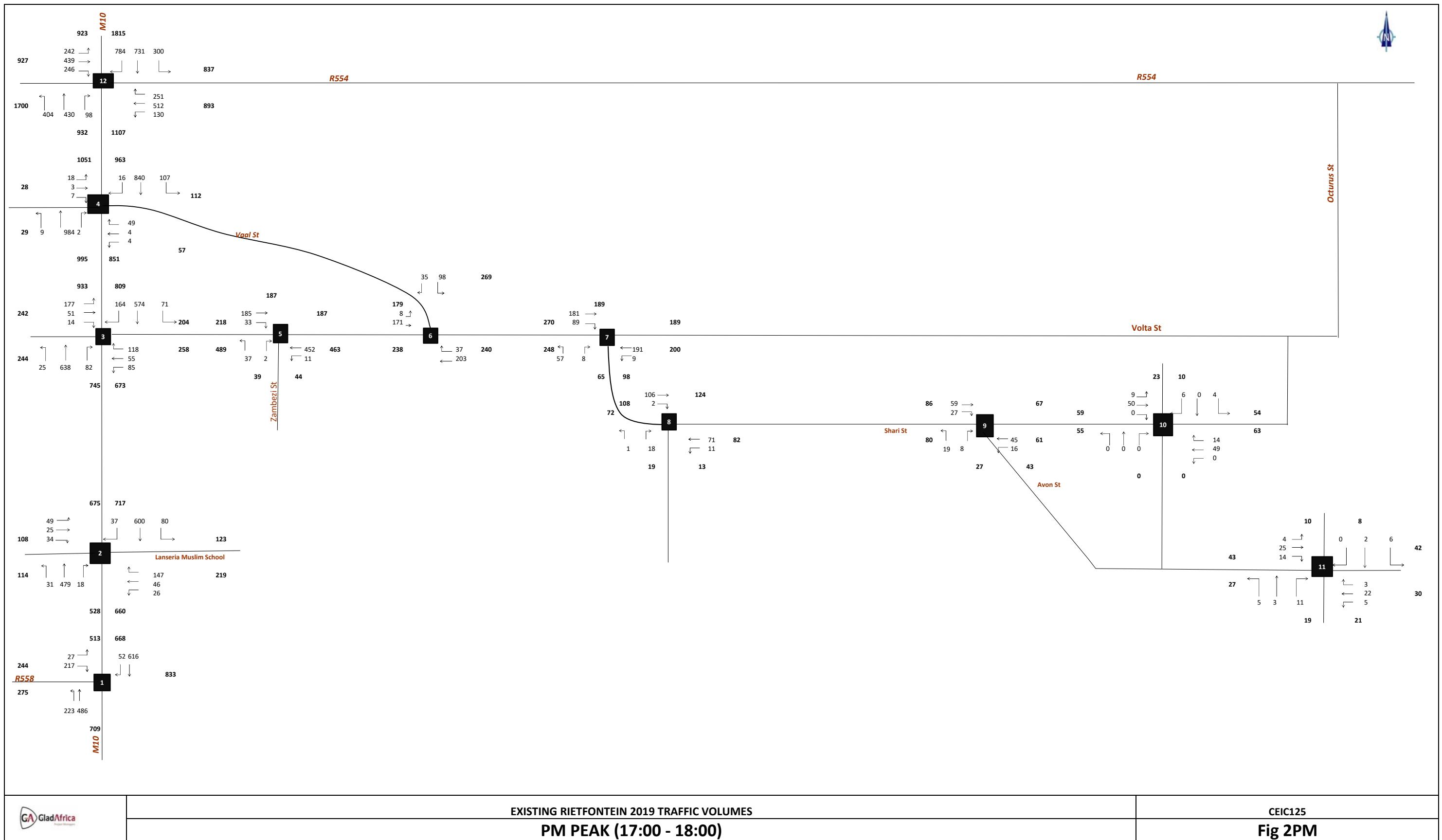
Date: _____

Signature: _____

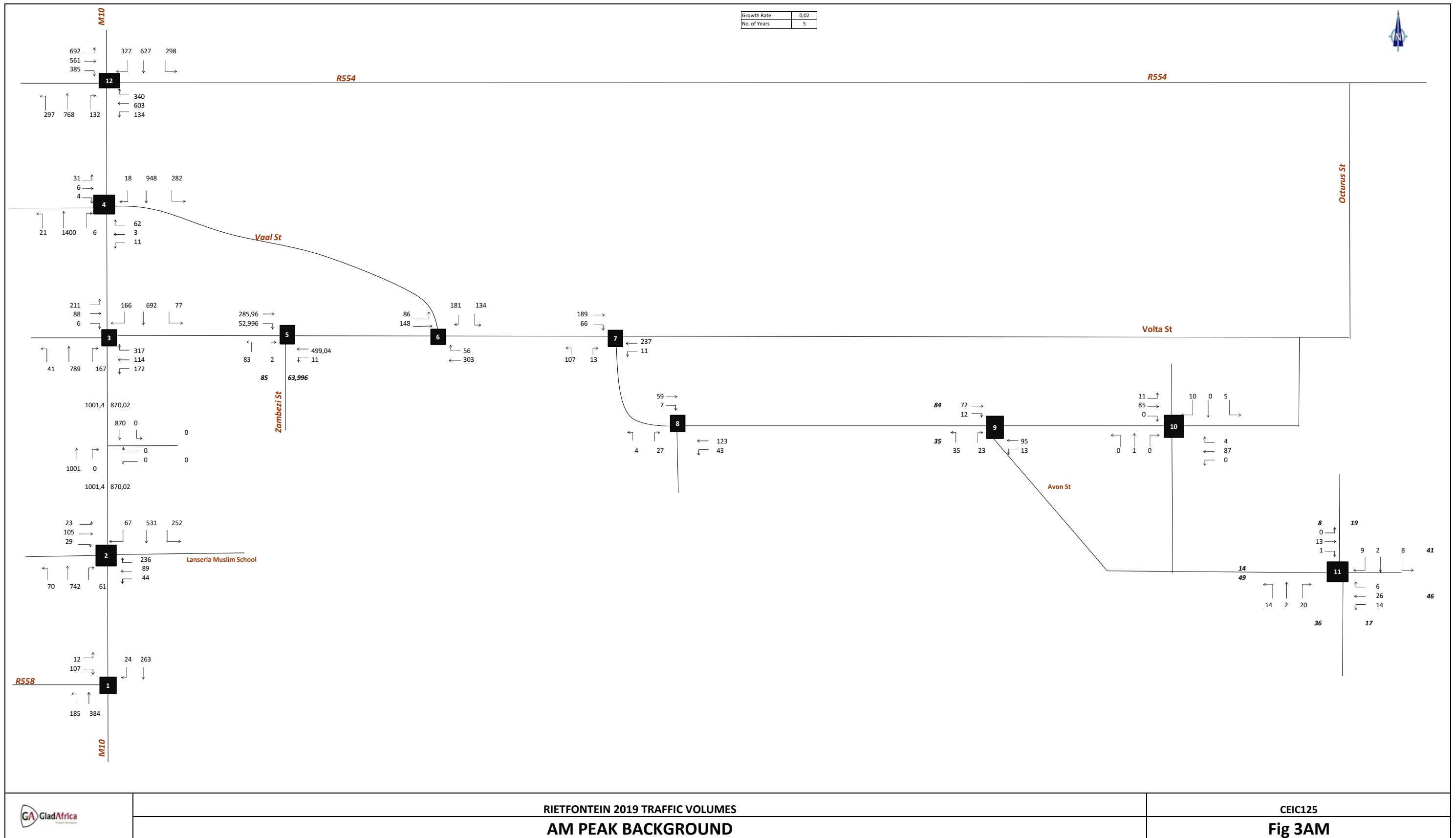


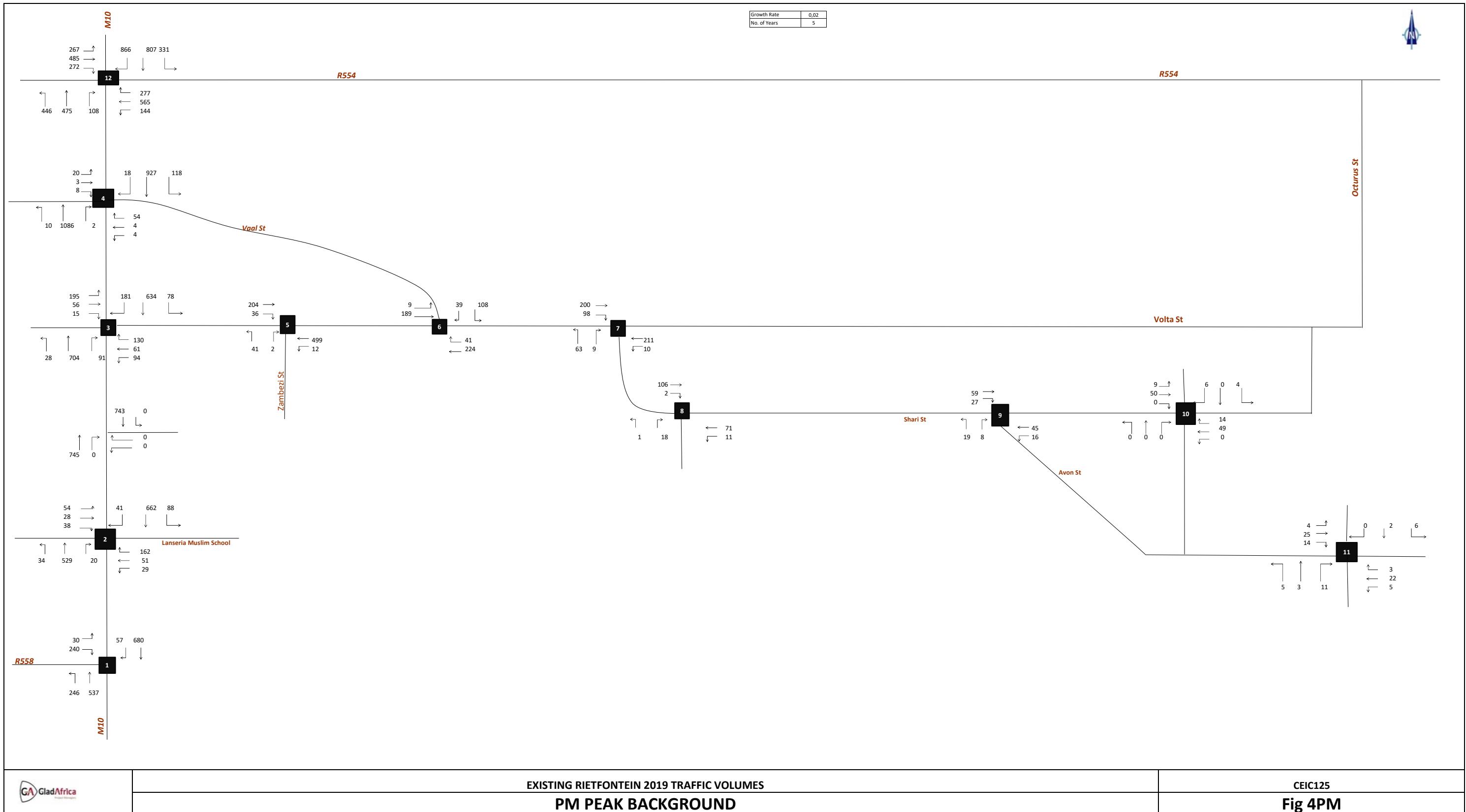
ANNEXURE B
AM AND PM PEAK HOUR EXISTING TRAFFIC PROFILE



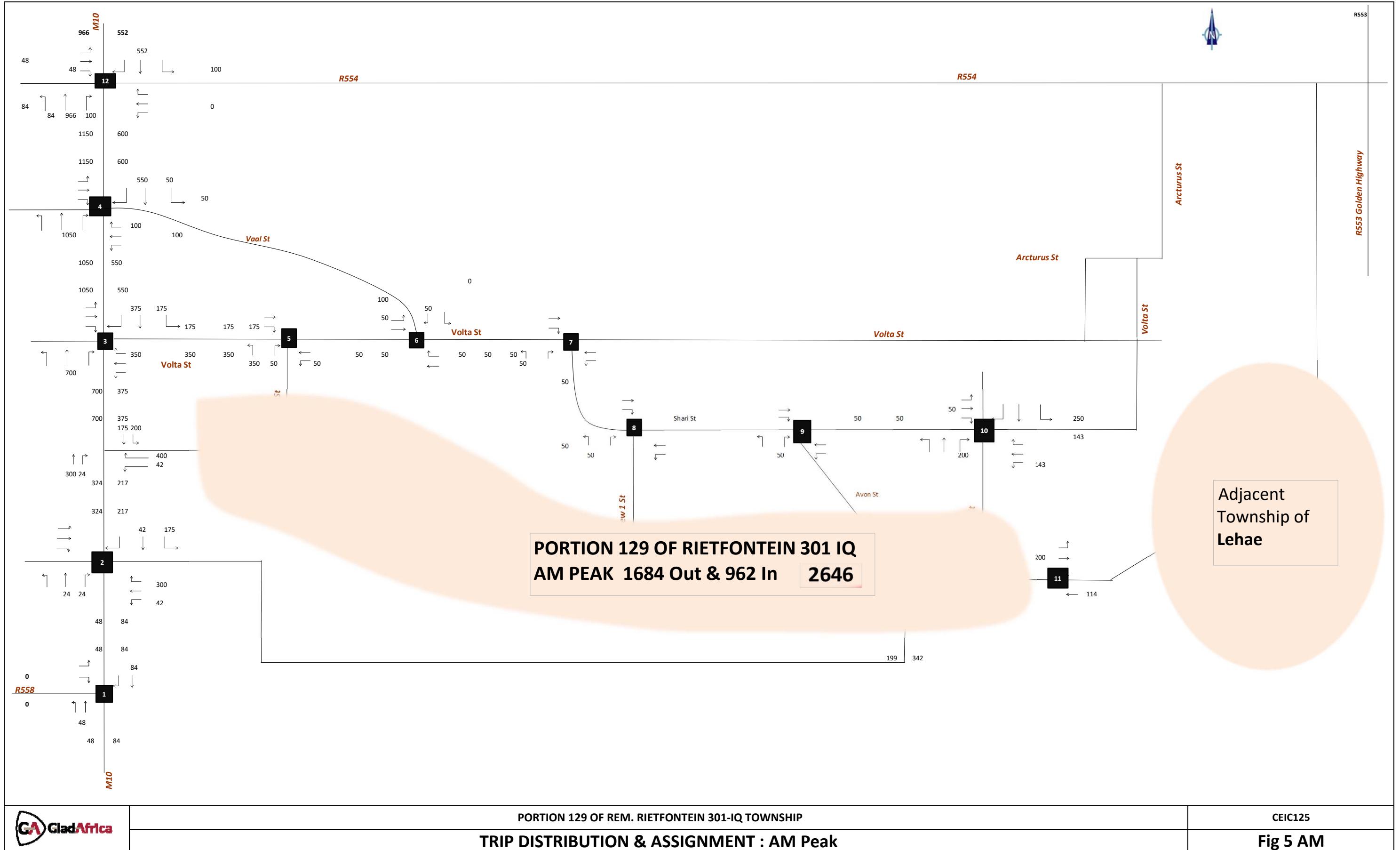


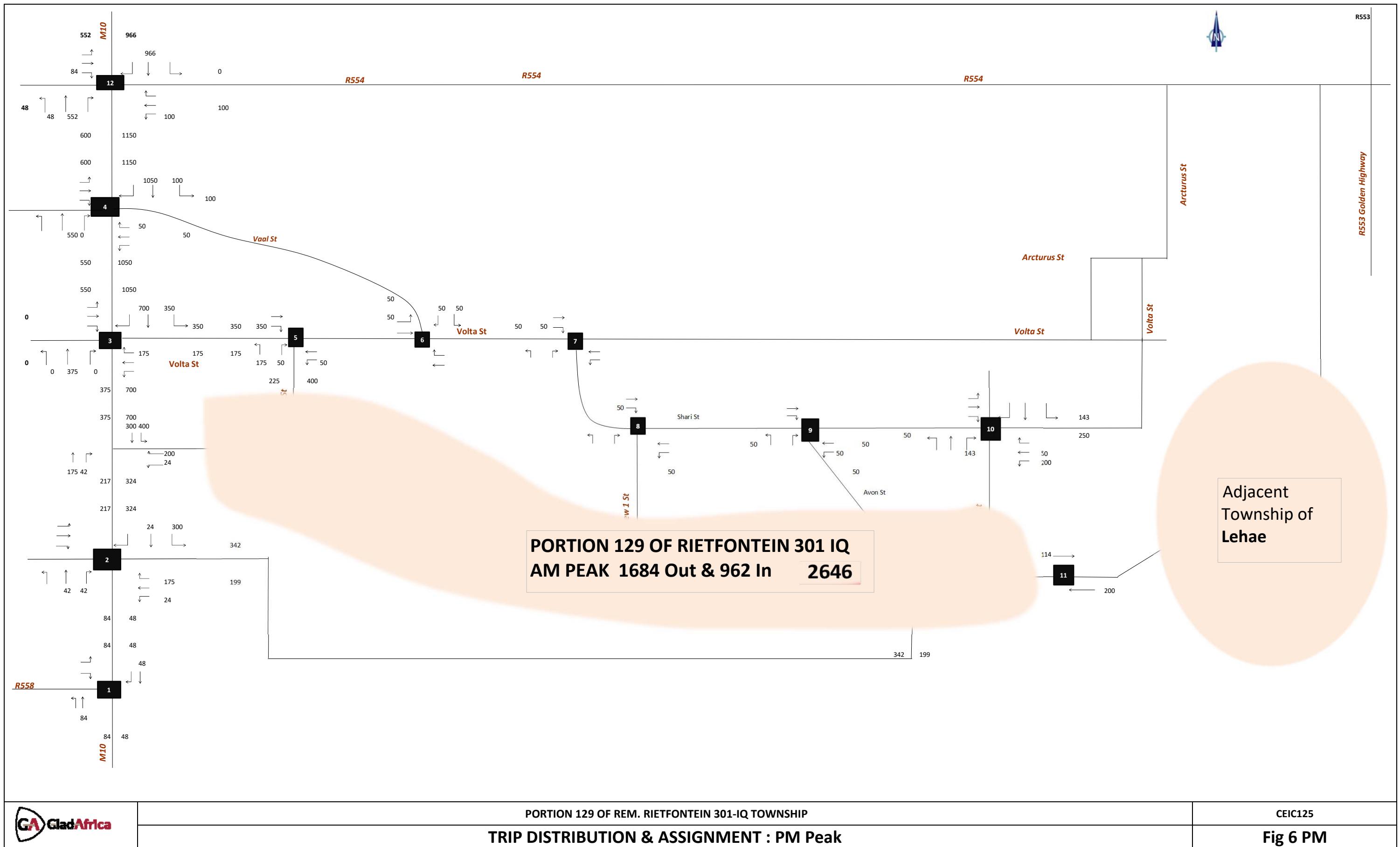
ANNEXURE C
TRAFFIC GROWTH



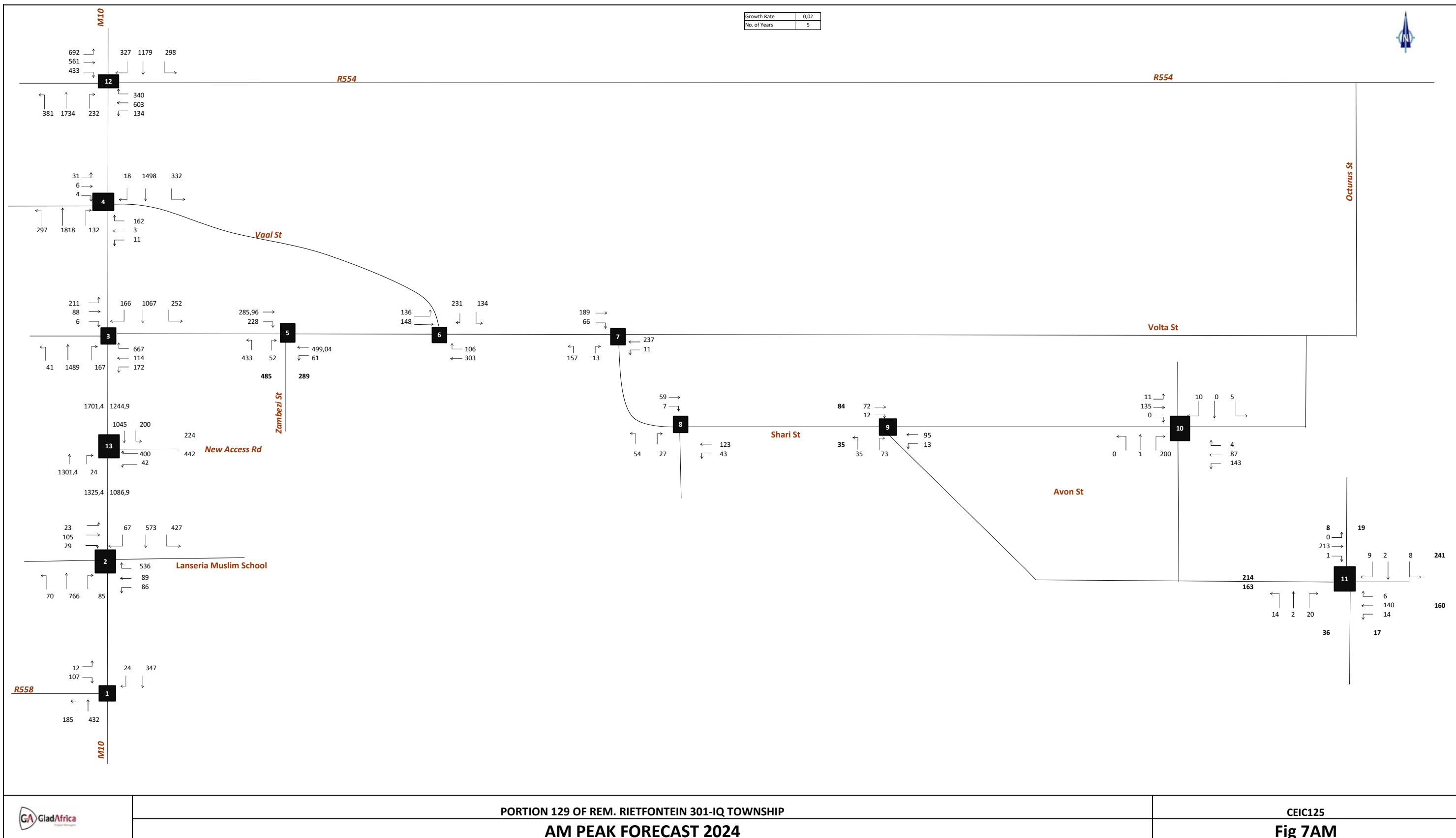


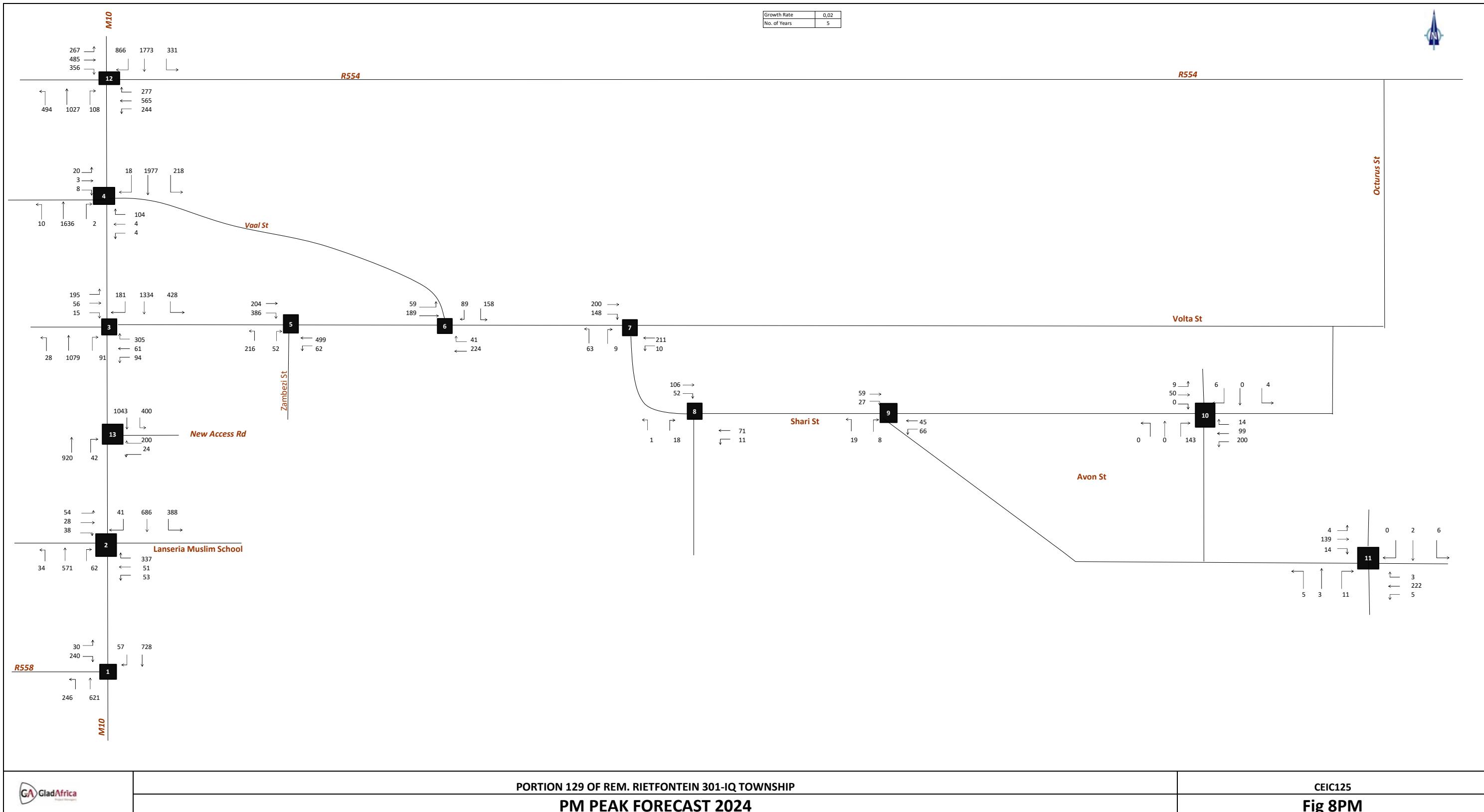
ANNEXURE D
GENERATED TRAFFIC PROFILE





ANNEXURE E
FORECAST TOTAL TRAFFIC





ANNEXURE F

MOVEMENT SUMMARY EXISTING EVALUATION INTERSECTION 1 TO 11

MOVEMENT SUMMARY

Site: 101 [Int 1 AM EX]

EXISTING AM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY SOUTH APP											
1	L2	177	2,0	0,097	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
2	T1	366	2,0	0,309	5,9	LOS A	5,1	36,1	0,51	0,44	54,7
Approach		543	2,0	0,309	5,8	LOS A	5,1	36,1	0,34	0,47	54,8
North: M10 KLIPSPRUIT VALLEY NORTH APP											
8	T1	251	2,0	0,211	5,4	LOS A	3,2	22,9	0,47	0,40	55,1
9	R2	23	2,0	0,040	12,8	LOS B	0,3	2,3	0,50	0,67	48,2
Approach		274	2,0	0,211	6,1	LOS A	3,2	22,9	0,47	0,42	54,4
West: R558 WEST APP											
10	L2	12	2,0	0,287	27,5	LOS C	2,9	20,6	0,88	0,76	40,5
12	R2	102	2,0	0,287	27,5	LOS C	2,9	20,6	0,88	0,76	40,5
Approach		114	2,0	0,287	27,5	LOS C	2,9	20,6	0,88	0,76	40,5
All Vehicles		931	2,0	0,309	8,5	LOS A	5,1	36,1	0,44	0,49	52,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Int 1 PM EX]

EXISTING PM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY SOUTH APP											
1	L2	235	2,0	0,128	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
2	T1	512	2,0	0,443	7,1	LOS A	8,2	58,3	0,58	0,52	53,8
Approach		746	2,0	0,443	6,6	LOS A	8,2	58,3	0,40	0,52	54,1
North: M10 KLIPSPRUIT VALLEY NORTH APP											
8	T1	648	2,0	0,582	7,8	LOS A	11,5	81,9	0,65	0,58	53,2
9	R2	55	2,0	0,124	15,6	LOS B	0,9	6,7	0,59	0,71	46,5
Approach		703	2,0	0,582	8,4	LOS A	11,5	81,9	0,64	0,59	52,6
West: R558 WEST APP											
10	L2	28	2,0	0,601	28,7	LOS C	7,0	49,9	0,94	0,82	40,0
12	R2	228	2,0	0,601	28,7	LOS C	7,0	49,9	0,94	0,82	40,0
Approach		257	2,0	0,601	28,7	LOS C	7,0	49,9	0,94	0,82	40,0
All Vehicles		1706	2,0	0,601	10,7	LOS B	11,5	81,9	0,58	0,59	50,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M10 & School Rd AM peak]

AM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 SOUTH APP											
1	L2	66	2,0	0,246	11,6	LOS B	3,9	27,4	0,50	0,50	52,1
2	T1	707	2,0	0,786	16,3	LOS B	16,0	114,2	0,80	0,79	46,8
3	R2	58	2,0	0,786	26,4	LOS C	16,0	114,2	0,94	0,92	43,4
Approach		832	2,0	0,786	16,7	LOS B	16,0	114,2	0,79	0,78	46,9
East: SCHOOL RD EAST APP											
4	L2	42	2,0	0,288	26,6	LOS C	3,2	22,6	0,86	0,71	42,7
5	T1	85	2,0	0,288	21,0	LOS C	3,2	22,6	0,86	0,71	43,6
6	R2	225	2,0	0,785	35,9	LOS D	7,3	52,0	1,00	0,94	36,9
Approach		353	2,0	0,785	31,2	LOS C	7,3	52,0	0,95	0,86	39,0
North: M10 NORTH APP											
7	L2	240	2,0	0,218	11,5	LOS B	3,2	23,0	0,49	0,71	49,3
8	T1	506	2,0	0,821	23,1	LOS C	17,7	126,0	0,96	0,98	43,2
9	R2	64	2,0	0,821	28,6	LOS C	17,7	126,0	0,96	0,98	42,1
Approach		811	2,0	0,821	20,1	LOS C	17,7	126,0	0,82	0,90	44,7
West: SCHOOL WEST APP											
10	L2	22	2,0	0,381	27,3	LOS C	3,8	27,3	0,89	0,74	42,4
11	T1	100	2,0	0,381	21,7	LOS C	3,8	27,3	0,89	0,74	43,3
12	R2	27	2,0	0,381	27,3	LOS C	3,8	27,3	0,89	0,74	42,2
Approach		149	2,0	0,381	23,6	LOS C	3,8	27,3	0,89	0,74	42,9
All Vehicles		2144	2,0	0,821	20,8	LOS C	17,7	126,0	0,83	0,83	44,3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M10 & School Rd PM]

PM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 SOUTH APP											
1	L2	33	2,0	0,121	10,7	LOS B	1,7	12,2	0,44	0,43	52,9
2	T1	504	2,0	0,387	6,4	LOS A	6,3	45,2	0,53	0,48	53,9
3	R2	19	2,0	0,387	12,3	LOS B	6,3	45,2	0,56	0,50	52,4
Approach		556	2,0	0,387	6,9	LOS A	6,3	45,2	0,53	0,48	53,8
East: SCHOOL RD EAST APP											
4	L2	27	2,0	0,185	26,9	LOS C	1,9	13,3	0,85	0,69	42,5
5	T1	48	2,0	0,185	21,3	LOS C	1,9	13,3	0,85	0,69	43,4
6	R2	155	2,0	0,519	30,8	LOS C	4,3	30,9	0,95	0,80	38,9
Approach		231	2,0	0,519	28,3	LOS C	4,3	30,9	0,92	0,76	40,2
North: M10 NORTH APP											
7	L2	84	2,0	0,133	10,7	LOS B	1,9	13,3	0,44	0,54	51,5
8	T1	632	2,0	0,559	7,5	LOS A	10,7	76,1	0,62	0,59	52,9
9	R2	39	2,0	0,559	13,4	LOS B	10,7	76,1	0,65	0,59	51,3
Approach		755	2,0	0,559	8,2	LOS A	10,7	76,1	0,61	0,58	52,6
West: SCHOOL WEST APP											
10	L2	52	2,0	0,327	27,9	LOS C	2,9	20,9	0,88	0,76	40,9
11	T1	26	2,0	0,327	22,3	LOS C	2,9	20,9	0,88	0,76	41,8
12	R2	36	2,0	0,327	27,9	LOS C	2,9	20,9	0,88	0,76	40,8
Approach		114	2,0	0,327	26,6	LOS C	2,9	20,9	0,88	0,76	41,1
All Vehicles		1655	2,0	0,559	11,8	LOS B	10,7	76,1	0,64	0,59	49,9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M10 & Volta St AM peak]

New Site

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	39	2,0	0,052	28,2	LOS C	1,4	9,6	0,63	0,69	40,2
2	T1	753	2,0	0,535	28,0	LOS C	18,5	131,6	0,79	0,69	41,1
3	R2	159	2,0	0,803	40,3	LOS D	6,1	43,7	1,00	0,89	35,4
Approach		951	2,0	0,803	30,0	LOS C	18,5	131,6	0,82	0,72	40,0
East: Volta East App											
4	L2	164	2,0	0,512	31,5	LOS C	6,4	45,2	0,71	0,75	38,8
5	T1	108	2,0	0,923	53,8	LOS D	25,1	178,4	0,95	1,01	30,8
6	R2	302	2,0	0,923	59,4	LOS E	25,1	178,4	0,95	1,01	30,4
Approach		575	2,0	0,923	50,4	LOS D	25,1	178,4	0,88	0,94	32,5
North: M10 North App											
7	L2	74	2,0	0,099	28,7	LOS C	2,6	18,6	0,65	0,72	40,0
8	T1	660	2,0	0,937	58,0	LOS E	45,4	323,4	0,97	1,10	30,8
9	R2	158	2,0	0,534	27,4	LOS C	5,4	38,8	0,82	0,77	40,6
Approach		892	2,0	0,937	50,2	LOS D	45,4	323,4	0,92	1,01	32,8
West: Volta West App											
10	L2	201	2,0	0,238	13,7	LOS B	4,4	31,6	0,48	0,69	48,5
11	T1	84	2,0	0,749	65,2	LOS E	5,6	40,1	1,00	0,86	29,0
12	R2	5	2,0	0,749	70,8	LOS E	5,6	40,1	1,00	0,86	28,7
Approach		291	2,0	0,749	29,7	LOS C	5,6	40,1	0,64	0,74	40,1
All Vehicles		2707	2,0	0,937	40,9	LOS D	45,4	323,4	0,85	0,86	35,7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M10 & Volta St PM peak]

New Site

Signals - Fixed Time Isolated Cycle Time = 70 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	26	2,0	0,031	16,7	LOS B	0,5	3,5	0,57	0,67	46,0
2	T1	672	2,0	0,382	13,5	LOS B	7,6	53,9	0,70	0,60	49,1
3	R2	86	2,0	0,234	16,2	LOS B	1,3	8,9	0,78	0,74	46,1
Approach		784	2,0	0,382	13,9	LOS B	7,6	53,9	0,71	0,62	48,7
East: Volta East App											
4	L2	89	2,0	0,244	31,7	LOS C	2,7	18,9	0,88	0,76	38,7
5	T1	58	2,0	0,692	30,5	LOS C	6,2	44,1	0,96	0,86	38,5
6	R2	124	2,0	0,692	36,1	LOS D	6,2	44,1	0,96	0,86	37,9
Approach		272	2,0	0,692	33,4	LOS C	6,2	44,1	0,93	0,83	38,3
North: M10 North App											
7	L2	75	2,0	0,089	17,1	LOS B	1,4	10,2	0,59	0,70	45,8
8	T1	604	2,0	0,687	16,3	LOS B	16,5	117,3	0,85	0,75	47,3
9	R2	173	2,0	0,372	13,8	LOS B	2,7	18,9	0,69	0,74	47,7
Approach		852	2,0	0,687	15,9	LOS B	16,5	117,3	0,80	0,75	47,3
West: Volta West App											
10	L2	186	2,0	0,219	8,6	LOS A	1,6	11,5	0,44	0,68	51,9
11	T1	54	2,0	0,205	26,0	LOS C	2,0	14,4	0,87	0,69	41,5
12	R2	15	2,0	0,205	31,6	LOS C	2,0	14,4	0,87	0,69	40,9
Approach		255	2,0	0,219	13,6	LOS B	2,0	14,4	0,56	0,68	48,6
All Vehicles		2162	2,0	0,692	17,1	LOS B	16,5	117,3	0,75	0,70	46,5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM PEAK EX]

AM PEX EXISTING
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
1	L2	20	2,0	0,150	5,6	LOS A	0,0	0,0	0,00	0,04	57,9
2	T1	1335	2,0	0,574	0,6	LOS A	0,8	5,5	0,04	0,01	59,2
3	R2	5	2,0	0,574	37,0	LOS E	0,8	5,5	0,05	0,00	57,2
Approach		1360	2,0	0,574	0,8	NA	0,8	5,5	0,04	0,01	59,2
East: VAAL ST											
4	L2	11	2,0	10,833	9009,3	LOS F	76,8	546,7	1,00	1,20	0,4
5	T1	3	2,0	10,833	9143,7	LOS F	76,8	546,7	1,00	1,20	0,4
6	R2	59	2,0	10,833	9075,8	LOS F	76,8	546,7	1,00	1,20	0,4
Approach		73	2,0	10,833	9069,1	LOS F	76,8	546,7	1,00	1,20	0,4
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	268	2,0	0,148	5,6	LOS A	0,0	0,0	0,00	0,57	53,6
8	T1	904	2,0	0,566	5,0	LOS A	16,7	119,1	1,00	0,02	54,7
9	R2	17	2,0	0,566	48,9	LOS E	16,7	119,1	1,00	0,02	53,0
Approach		1189	2,0	0,566	5,8	NA	16,7	119,1	0,77	0,14	54,4
West: VAAL ST											
10	L2	29	2,0	2,033	1249,5	LOS F	18,3	130,0	1,00	2,17	2,5
11	T1	5	2,0	2,033	1546,7	LOS F	18,3	130,0	1,00	2,17	2,5
12	R2	4	2,0	2,033	1626,3	LOS F	18,3	130,0	1,00	2,17	2,5
Approach		39	2,0	2,033	1330,4	LOS F	18,3	130,0	1,00	2,17	2,5
All Vehicles		2661	2,0	10,833	270,0	NA	76,8	546,7	0,41	0,13	10,5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM PEAK EX]

PM PEX EXISTING
Stop (Two-Way)

Movement Performance - Vehicles										
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD										
1	L2	9	2,0	0,114	5,6	LOS A	0,0	0,0	0,00	0,03
2	T1	1036	2,0	0,435	0,1	LOS A	0,1	1,1	0,01	0,01
3	R2	2	2,0	0,435	21,5	LOS C	0,1	1,1	0,01	0,00
Approach		1047	2,0	0,435	0,2	NA	0,1	1,1	0,01	59,8
East: VAAL ST										
4	L2	4	2,0	7,392	5917,4	LOS F	50,3	358,0	1,00	1,47
5	T1	4	2,0	7,392	5954,1	LOS F	50,3	358,0	1,00	1,47
6	R2	52	2,0	7,392	5976,1	LOS F	50,3	358,0	1,00	1,47
Approach		60	2,0	7,392	5970,5	LOS F	50,3	358,0	1,00	1,47
North: M10 KLIPSPRUIT VALLEY RD										
7	L2	113	2,0	0,118	5,6	LOS A	0,0	0,0	0,00	0,30
8	T1	884	2,0	0,452	1,3	LOS A	1,3	9,4	0,11	0,05
9	R2	17	2,0	0,452	23,2	LOS C	1,3	9,4	0,12	0,01
Approach		1014	2,0	0,452	2,1	NA	1,3	9,4	0,09	0,08
West: VAAL ST										
10	L2	19	2,0	1,114	448,0	LOS F	7,1	50,2	1,00	1,46
11	T1	3	2,0	1,114	768,1	LOS F	7,1	50,2	1,00	1,46
12	R2	7	2,0	1,114	795,3	LOS F	7,1	50,2	1,00	1,46
Approach		29	2,0	1,114	569,1	LOS F	7,1	50,2	1,00	1,46
All Vehicles		2151	2,0	7,392	175,5	NA	50,3	358,0	0,09	0,10
14,8										

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [INT 5 AM EX]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: ZAMBESI SOUTH APP											
1	L2	79	2,0	0,100	10,7	LOS B	0,4	2,7	0,51	0,93	50,5
3	R2	2	2,0	0,100	13,9	LOS B	0,4	2,7	0,51	0,93	50,0
Approach		81	2,0	0,100	10,8	LOS B	0,4	2,7	0,51	0,93	50,5
East: VOLTA ST EAST APP											
4	L2	12	2,0	0,253	5,6	LOS A	0,0	0,0	0,00	0,01	58,1
5	T1	476	2,0	0,253	0,0	LOS A	0,0	0,0	0,00	0,01	59,8
Approach		487	2,0	0,253	0,2	NA	0,0	0,0	0,00	0,01	59,8
West: VOLTA ST WEST APP											
11	T1	273	2,0	0,190	0,7	LOS A	0,5	3,9	0,22	0,10	58,2
12	R2	51	2,0	0,190	7,8	LOS A	0,5	3,9	0,22	0,10	56,0
Approach		323	2,0	0,190	1,8	NA	0,5	3,9	0,22	0,10	57,9
All Vehicles		892	2,0	0,253	1,7	NA	0,5	3,9	0,13	0,13	58,1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [INT 5 PM EX]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: ZAMBESI SOUTH APP											
1	L2	39	2,0	0,038	9,1	LOS A	0,1	1,0	0,34	0,87	51,4
3	R2	2	2,0	0,038	10,2	LOS B	0,1	1,0	0,34	0,87	50,9
Approach		41	2,0	0,038	9,2	LOS A	0,1	1,0	0,34	0,87	51,4
East: VOLTA ST EAST APP											
4	L2	9	2,0	0,133	5,6	LOS A	0,0	0,0	0,00	0,02	58,0
5	T1	245	2,0	0,133	0,0	LOS A	0,0	0,0	0,00	0,02	59,8
Approach		255	2,0	0,133	0,2	NA	0,0	0,0	0,00	0,02	59,7
West: VOLTA ST WEST APP											
11	T1	195	2,0	0,127	0,2	LOS A	0,3	1,9	0,13	0,09	58,6
12	R2	35	2,0	0,127	6,4	LOS A	0,3	1,9	0,13	0,09	56,4
Approach		229	2,0	0,127	1,2	NA	0,3	1,9	0,13	0,09	58,3
All Vehicles		525	2,0	0,133	1,3	NA	0,3	1,9	0,08	0,12	58,3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [INT 6 AM PEAK EX]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: VOLTA ST EAST APP											
5	T1	288	2,0	0,192	0,2	LOS A	0,5	3,3	0,14	0,10	58,5
6	R2	59	2,0	0,192	6,4	LOS A	0,5	3,3	0,14	0,10	56,3
Approach		347	2,0	0,192	1,3	NA	0,5	3,3	0,14	0,10	58,1
North: VAAL ST NORTH APP											
7	L2	127	2,0	0,371	9,3	LOS A	1,9	13,2	0,39	0,96	50,2
9	R2	173	2,0	0,371	12,2	LOS B	1,9	13,2	0,39	0,96	49,7
Approach		300	2,0	0,371	10,9	LOS B	1,9	13,2	0,39	0,96	49,9
West: VOLTA ST WEST APP											
10	L2	82	2,0	0,118	5,6	LOS A	0,0	0,0	0,00	0,22	56,4
11	T1	141	2,0	0,118	0,0	LOS A	0,0	0,0	0,00	0,22	58,0
Approach		223	2,0	0,118	2,1	NA	0,0	0,0	0,00	0,22	57,4
All Vehicles		871	2,0	0,371	4,8	NA	1,9	13,2	0,19	0,43	54,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [INT 6 PM PEAK EX]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: VOLTA ST EAST APP											
5	T1	214	2,0	0,138	0,2	LOS A	0,3	2,0	0,11	0,09	58,7
6	R2	39	2,0	0,138	6,2	LOS A	0,3	2,0	0,11	0,09	56,4
Approach		253	2,0	0,138	1,1	NA	0,3	2,0	0,11	0,09	58,4
North: VAAL ST NORTH APP											
7	L2	103	2,0	0,137	8,9	LOS A	0,5	3,8	0,32	0,90	51,3
9	R2	37	2,0	0,137	10,2	LOS B	0,5	3,8	0,32	0,90	50,8
Approach		140	2,0	0,137	9,2	LOS A	0,5	3,8	0,32	0,90	51,2
West: VOLTA ST WEST APP											
10	L2	8	2,0	0,098	5,6	LOS A	0,0	0,0	0,00	0,03	58,0
11	T1	180	2,0	0,098	0,0	LOS A	0,0	0,0	0,00	0,03	59,7
Approach		188	2,0	0,098	0,3	NA	0,0	0,0	0,00	0,03	59,7
All Vehicles		581	2,0	0,138	2,8	NA	0,5	3,8	0,13	0,27	56,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [INT 7 AM EX]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHARI SOUTH APP											
1	L2	113	2,0	0,119	9,1	LOS A	0,5	3,4	0,35	0,89	51,4
3	R2	14	2,0	0,119	10,4	LOS B	0,5	3,4	0,35	0,89	50,9
Approach		126	2,0	0,119	9,3	LOS A	0,5	3,4	0,35	0,89	51,3
East: VOLTA ST EAST APP											
4	L2	11	2,0	0,123	5,6	LOS A	0,0	0,0	0,00	0,03	58,0
5	T1	226	2,0	0,123	0,0	LOS A	0,0	0,0	0,00	0,03	59,7
Approach		237	2,0	0,123	0,3	NA	0,0	0,0	0,00	0,03	59,7
West: VOLTA ST WEST APP											
11	T1	180	2,0	0,139	0,4	LOS A	0,5	3,3	0,21	0,16	57,8
12	R2	63	2,0	0,139	6,4	LOS A	0,5	3,3	0,21	0,16	55,6
Approach		243	2,0	0,139	1,9	NA	0,5	3,3	0,21	0,16	57,2
All Vehicles		606	2,0	0,139	2,8	NA	0,5	3,4	0,16	0,26	56,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Work\Rietfontein working folder\SIDRA\INT 7 VOLTA & SHARI ST.sip7

MOVEMENT SUMMARY

 Site: 101 [INT 7 PM EX]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHARI SOUTH APP											
1	L2	60	2,0	0,064	8,9	LOS A	0,2	1,7	0,32	0,88	51,4
3	R2	8	2,0	0,064	10,4	LOS B	0,2	1,7	0,32	0,88	50,9
Approach		68	2,0	0,064	9,1	LOS A	0,2	1,7	0,32	0,88	51,3
East: VOLTA ST EAST APP											
4	L2	9	2,0	0,110	5,6	LOS A	0,0	0,0	0,00	0,03	58,0
5	T1	201	2,0	0,110	0,0	LOS A	0,0	0,0	0,00	0,03	59,7
Approach		211	2,0	0,110	0,3	NA	0,0	0,0	0,00	0,03	59,7
West: VOLTA ST WEST APP											
11	T1	191	2,0	0,164	0,4	LOS A	0,6	4,6	0,24	0,20	57,4
12	R2	94	2,0	0,164	6,3	LOS A	0,6	4,6	0,24	0,20	55,2
Approach		284	2,0	0,164	2,3	NA	0,6	4,6	0,24	0,20	56,6
All Vehicles		563	2,0	0,164	2,4	NA	0,6	4,6	0,16	0,22	57,0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [INT 8 AM EX]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: LIMPOPO SOUTH APP											
1	L2	4	2,0	0,034	8,6	LOS A	0,1	0,8	0,28	0,88	51,7
3	R2	28	2,0	0,034	8,5	LOS A	0,1	0,8	0,28	0,88	51,2
Approach		33	2,0	0,034	8,5	LOS A	0,1	0,8	0,28	0,88	51,3
East: SHARI ST EAST APP											
4	L2	45	2,0	0,092	5,6	LOS A	0,0	0,0	0,00	0,15	56,9
5	T1	129	2,0	0,092	0,0	LOS A	0,0	0,0	0,00	0,15	58,6
Approach		175	2,0	0,092	1,4	NA	0,0	0,0	0,00	0,15	58,2
West: SHARI ST WEST APP											
11	T1	62	2,0	0,037	0,1	LOS A	0,1	0,4	0,07	0,06	59,1
12	R2	7	2,0	0,037	6,0	LOS A	0,1	0,4	0,07	0,06	56,8
Approach		69	2,0	0,037	0,7	NA	0,1	0,4	0,07	0,06	58,9
All Vehicles		277	2,0	0,092	2,1	NA	0,1	0,8	0,05	0,22	57,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [INT 8 PM EX]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: LIMPOPO ST SOUTH APP											
1	L2	1	2,0	0,021	8,4	LOS A	0,1	0,5	0,26	0,88	51,8
3	R2	19	2,0	0,021	8,4	LOS A	0,1	0,5	0,26	0,88	51,3
Approach		20	2,0	0,021	8,4	LOS A	0,1	0,5	0,26	0,88	51,3
East: SHARI ST EAST APP											
4	L2	12	2,0	0,045	5,6	LOS A	0,0	0,0	0,00	0,08	57,6
5	T1	75	2,0	0,045	0,0	LOS A	0,0	0,0	0,00	0,08	59,3
Approach		86	2,0	0,045	0,8	NA	0,0	0,0	0,00	0,08	59,0
West: SHARI ST WEST APP											
11	T1	112	2,0	0,059	0,0	LOS A	0,0	0,1	0,01	0,01	59,9
12	R2	2	2,0	0,059	5,7	LOS A	0,0	0,1	0,01	0,01	57,5
Approach		114	2,0	0,059	0,1	NA	0,0	0,1	0,01	0,01	59,8
All Vehicles		220	2,0	0,059	1,1	NA	0,1	0,5	0,03	0,12	58,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [INT 9 AM EX]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: AVON SOUTH APP											
1	L2	37	2,0	0,054	8,5	LOS A	0,2	1,4	0,22	0,89	51,7
3	R2	24	2,0	0,054	8,4	LOS A	0,2	1,4	0,22	0,89	51,2
Approach		61	2,0	0,054	8,5	LOS A	0,2	1,4	0,22	0,89	51,5
East: SHARI ST EAST APP											
4	L2	14	2,0	0,059	5,6	LOS A	0,0	0,0	0,00	0,07	57,6
5	T1	100	2,0	0,059	0,0	LOS A	0,0	0,0	0,00	0,07	59,3
Approach		114	2,0	0,059	0,7	NA	0,0	0,0	0,00	0,07	59,1
West: SHARI ST WEST APP											
11	T1	76	2,0	0,047	0,1	LOS A	0,1	0,6	0,07	0,09	58,9
12	R2	13	2,0	0,047	5,8	LOS A	0,1	0,6	0,07	0,09	56,6
Approach		88	2,0	0,047	0,9	NA	0,1	0,6	0,07	0,09	58,6
All Vehicles		263	2,0	0,059	2,6	NA	0,2	1,4	0,07	0,27	57,0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [INT 9 PM EX]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: AVON ST SOUTH APP											
1	L2	20	2,0	0,023	8,3	LOS A	0,1	0,6	0,13	0,92	51,8
3	R2	8	2,0	0,023	8,1	LOS A	0,1	0,6	0,13	0,92	51,3
Approach		28	2,0	0,023	8,2	LOS A	0,1	0,6	0,13	0,92	51,6
East: SHARI ST EAST APP											
4	L2	17	2,0	0,034	5,6	LOS A	0,0	0,0	0,00	0,16	56,9
5	T1	47	2,0	0,034	0,0	LOS A	0,0	0,0	0,00	0,16	58,6
Approach		64	2,0	0,034	1,5	NA	0,0	0,0	0,00	0,16	58,1
West: SHARI ST WEST APP											
11	T1	62	2,0	0,050	0,1	LOS A	0,2	1,1	0,10	0,18	58,0
12	R2	28	2,0	0,050	5,7	LOS A	0,2	1,1	0,10	0,18	55,7
Approach		91	2,0	0,050	1,8	NA	0,2	1,1	0,10	0,18	57,2
All Vehicles		183	2,0	0,050	2,7	NA	0,2	1,1	0,07	0,29	56,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [INT 10 SHARI & SHABA AM PEAK]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	1	0,0	0,003	8,3	LOS A	0,0	0,1	0,23	0,88	51,8
2	T1	1	0,0	0,003	8,5	LOS A	0,0	0,1	0,23	0,88	51,5
3	R2	1	0,0	0,003	8,5	LOS A	0,0	0,1	0,23	0,88	51,3
Approach		3	0,0	0,003	8,4	LOS A	0,0	0,1	0,23	0,88	51,5
East: SHARI EAST APP											
4	L2	1	0,0	0,051	5,8	LOS A	0,0	0,2	0,02	0,03	58,0
5	T1	92	2,0	0,051	0,0	LOS A	0,0	0,2	0,02	0,03	59,6
6	R2	4	0,0	0,051	5,7	LOS A	0,0	0,2	0,02	0,03	57,4
Approach		97	1,9	0,051	0,3	NA	0,0	0,2	0,02	0,03	59,5
North: SHABA NORTH APP											
7	L2	5	0,0	0,018	8,3	LOS A	0,1	0,4	0,24	0,88	51,7
8	T1	1	0,0	0,018	8,6	LOS A	0,1	0,4	0,24	0,88	51,5
9	R2	11	0,0	0,018	8,5	LOS A	0,1	0,4	0,24	0,88	51,2
Approach		17	0,0	0,018	8,5	LOS A	0,1	0,4	0,24	0,88	51,4
West: SHARI WEST APP											
10	L2	12	2,0	0,053	5,6	LOS A	0,0	0,1	0,01	0,07	57,6
11	T1	89	2,0	0,053	0,0	LOS A	0,0	0,1	0,01	0,07	59,3
12	R2	1	0,0	0,053	5,7	LOS A	0,0	0,1	0,01	0,07	57,1
Approach		102	2,0	0,053	0,7	NA	0,0	0,1	0,01	0,07	59,1
All Vehicles		219	1,8	0,053	1,2	NA	0,1	0,4	0,03	0,13	58,5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [INT 10 SHARI & SHABA PM PEAK]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	1	0,0	0,003	8,2	LOS A	0,0	0,1	0,17	0,91	51,9
2	T1	1	0,0	0,003	8,2	LOS A	0,0	0,1	0,17	0,91	51,6
3	R2	1	0,0	0,003	8,1	LOS A	0,0	0,1	0,17	0,91	51,4
Approach		3	0,0	0,003	8,2	LOS A	0,0	0,1	0,17	0,91	51,6
East: SHARI EAST APP											
4	L2	1	0,0	0,036	5,7	LOS A	0,1	0,6	0,07	0,14	56,9
5	T1	52	2,0	0,036	0,1	LOS A	0,1	0,6	0,07	0,14	58,4
6	R2	15	0,0	0,036	5,6	LOS A	0,1	0,6	0,07	0,14	56,3
Approach		67	1,5	0,036	1,4	NA	0,1	0,6	0,07	0,14	57,9
North: SHABA NORTH APP											
7	L2	4	0,0	0,011	8,2	LOS A	0,0	0,3	0,17	0,90	51,9
8	T1	1	0,0	0,011	8,2	LOS A	0,0	0,3	0,17	0,90	51,6
9	R2	6	0,0	0,011	8,1	LOS A	0,0	0,3	0,17	0,90	51,4
Approach		12	0,0	0,011	8,1	LOS A	0,0	0,3	0,17	0,90	51,6
West: SHARI WEST APP											
10	L2	9	2,0	0,033	5,6	LOS A	0,0	0,1	0,01	0,10	57,4
11	T1	53	2,0	0,033	0,0	LOS A	0,0	0,1	0,01	0,10	59,1
12	R2	1	0,0	0,033	5,6	LOS A	0,0	0,1	0,01	0,10	56,9
Approach		63	2,0	0,033	0,9	NA	0,0	0,1	0,01	0,10	58,8
All Vehicles		145	1,6	0,036	1,9	NA	0,1	0,6	0,05	0,20	57,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [INT 11 DINGO CRESCENT & UNKNOWN]

EXISTING AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: UNKNOWN SOUTH APP											
1	L2	15	0,0	0,034	8,1	LOS A	0,1	0,8	0,11	0,93	52,0
2	T1	2	0,0	0,034	7,9	LOS A	0,1	0,8	0,11	0,93	51,7
3	R2	21	0,0	0,034	7,8	LOS A	0,1	0,8	0,11	0,93	51,5
Approach		38	0,0	0,034	7,9	LOS A	0,1	0,8	0,11	0,93	51,7
East: DINGO CRESCENT EAST APP											
4	L2	15	0,0	0,026	5,6	LOS A	0,0	0,3	0,02	0,25	56,1
5	T1	27	2,0	0,026	0,0	LOS A	0,0	0,3	0,02	0,25	57,6
6	R2	6	0,0	0,026	5,5	LOS A	0,0	0,3	0,02	0,25	55,5
Approach		48	1,1	0,026	2,4	NA	0,0	0,3	0,02	0,25	56,9
North: UNKNOWN NORTH APP											
7	L2	8	0,0	0,018	8,1	LOS A	0,1	0,4	0,07	0,96	51,9
8	T1	2	0,0	0,018	7,9	LOS A	0,1	0,4	0,07	0,96	51,6
9	R2	9	0,0	0,018	7,8	LOS A	0,1	0,4	0,07	0,96	51,4
Approach		20	0,0	0,018	7,9	LOS A	0,1	0,4	0,07	0,96	51,6
West: DINGO CRESCENT WEST APP											
10	L2	1	2,0	0,008	5,6	LOS A	0,0	0,1	0,02	0,08	57,5
11	T1	14	2,0	0,008	0,0	LOS A	0,0	0,1	0,02	0,08	59,2
12	R2	1	0,0	0,008	5,6	LOS A	0,0	0,1	0,02	0,08	57,0
Approach		16	1,9	0,008	0,8	NA	0,0	0,1	0,02	0,08	58,9
All Vehicles		122	0,7	0,034	4,8	NA	0,1	0,8	0,06	0,56	54,5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [INT 11 DINGO CRESCENT & UNKNOWN]

EXISTING PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	5	0,0	0,019	8,1	LOS A	0,1	0,5	0,12	0,94	52,0
2	T1	3	0,0	0,019	8,0	LOS A	0,1	0,5	0,12	0,94	51,7
3	R2	12	0,0	0,019	7,8	LOS A	0,1	0,5	0,12	0,94	51,5
Approach		20	0,0	0,019	7,9	LOS A	0,1	0,5	0,12	0,94	51,6
East: SHARI EAST APP											
4	L2	5	0,0	0,017	5,6	LOS A	0,0	0,2	0,03	0,16	56,9
5	T1	23	2,0	0,017	0,0	LOS A	0,0	0,2	0,03	0,16	58,5
6	R2	3	0,0	0,017	5,5	LOS A	0,0	0,2	0,03	0,16	56,3
Approach		32	1,5	0,017	1,5	NA	0,0	0,2	0,03	0,16	58,0
North: SHABA NORTH APP											
7	L2	6	0,0	0,007	8,1	LOS A	0,0	0,2	0,09	0,95	51,8
8	T1	2	0,0	0,007	8,0	LOS A	0,0	0,2	0,09	0,95	51,6
9	R2	1	0,0	0,007	7,8	LOS A	0,0	0,2	0,09	0,95	51,4
Approach		9	0,0	0,007	8,0	LOS A	0,0	0,2	0,09	0,95	51,7
West: SHARI WEST APP											
10	L2	4	2,0	0,025	5,6	LOS A	0,1	0,6	0,07	0,24	55,9
11	T1	26	2,0	0,025	0,0	LOS A	0,1	0,6	0,07	0,24	57,5
12	R2	15	0,0	0,025	5,5	LOS A	0,1	0,6	0,07	0,24	55,5
Approach		45	1,3	0,025	2,3	NA	0,1	0,6	0,07	0,24	56,7
All Vehicles		106	1,0	0,025	3,7	NA	0,1	0,6	0,07	0,41	55,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ANNEXURE G

MOVEMENT SUMMARY FORECAST EVALUATION INTERSECTION 1 TO 12

MOVEMENT SUMMARY

Site: 101 [Int 1 AM FUT]

FORECAST AM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY SOUTH APP											
1	L2	195	2,0	0,106	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
2	T1	455	2,0	0,363	5,2	LOS A	6,1	43,4	0,49	0,43	55,3
Approach		649	2,0	0,363	5,3	LOS A	6,1	43,4	0,34	0,46	55,2
North: M10 KLIPSPRUIT VALLEY NORTH APP											
8	T1	365	2,0	0,292	4,9	LOS A	4,6	32,8	0,46	0,40	55,5
9	R2	25	2,0	0,047	12,3	LOS B	0,3	2,5	0,48	0,67	48,5
Approach		391	2,0	0,292	5,4	LOS A	4,6	32,8	0,46	0,42	55,0
West: R558 WEST APP											
10	L2	13	2,0	0,373	29,8	LOS C	3,4	24,0	0,92	0,78	39,5
12	R2	113	2,0	0,373	29,8	LOS C	3,4	24,0	0,92	0,78	39,5
Approach		125	2,0	0,373	29,8	LOS C	3,4	24,0	0,92	0,78	39,5
All Vehicles		1165	2,0	0,373	8,0	LOS A	6,1	43,4	0,45	0,48	52,9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Int 1 PM FUT]

FORECAST PM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
		Total veh/h	HV %	v/c	sec		veh	m			
South: M10 KLIPSPRUIT VALLEY SOUTH APP											
1	L2	259	2,0	0,141	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
2	T1	654	2,0	0,551	7,2	LOS A	11,2	79,4	0,62	0,56	53,6
Approach		913	2,0	0,551	6,8	LOS A	11,2	79,4	0,45	0,55	54,0
North: M10 KLIPSPRUIT VALLEY NORTH APP											
8	T1	766	2,0	0,707	7,9	LOS A	14,4	102,3	0,69	0,62	53,1
9	R2	60	2,0	0,167	17,2	LOS B	1,1	8,0	0,64	0,72	45,5
Approach		826	2,0	0,707	8,6	LOS A	14,4	102,3	0,68	0,63	52,4
West: R558 WEST APP											
10	L2	32	2,0	0,716	31,7	LOS C	8,4	60,1	0,98	0,88	38,7
12	R2	253	2,0	0,716	31,7	LOS C	8,4	60,1	0,98	0,88	38,7
Approach		284	2,0	0,716	31,7	LOS C	8,4	60,1	0,98	0,88	38,7
All Vehicles		2023	2,0	0,716	11,0	LOS B	14,4	102,3	0,62	0,63	50,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [AM FUT]

FORECAST AM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 SOUTH APP											
1	L2	74	2,0	0,278	17,5	LOS B	4,4	31,0	0,68	0,63	47,8
2	T1	806	2,0	0,853	21,5	LOS C	20,5	146,0	0,87	0,91	44,2
3	R2	89	2,0	0,505	31,7	LOS C	2,6	18,5	0,94	0,79	38,9
Approach		969	2,0	0,853	22,1	LOS C	20,5	146,0	0,87	0,88	43,9
East: SCHOOL RD EAST APP											
4	L2	91	2,0	0,245	18,6	LOS B	3,6	25,9	0,70	0,67	46,6
5	T1	94	2,0	0,245	13,0	LOS B	3,6	25,9	0,70	0,67	47,7
6	R2	564	2,0	0,859	31,7	LOS C	15,1	107,2	0,93	0,96	38,8
Approach		748	2,0	0,859	27,8	LOS C	15,1	107,2	0,87	0,89	40,5
North: M10 NORTH APP											
7	L2	449	2,0	0,566	19,6	LOS B	10,1	71,6	0,80	0,81	44,4
8	T1	603	2,0	0,723	16,3	LOS B	15,3	109,1	0,88	0,81	47,4
9	R2	71	2,0	0,404	32,7	LOS C	2,0	14,5	0,95	0,77	38,2
Approach		1123	2,0	0,723	18,6	LOS B	15,3	109,1	0,86	0,81	45,5
West: SCHOOL WEST APP											
10	L2	24	2,0	0,248	18,7	LOS B	3,3	23,3	0,70	0,64	47,1
11	T1	111	2,0	0,248	13,1	LOS B	3,3	23,3	0,70	0,64	48,2
12	R2	31	2,0	0,248	18,7	LOS B	3,3	23,3	0,70	0,64	47,1
Approach		165	2,0	0,248	15,0	LOS B	3,3	23,3	0,70	0,64	47,8
All Vehicles		3006	2,0	0,859	21,8	LOS C	20,5	146,0	0,85	0,84	43,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM FUT]

FORECAST PM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 SOUTH APP											
1	L2	36	2,0	0,148	12,7	LOS B	2,2	15,8	0,52	0,49	51,4
2	T1	601	2,0	0,455	8,4	LOS A	8,5	60,6	0,62	0,55	52,5
3	R2	65	2,0	0,322	25,5	LOS C	1,6	11,7	0,83	0,76	41,6
Approach		702	2,0	0,455	10,2	LOS B	8,5	60,6	0,63	0,57	51,2
East: SCHOOL RD EAST APP											
4	L2	56	2,0	0,206	23,6	LOS C	2,5	17,8	0,80	0,69	43,8
5	T1	54	2,0	0,206	18,0	LOS B	2,5	17,8	0,80	0,69	44,7
6	R2	355	2,0	0,705	29,2	LOS C	7,9	56,0	0,93	0,85	39,8
Approach		464	2,0	0,705	27,2	LOS C	7,9	56,0	0,90	0,81	40,8
North: M10 NORTH APP											
7	L2	408	2,0	0,406	14,0	LOS B	7,0	49,7	0,62	0,76	47,6
8	T1	722	2,0	0,687	10,6	LOS B	15,4	109,4	0,78	0,70	51,1
9	R2	43	2,0	0,118	18,2	LOS B	0,8	5,9	0,66	0,71	45,0
Approach		1174	2,0	0,687	12,1	LOS B	15,4	109,4	0,72	0,72	49,6
West: SCHOOL WEST APP											
10	L2	57	2,0	0,283	24,2	LOS C	3,0	21,2	0,82	0,74	42,7
11	T1	29	2,0	0,283	18,7	LOS B	3,0	21,2	0,82	0,74	43,6
12	R2	40	2,0	0,283	24,2	LOS C	3,0	21,2	0,82	0,74	42,7
Approach		126	2,0	0,283	22,9	LOS C	3,0	21,2	0,82	0,74	42,9
All Vehicles		2466	2,0	0,705	15,0	LOS B	15,4	109,4	0,73	0,69	47,7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [int 3 forecast am]

FORECAST AM PEAK

Signals - Fixed Time Isolated Cycle Time = 120 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	43	2,0	0,058	28,3	LOS C	1,5	10,7	0,63	0,70	40,2
2	T1	1567	2,0	1,088	148,9	LOS F	92,5	658,6	1,00	1,65	17,2
3	R2	176	2,0	1,129	165,7	LOS F	15,6	110,8	1,00	1,25	13,8
Approach		1786	2,0	1,129	147,6	LOS F	92,5	658,6	0,99	1,59	17,0
East: Volta East App											
4	L2	181	2,0	0,995	108,6	LOS F	14,4	102,2	0,72	1,10	21,3
5	T1	120	2,0	1,596	583,2	LOS F	177,3	1262,1	1,00	2,29	5,5
6	R2	702	2,0	1,596	588,7	LOS F	177,3	1262,1	1,00	2,29	5,5
Approach		1003	2,0	1,596	501,4	LOS F	177,3	1262,1	0,95	2,07	6,3
North: M10 North App											
7	L2	265	2,0	0,355	31,8	LOS C	10,6	75,8	0,74	0,78	38,7
8	T1	1123	2,0	1,632	618,6	LOS F	255,9	1821,8	1,00	3,34	5,3
9	R2	175	2,0	1,112	151,9	LOS F	14,6	104,0	1,00	1,23	14,6
Approach		1563	2,0	1,632	466,9	LOS F	255,9	1821,8	0,96	2,67	6,7
West: Volta West App											
10	L2	222	2,0	0,610	47,7	LOS D	11,1	79,2	0,96	0,88	33,5
11	T1	93	2,0	1,086	154,5	LOS F	10,2	72,9	1,00	1,23	16,6
12	R2	6	2,0	1,086	160,1	LOS F	10,2	72,9	1,00	1,23	16,5
Approach		321	2,0	1,086	80,7	LOS F	11,1	79,2	0,97	0,99	25,5
All Vehicles		4674	2,0	1,632	325,7	LOS F	255,9	1821,8	0,97	2,01	9,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM PEAK FUT]

FORECAST AM PEAK

Signals - Fixed Time Coordinated Cycle Time = 105 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	43	2,0	0,048	20,0	LOS B	1,1	8,0	0,54	0,68	44,2
2	T1	1567	2,0	0,833	10,1	LOS B	23,8	169,7	0,59	0,56	51,5
3	R2	176	2,0	0,732	47,1	LOS D	9,5	67,8	1,00	0,96	33,4
Approach		1786	2,0	0,833	14,0	LOS B	23,8	169,7	0,63	0,60	48,7
East: Volta East App											
4	L2	181	2,0	0,529	38,3	LOS D	12,8	91,5	0,88	0,79	37,1
5	T1	120	2,0	0,529	32,7	LOS C	12,8	91,5	0,88	0,79	37,8
6	R2	702	2,0	0,748	42,1	LOS D	16,7	118,6	0,98	0,87	35,2
Approach		1003	2,0	0,748	40,3	LOS D	16,7	118,6	0,95	0,85	35,8
North: M10 North App											
7	L2	265	2,0	0,293	22,2	LOS C	7,9	56,5	0,63	0,75	43,0
8	T1	1123	2,0	0,610	20,2	LOS C	21,3	152,0	0,77	0,69	45,1
9	R2	175	2,0	0,959	82,8	LOS F	11,3	80,5	1,00	1,19	25,2
Approach		1563	2,0	0,959	27,5	LOS C	21,3	152,0	0,77	0,75	41,2
West: Volta West App											
10	L2	222	2,0	0,121	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
11	T1	6	2,0	0,111	53,8	LOS D	0,5	3,9	0,98	0,67	31,4
12	R2	4	2,0	0,111	59,4	LOS E	0,5	3,9	0,98	0,67	31,0
Approach		233	2,0	0,121	7,9	LOS A	0,5	3,9	0,04	0,53	53,1
All Vehicles		4585	2,0	0,959	24,1	LOS C	23,8	169,7	0,72	0,70	42,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [INT3 FORECAST PM]

FORECAST PM PEAK

Signals - Fixed Time Isolated Cycle Time = 95 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	29	2,0	0,029	16,0	LOS B	0,6	4,4	0,48	0,66	46,5
2	T1	1136	2,0	0,571	14,8	LOS B	18,2	129,6	0,69	0,62	48,3
3	R2	96	2,0	0,487	31,5	LOS C	3,0	21,1	0,98	0,75	38,6
Approach		1261	2,0	0,571	16,1	LOS B	18,2	129,6	0,71	0,63	47,4
East: Volta East App											
4	L2	99	2,0	0,352	40,8	LOS D	4,0	28,1	0,89	0,76	35,3
5	T1	64	2,0	1,558	546,5	LOS F	77,3	550,7	1,00	2,65	5,8
6	R2	321	2,0	1,558	552,1	LOS F	77,3	550,7	1,00	2,65	5,8
Approach		484	2,0	1,558	446,9	LOS F	77,3	550,7	0,98	2,27	7,0
North: M10 North App											
7	L2	451	2,0	0,450	19,3	LOS B	12,4	88,5	0,64	0,77	44,6
8	T1	1404	2,0	1,592	575,5	LOS F	295,3	2102,4	1,00	3,85	5,7
9	R2	191	2,0	0,632	18,8	LOS B	4,0	28,5	0,82	0,80	44,9
Approach		2045	2,0	1,592	401,1	LOS F	295,3	2102,4	0,90	2,89	7,8
West: Volta West App											
10	L2	205	2,0	0,397	14,1	LOS B	3,9	27,7	0,67	0,75	48,2
11	T1	59	2,0	0,229	35,9	LOS D	3,0	21,3	0,89	0,70	37,4
12	R2	16	2,0	0,229	41,5	LOS D	3,0	21,3	0,89	0,70	36,9
Approach		280	2,0	0,397	20,2	LOS C	3,9	27,7	0,73	0,74	44,7
All Vehicles		4071	2,0	1,592	261,1	LOS F	295,3	2102,4	0,84	1,97	11,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [PM PEAK FUT]

FORECAST PM PEAK

Signals - Fixed Time Coordinated Cycle Time = 85 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 South App											
1	L2	29	2,0	0,030	15,2	LOS B	0,6	4,0	0,49	0,66	46,9
2	T1	1136	2,0	0,652	9,7	LOS A	14,7	105,0	0,51	0,46	51,8
3	R2	96	2,0	0,398	31,6	LOS C	3,5	25,2	0,90	0,80	38,9
Approach		1261	2,0	0,652	11,5	LOS B	14,7	105,0	0,54	0,49	50,4
East: Volta East App											
4	L2	99	2,0	0,413	37,5	LOS D	6,0	42,6	0,91	0,77	37,4
5	T1	64	2,0	0,413	31,9	LOS C	6,0	42,6	0,91	0,77	38,1
6	R2	321	2,0	0,652	43,5	LOS D	6,5	46,1	0,99	0,86	34,7
Approach		484	2,0	0,652	40,7	LOS D	6,5	46,1	0,97	0,83	35,6
North: M10 North App											
7	L2	451	2,0	0,455	18,3	LOS B	11,3	80,6	0,65	0,78	45,1
8	T1	1404	2,0	0,762	16,1	LOS B	25,5	181,8	0,79	0,73	47,5
9	R2	191	2,0	0,586	25,5	LOS C	6,7	47,9	0,91	0,84	41,6
Approach		2045	2,0	0,762	17,5	LOS B	25,5	181,8	0,77	0,75	46,3
West: Volta West App											
10	L2	205	2,0	0,325	10,4	LOS B	2,9	20,6	0,49	0,69	50,7
11	T1	59	2,0	0,588	45,1	LOS D	3,3	23,4	1,00	0,79	34,2
12	R2	16	2,0	0,588	50,7	LOS D	3,3	23,4	1,00	0,79	33,8
Approach		280	2,0	0,588	20,0	LOS B	3,3	23,4	0,62	0,72	44,9
All Vehicles		4071	2,0	0,762	18,6	LOS B	25,5	181,8	0,71	0,68	45,7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
1	L2	313	2,0	1,165	76,4	LOS F	0,0	0,0	0,00	0,00	17,2
2	T1	1914	2,0	1,165	76,4	LOS F	0,0	0,0	0,00	0,00	17,2
3	R2	139	2,0	7,491	5925,6	LOS F	93,3	664,2	1,00	2,04	0,6
Approach		2365	2,0	7,491	420,0	NA	93,3	664,2	0,06	0,12	6,5
East: VAAL ST											
4	L2	12	2,0	29,522	25729,0	LOS F	162,1	1154,4	1,00	1,48	0,1
5	T1	3	2,0	29,522	25751,7	LOS F	162,1	1154,4	1,00	1,48	0,1
6	R2	171	2,0	29,522	25740,6	LOS F	162,1	1154,4	1,00	1,48	0,1
Approach		185	2,0	29,522	25740,0	LOS F	162,1	1154,4	1,00	1,48	0,1
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	349	2,0	0,841	5,9	LOS A	0,0	0,0	0,00	0,13	56,5
8	T1	1577	2,0	3,219	457,6	LOS F	260,3	1853,0	0,21	0,12	6,2
9	R2	19	2,0	3,219	2237,0	LOS F	260,3	1853,0	1,00	0,07	1,4
Approach		1945	2,0	3,219	393,8	NA	260,3	1853,0	0,18	0,12	7,1
West: VAAL ST											
10	L2	33	2,0	7,193	5773,8	LOS F	36,9	262,8	1,00	1,38	0,6
11	T1	6	2,0	7,193	5765,4	LOS F	36,9	262,8	1,00	1,38	0,6
12	R2	4	2,0	7,193	5786,2	LOS F	36,9	262,8	1,00	1,38	0,6
Approach		43	2,0	7,193	5773,8	LOS F	36,9	262,8	1,00	1,38	0,6
All Vehicles		4539	2,0	29,522	1493,1	NA	260,3	1853,0	0,16	0,19	2,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101v [FORECAST AM PEAK - Conversion]

FORECAST AM PEAK

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South: M10 KLIPSPRUIT VALLEY RD											
1	L2	313	2,0	0,301	19,9	LOS B	9,4	66,9	0,56	0,74	44,2
2	T1	1914	2,0	0,877	2,6	LOS A	9,1	65,1	0,15	0,16	57,5
3	R2	139	2,0	0,580	28,2	LOS C	5,6	40,0	0,99	0,84	40,2
Approach		2365	2,0	0,877	6,4	LOS A	9,4	66,9	0,26	0,27	54,0
East: VAAL ST											
4	L2	12	2,0	0,040	47,0	LOS D	0,7	4,9	0,83	0,67	33,7
5	T1	3	2,0	0,040	41,4	LOS D	0,7	4,9	0,83	0,67	34,3
6	R2	171	2,0	0,612	47,9	LOS D	8,7	62,2	0,93	0,79	33,2
Approach		185	2,0	0,612	47,7	LOS D	8,7	62,2	0,92	0,78	33,3
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	349	2,0	0,337	20,3	LOS C	10,8	76,7	0,57	0,75	44,0
8	T1	1577	2,0	0,750	20,2	LOS C	34,5	245,3	0,80	0,73	45,0
9	R2	19	2,0	0,079	13,1	LOS B	0,3	2,5	0,47	0,65	48,5
Approach		1945	2,0	0,750	20,2	LOS C	34,5	245,3	0,75	0,73	44,9
West: VAAL ST											
10	L2	33	2,0	0,018	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
11	T1	6	2,0	0,120	61,2	LOS E	0,6	4,4	0,97	0,66	29,5
12	R2	4	2,0	0,120	66,8	LOS E	0,6	4,4	0,97	0,66	29,2
Approach		43	2,0	0,120	19,7	LOS B	0,6	4,4	0,24	0,56	45,3
All Vehicles		4539	2,0	0,877	14,1	LOS B	34,5	245,3	0,50	0,49	48,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
1	L2	11	2,0	0,261	5,6	LOS A	0,0	0,0	0,00	0,01	58,1
2	T1	1722	2,0	0,997	853,6	LOS F	946,0	6735,6	0,72	0,00	4,0
3	R2	2	2,0	0,997	3389,5	LOS F	946,0	6735,6	1,00	0,00	2,9
Approach		1735	2,0	0,997	851,6	NA	946,0	6735,6	0,71	0,00	4,0
East: VAAL ST											
4	L2	4	2,0	19,251	16497,6	LOS F	102,7	731,4	1,00	1,47	0,2
5	T1	4	2,0	19,251	16526,5	LOS F	102,7	731,4	1,00	1,47	0,2
6	R2	109	2,0	19,251	16516,9	LOS F	102,7	731,4	1,00	1,47	0,2
Approach		118	2,0	19,251	16516,6	LOS F	102,7	731,4	1,00	1,47	0,2
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	229	2,0	0,312	5,6	LOS A	0,0	0,0	0,00	0,23	56,3
8	T1	2081	2,0	1,192	187,0	LOS F	244,5	1741,1	0,83	0,05	14,0
9	R2	19	2,0	1,192	538,9	LOS F	244,5	1741,1	1,00	0,02	12,0
Approach		2329	2,0	1,192	172,0	NA	244,5	1741,1	0,75	0,07	15,1
West: VAAL ST											
10	L2	21	2,0	2,436	1482,0	LOS F	16,7	118,8	1,00	1,95	2,1
11	T1	3	2,0	2,436	1797,0	LOS F	16,7	118,8	1,00	1,95	2,1
12	R2	8	2,0	2,436	1644,5	LOS F	16,7	118,8	1,00	1,95	2,1
Approach		33	2,0	2,436	1554,4	LOS F	16,7	118,8	1,00	1,95	2,1
All Vehicles		4215	2,0	19,251	919,6	NA	946,0	6735,6	0,74	0,10	3,7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101v [FORECAST PM PEAK]

FORECAST PM PEAK

Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
1	L2	11	2,0	0,009	11,5	LOS B	0,2	1,1	0,37	0,62	49,2
2	T1	1722	2,0	0,694	0,6	LOS A	2,3	16,7	0,07	0,06	59,4
3	R2	2	2,0	0,023	37,1	LOS D	0,1	0,6	0,80	0,65	36,6
Approach		1735	2,0	0,694	0,7	LOS A	2,3	16,7	0,07	0,07	59,3
East: VAAL ST											
4	L2	4	2,0	0,020	34,9	LOS C	0,3	2,0	0,80	0,61	38,6
5	T1	4	2,0	0,020	29,3	LOS C	0,3	2,0	0,80	0,61	39,4
6	R2	109	2,0	0,373	35,0	LOS D	3,9	27,7	0,86	0,75	37,6
Approach		118	2,0	0,373	34,8	LOS C	3,9	27,7	0,85	0,74	37,7
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	229	2,0	0,194	12,5	LOS B	4,0	28,7	0,43	0,69	48,6
8	T1	2081	2,0	0,900	25,7	LOS C	46,4	330,6	0,84	0,91	42,2
9	R2	19	2,0	0,122	13,6	LOS B	0,4	2,6	0,43	0,66	48,1
Approach		2329	2,0	0,900	24,3	LOS C	46,4	330,6	0,80	0,88	42,8
West: VAAL ST											
10	L2	21	2,0	0,011	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
11	T1	3	2,0	0,095	43,3	LOS D	0,5	3,5	0,94	0,66	33,8
12	R2	8	2,0	0,095	48,9	LOS D	0,5	3,5	0,94	0,66	33,4
Approach		33	2,0	0,095	20,5	LOS C	0,5	3,5	0,33	0,58	44,8
All Vehicles		4215	2,0	0,900	14,9	LOS B	46,4	330,6	0,50	0,54	48,1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: ZAMBESI SOUTH APP											
1	L2	456	2,0	0,783	19,1	LOS C	8,3	58,8	0,79	1,42	44,8
3	R2	55	2,0	0,783	32,4	LOS D	8,3	58,8	0,79	1,42	44,4
Approach		511	2,0	0,783	20,5	LOS C	8,3	58,8	0,79	1,42	44,8
East: VOLTA ST EAST APP											
4	L2	64	2,0	0,308	5,6	LOS A	0,0	0,0	0,00	0,06	57,6
5	T1	525	2,0	0,308	0,0	LOS A	0,0	0,0	0,00	0,06	59,3
Approach		589	2,0	0,308	0,6	NA	0,0	0,0	0,00	0,06	59,1
West: VOLTA ST WEST APP											
11	T1	301	2,0	0,416	3,5	LOS A	3,3	23,8	0,61	0,41	54,3
12	R2	240	2,0	0,416	9,9	LOS A	3,3	23,8	0,61	0,41	52,4
Approach		541	2,0	0,416	6,3	NA	3,3	23,8	0,61	0,41	53,5
All Vehicles		1641	2,0	0,783	8,7	NA	8,3	58,8	0,45	0,60	52,1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: ZAMBESI SOUTH APP											
1	L2	227	2,0	0,522	14,2	LOS B	2,9	20,9	0,69	1,14	46,8
3	R2	55	2,0	0,522	27,4	LOS D	2,9	20,9	0,69	1,14	46,4
Approach		282	2,0	0,522	16,8	LOS C	2,9	20,9	0,69	1,14	46,8
East: VOLTA ST EAST APP											
4	L2	65	2,0	0,309	5,6	LOS A	0,0	0,0	0,00	0,07	57,6
5	T1	525	2,0	0,309	0,0	LOS A	0,0	0,0	0,00	0,07	59,3
Approach		591	2,0	0,309	0,7	NA	0,0	0,0	0,00	0,07	59,1
West: VOLTA ST WEST APP											
11	T1	215	2,0	0,549	5,3	LOS A	5,3	37,8	0,73	0,69	52,2
12	R2	406	2,0	0,549	11,0	LOS B	5,3	37,8	0,73	0,69	50,4
Approach		621	2,0	0,549	9,0	NA	5,3	37,8	0,73	0,69	51,0
All Vehicles		1494	2,0	0,549	7,2	NA	5,3	37,8	0,43	0,53	53,0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Work\Rietfontein working folder\SIDRA\INT 5 VOLTA & ZAMBESI ST.sip7

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: VOLTA ST EAST APP											
5	T1	319	2,0	0,251	0,6	LOS A	1,0	6,8	0,26	0,17	57,6
6	R2	112	2,0	0,251	6,8	LOS A	1,0	6,8	0,26	0,17	55,4
Approach		431	2,0	0,251	2,2	NA	1,0	6,8	0,26	0,17	57,0
North: VAAL ST NORTH APP											
7	L2	141	2,0	0,566	11,0	LOS B	3,9	27,4	0,50	1,04	48,1
9	R2	243	2,0	0,566	16,1	LOS C	3,9	27,4	0,50	1,04	47,7
Approach		384	2,0	0,566	14,2	LOS B	3,9	27,4	0,50	1,04	47,8
West: VOLTA ST WEST APP											
10	L2	143	2,0	0,159	5,6	LOS A	0,0	0,0	0,00	0,28	55,9
11	T1	156	2,0	0,159	0,0	LOS A	0,0	0,0	0,00	0,28	57,5
Approach		299	2,0	0,159	2,7	NA	0,0	0,0	0,00	0,28	56,7
All Vehicles		1114	2,0	0,566	6,5	NA	3,9	27,4	0,27	0,50	53,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: VOLTA ST EAST APP											
5	T1	236	2,0	0,154	0,2	LOS A	0,3	2,5	0,14	0,10	58,6
6	R2	43	2,0	0,154	6,5	LOS A	0,3	2,5	0,14	0,10	56,3
Approach		279	2,0	0,154	1,2	NA	0,3	2,5	0,14	0,10	58,2
North: VAAL ST NORTH APP											
7	L2	166	2,0	0,283	9,1	LOS A	1,2	8,5	0,39	0,92	50,9
9	R2	94	2,0	0,283	11,2	LOS B	1,2	8,5	0,39	0,92	50,5
Approach		260	2,0	0,283	9,9	LOS A	1,2	8,5	0,39	0,92	50,8
West: VOLTA ST WEST APP											
10	L2	62	2,0	0,137	5,6	LOS A	0,0	0,0	0,00	0,14	57,0
11	T1	199	2,0	0,137	0,0	LOS A	0,0	0,0	0,00	0,14	58,7
Approach		261	2,0	0,137	1,3	NA	0,0	0,0	0,00	0,14	58,3
All Vehicles		800	2,0	0,283	4,1	NA	1,2	8,5	0,18	0,38	55,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHARI SOUTH APP											
1	L2	165	2,0	0,170	9,3	LOS A	0,7	5,0	0,38	0,89	51,3
3	R2	14	2,0	0,170	11,0	LOS B	0,7	5,0	0,38	0,89	50,8
Approach		179	2,0	0,170	9,4	LOS A	0,7	5,0	0,38	0,89	51,2
East: VOLTA ST EAST APP											
4	L2	12	2,0	0,136	5,6	LOS A	0,0	0,0	0,00	0,03	58,0
5	T1	249	2,0	0,136	0,0	LOS A	0,0	0,0	0,00	0,03	59,7
Approach		261	2,0	0,136	0,3	NA	0,0	0,0	0,00	0,03	59,7
West: VOLTA ST WEST APP											
11	T1	199	2,0	0,155	0,4	LOS A	0,5	3,7	0,22	0,16	57,8
12	R2	69	2,0	0,155	6,5	LOS A	0,5	3,7	0,22	0,16	55,6
Approach		268	2,0	0,155	2,0	NA	0,5	3,7	0,22	0,16	57,2
All Vehicles		708	2,0	0,170	3,2	NA	0,7	5,0	0,18	0,30	56,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHARI SOUTH APP											
1	L2	66	2,0	0,074	9,0	LOS A	0,3	2,0	0,34	0,88	51,3
3	R2	9	2,0	0,074	11,4	LOS B	0,3	2,0	0,34	0,88	50,8
Approach		76	2,0	0,074	9,3	LOS A	0,3	2,0	0,34	0,88	51,2
East: VOLTA ST EAST APP											
4	L2	11	2,0	0,121	5,6	LOS A	0,0	0,0	0,00	0,03	58,0
5	T1	222	2,0	0,121	0,0	LOS A	0,0	0,0	0,00	0,03	59,7
Approach		233	2,0	0,121	0,3	NA	0,0	0,0	0,00	0,03	59,7
West: VOLTA ST WEST APP											
11	T1	211	2,0	0,220	0,6	LOS A	1,1	7,5	0,31	0,26	56,7
12	R2	156	2,0	0,220	6,4	LOS A	1,1	7,5	0,31	0,26	54,5
Approach		366	2,0	0,220	3,1	NA	1,1	7,5	0,31	0,26	55,7
All Vehicles		675	2,0	0,220	2,8	NA	1,1	7,5	0,21	0,25	56,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Work\Rietfontein working folder\SIDRA\INT 7 VOLTA & SHARI ST.sip7

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: LIMPOPO SOUTH APP											
1	L2	57	2,0	0,076	8,6	LOS A	0,3	2,0	0,25	0,89	51,7
3	R2	28	2,0	0,076	8,6	LOS A	0,3	2,0	0,25	0,89	51,2
Approach		85	2,0	0,076	8,6	LOS A	0,3	2,0	0,25	0,89	51,5
East: SHARI ST EAST APP											
4	L2	45	2,0	0,092	5,6	LOS A	0,0	0,0	0,00	0,15	56,9
5	T1	129	2,0	0,092	0,0	LOS A	0,0	0,0	0,00	0,15	58,6
Approach		175	2,0	0,092	1,4	NA	0,0	0,0	0,00	0,15	58,2
West: SHARI ST WEST APP											
11	T1	62	2,0	0,037	0,1	LOS A	0,1	0,4	0,07	0,06	59,1
12	R2	7	2,0	0,037	6,0	LOS A	0,1	0,4	0,07	0,06	56,8
Approach		69	2,0	0,037	0,7	NA	0,1	0,4	0,07	0,06	58,9
All Vehicles		329	2,0	0,092	3,1	NA	0,3	2,0	0,08	0,32	56,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: LIMPOPO ST SOUTH APP											
1	L2	1	2,0	0,022	8,4	LOS A	0,1	0,5	0,29	0,88	51,6
3	R2	19	2,0	0,022	8,6	LOS A	0,1	0,5	0,29	0,88	51,1
Approach		20	2,0	0,022	8,6	LOS A	0,1	0,5	0,29	0,88	51,2
East: SHARI ST EAST APP											
4	L2	12	2,0	0,045	5,6	LOS A	0,0	0,0	0,00	0,08	57,6
5	T1	75	2,0	0,045	0,0	LOS A	0,0	0,0	0,00	0,08	59,3
Approach		86	2,0	0,045	0,8	NA	0,0	0,0	0,00	0,08	59,0
West: SHARI ST WEST APP											
11	T1	112	2,0	0,092	0,1	LOS A	0,3	2,2	0,13	0,19	57,8
12	R2	55	2,0	0,092	5,7	LOS A	0,3	2,2	0,13	0,19	55,6
Approach		166	2,0	0,092	2,0	NA	0,3	2,2	0,13	0,19	57,0
All Vehicles		273	2,0	0,092	2,1	NA	0,3	2,2	0,10	0,21	57,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [FORECAST AM]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: AVON SOUTH APP											
1	L2	37	2,0	0,109	8,5	LOS A	0,4	2,8	0,25	0,90	51,7
3	R2	77	2,0	0,109	8,5	LOS A	0,4	2,8	0,25	0,90	51,2
Approach		114	2,0	0,109	8,5	LOS A	0,4	2,8	0,25	0,90	51,4
East: SHARI ST EAST APP											
4	L2	14	2,0	0,059	5,6	LOS A	0,0	0,0	0,00	0,07	57,6
5	T1	100	2,0	0,059	0,0	LOS A	0,0	0,0	0,00	0,07	59,3
Approach		114	2,0	0,059	0,7	NA	0,0	0,0	0,00	0,07	59,1
West: SHARI ST WEST APP											
11	T1	76	2,0	0,047	0,1	LOS A	0,1	0,6	0,07	0,09	58,9
12	R2	13	2,0	0,047	5,8	LOS A	0,1	0,6	0,07	0,09	56,6
Approach		88	2,0	0,047	0,9	NA	0,1	0,6	0,07	0,09	58,6
All Vehicles		316	2,0	0,109	3,6	NA	0,4	2,8	0,11	0,37	55,9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [FORECAST PM]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: AVON ST SOUTH APP											
1	L2	20	2,0	0,023	8,3	LOS A	0,1	0,6	0,13	0,92	51,7
3	R2	8	2,0	0,023	8,3	LOS A	0,1	0,6	0,13	0,92	51,2
Approach		28	2,0	0,023	8,3	LOS A	0,1	0,6	0,13	0,92	51,6
East: SHARI ST EAST APP											
4	L2	69	2,0	0,063	5,6	LOS A	0,0	0,0	0,00	0,35	55,3
5	T1	47	2,0	0,063	0,0	LOS A	0,0	0,0	0,00	0,35	56,9
Approach		117	2,0	0,063	3,3	NA	0,0	0,0	0,00	0,35	56,0
West: SHARI ST WEST APP											
11	T1	62	2,0	0,050	0,2	LOS A	0,2	1,2	0,14	0,18	57,8
12	R2	28	2,0	0,050	5,8	LOS A	0,2	1,2	0,14	0,18	55,6
Approach		91	2,0	0,050	1,9	NA	0,2	1,2	0,14	0,18	57,1
All Vehicles		236	2,0	0,063	3,4	NA	0,2	1,2	0,07	0,35	55,8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	1	0,0	0,298	8,5	LOS A	1,2	8,6	0,47	0,95	50,8
2	T1	1	0,0	0,298	9,9	LOS A	1,2	8,6	0,47	0,95	50,5
3	R2	211	0,0	0,298	10,2	LOS B	1,2	8,6	0,47	0,95	50,3
Approach		213	0,0	0,298	10,2	LOS B	1,2	8,6	0,47	0,95	50,3
East: SHARI EAST APP											
4	L2	151	0,0	0,131	5,6	LOS A	0,0	0,3	0,02	0,36	55,2
5	T1	92	2,0	0,131	0,0	LOS A	0,0	0,3	0,02	0,36	56,7
6	R2	4	0,0	0,131	6,0	LOS A	0,0	0,3	0,02	0,36	54,7
Approach		246	0,7	0,131	3,5	NA	0,0	0,3	0,02	0,36	55,7
North: SHABA NORTH APP											
7	L2	5	0,0	0,019	8,5	LOS A	0,1	0,5	0,30	0,87	51,6
8	T1	1	0,0	0,019	9,8	LOS A	0,1	0,5	0,30	0,87	51,3
9	R2	11	0,0	0,019	8,9	LOS A	0,1	0,5	0,30	0,87	51,1
Approach		17	0,0	0,019	8,8	LOS A	0,1	0,5	0,30	0,87	51,2
West: SHARI WEST APP											
10	L2	12	2,0	0,081	5,6	LOS A	0,0	0,1	0,01	0,05	57,8
11	T1	142	2,0	0,081	0,0	LOS A	0,0	0,1	0,01	0,05	59,5
12	R2	1	0,0	0,081	6,3	LOS A	0,0	0,1	0,01	0,05	57,3
Approach		155	2,0	0,081	0,5	NA	0,0	0,1	0,01	0,05	59,4
All Vehicles		631	0,8	0,298	5,1	NA	1,2	8,6	0,17	0,50	54,4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	1	0,0	0,205	8,5	LOS A	0,8	5,3	0,41	0,93	51,1
2	T1	1	0,0	0,205	9,4	LOS A	0,8	5,3	0,41	0,93	50,9
3	R2	151	0,0	0,205	9,6	LOS A	0,8	5,3	0,41	0,93	50,7
Approach		153	0,0	0,205	9,6	LOS A	0,8	5,3	0,41	0,93	50,7
East: SHARI EAST APP											
4	L2	211	0,0	0,176	5,6	LOS A	0,1	1,0	0,02	0,39	54,9
5	T1	104	2,0	0,176	0,0	LOS A	0,1	1,0	0,02	0,39	56,4
6	R2	15	0,0	0,176	5,7	LOS A	0,1	1,0	0,02	0,39	54,4
Approach		329	0,6	0,176	3,8	NA	0,1	1,0	0,02	0,39	55,4
North: SHABA NORTH APP											
7	L2	4	0,0	0,012	8,2	LOS A	0,0	0,3	0,17	0,91	51,7
8	T1	1	0,0	0,012	9,8	LOS A	0,0	0,3	0,17	0,91	51,4
9	R2	6	0,0	0,012	8,4	LOS A	0,0	0,3	0,17	0,91	51,2
Approach		12	0,0	0,012	8,5	LOS A	0,0	0,3	0,17	0,91	51,4
West: SHARI WEST APP											
10	L2	9	2,0	0,033	5,7	LOS A	0,0	0,1	0,02	0,10	57,3
11	T1	53	2,0	0,033	0,0	LOS A	0,0	0,1	0,02	0,10	59,0
12	R2	1	0,0	0,033	6,5	LOS A	0,0	0,1	0,02	0,10	56,8
Approach		63	2,0	0,033	1,0	NA	0,0	0,1	0,02	0,10	58,7
All Vehicles		557	0,6	0,205	5,2	NA	0,8	5,3	0,13	0,52	54,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: UNKNOWN SOUTH APP											
1	L2	15	0,0	0,047	8,6	LOS A	0,2	1,1	0,33	0,90	51,1
2	T1	2	0,0	0,047	9,8	LOS A	0,2	1,1	0,33	0,90	50,8
3	R2	21	0,0	0,047	10,2	LOS B	0,2	1,1	0,33	0,90	50,6
Approach		38	0,0	0,047	9,5	LOS A	0,2	1,1	0,33	0,90	50,8
East: DINGO CRESCENT EAST APP											
4	L2	15	0,0	0,089	5,8	LOS A	0,1	0,4	0,04	0,07	57,6
5	T1	147	2,0	0,089	0,0	LOS A	0,1	0,4	0,04	0,07	59,1
6	R2	6	0,0	0,089	6,2	LOS A	0,1	0,4	0,04	0,07	56,9
Approach		168	1,8	0,089	0,8	NA	0,1	0,4	0,04	0,07	58,9
North: UNKNOWN NORTH APP											
7	L2	8	0,0	0,025	8,9	LOS A	0,1	0,6	0,38	0,88	51,2
8	T1	2	0,0	0,025	9,8	LOS A	0,1	0,6	0,38	0,88	50,9
9	R2	9	0,0	0,025	10,1	LOS B	0,1	0,6	0,38	0,88	50,7
Approach		20	0,0	0,025	9,5	LOS A	0,1	0,6	0,38	0,88	50,9
West: DINGO CRESCENT WEST APP											
10	L2	1	2,0	0,118	5,9	LOS A	0,0	0,1	0,00	0,01	58,2
11	T1	224	2,0	0,118	0,0	LOS A	0,0	0,1	0,00	0,01	59,9
12	R2	1	0,0	0,118	6,0	LOS A	0,0	0,1	0,00	0,01	57,7
Approach		226	2,0	0,118	0,1	NA	0,0	0,1	0,00	0,01	59,9
All Vehicles		453	1,6	0,118	1,5	NA	0,2	1,1	0,06	0,14	58,2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SHABA SOUTH APP											
1	L2	5	0,0	0,027	8,9	LOS A	0,1	0,6	0,40	0,89	51,0
2	T1	3	0,0	0,027	9,9	LOS A	0,1	0,6	0,40	0,89	50,7
3	R2	12	0,0	0,027	10,2	LOS B	0,1	0,6	0,40	0,89	50,5
Approach		20	0,0	0,027	9,8	LOS A	0,1	0,6	0,40	0,89	50,7
East: SHARI EAST APP											
4	L2	5	0,0	0,126	5,7	LOS A	0,0	0,2	0,01	0,02	58,1
5	T1	234	2,0	0,126	0,0	LOS A	0,0	0,2	0,01	0,02	59,8
6	R2	3	0,0	0,126	6,0	LOS A	0,0	0,2	0,01	0,02	57,5
Approach		242	1,9	0,126	0,2	NA	0,0	0,2	0,01	0,02	59,7
North: SHABA NORTH APP											
7	L2	6	0,0	0,009	8,5	LOS A	0,0	0,2	0,27	0,88	51,5
8	T1	2	0,0	0,009	9,8	LOS A	0,0	0,2	0,27	0,88	51,2
9	R2	1	0,0	0,009	10,1	LOS B	0,0	0,2	0,27	0,88	51,0
Approach		9	0,0	0,009	9,0	LOS A	0,0	0,2	0,27	0,88	51,3
West: SHARI WEST APP											
10	L2	4	2,0	0,089	6,3	LOS A	0,1	0,9	0,08	0,07	57,3
11	T1	146	2,0	0,089	0,1	LOS A	0,1	0,9	0,08	0,07	59,0
12	R2	15	0,0	0,089	6,3	LOS A	0,1	0,9	0,08	0,07	56,8
Approach		165	1,8	0,089	0,8	NA	0,1	0,9	0,08	0,07	58,8
All Vehicles		437	1,8	0,126	1,1	NA	0,1	0,9	0,06	0,10	58,7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [FORECAST AM PEAK]

FORECAST AM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
2	T1	1369	2,0	0,562	6,8	LOS A	11,4	81,5	0,61	0,55	54,0
3	R2	25	2,0	0,099	17,1	LOS B	0,5	3,3	0,62	0,69	46,0
Approach		1395	2,0	0,562	6,9	LOS A	11,4	81,5	0,61	0,55	53,9
East: NEW ACCESS RD											
4	L2	44	2,0	0,065	8,8	LOS A	0,4	2,9	0,41	0,64	51,7
6	R2	421	2,0	0,575	30,1	LOS C	5,9	41,7	0,95	0,81	39,5
Approach		465	2,0	0,575	28,1	LOS C	5,9	41,7	0,90	0,79	40,5
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	211	2,0	0,115	5,6	LOS A	0,0	0,0	0,00	0,53	54,9
8	T1	1100	2,0	0,574	6,3	LOS A	11,8	84,3	0,57	0,51	54,4
Approach		1311	2,0	0,574	6,2	LOS A	11,8	84,3	0,48	0,51	54,4
All Vehicles		3171	2,0	0,575	9,8	LOS A	11,8	84,3	0,60	0,57	51,6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [FORECAST PM PEAK]

FORECAST PM PEAK

Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: M10 KLIPSPRUIT VALLEY RD											
2	T1	968	2,0	0,351	3,5	LOS A	5,3	38,1	0,41	0,36	56,8
3	R2	44	2,0	0,148	12,6	LOS B	0,6	4,6	0,50	0,68	48,8
Approach		1013	2,0	0,351	3,9	LOS A	5,3	38,1	0,41	0,37	56,4
East: NEW ACCESS RD											
4	L2	25	2,0	0,044	7,8	LOS A	0,2	1,3	0,34	0,62	52,4
6	R2	211	2,0	0,493	34,4	LOS C	3,1	22,1	0,98	0,77	37,8
Approach		236	2,0	0,493	31,5	LOS C	3,1	22,1	0,91	0,76	39,0
North: M10 KLIPSPRUIT VALLEY RD											
7	L2	421	2,0	0,230	5,7	LOS A	0,0	0,0	0,00	0,53	54,8
8	T1	1098	2,0	0,506	3,8	LOS A	9,1	64,7	0,44	0,40	56,5
Approach		1519	2,0	0,506	4,3	LOS A	9,1	64,7	0,32	0,43	56,0
All Vehicles		2767	2,0	0,506	6,5	LOS A	9,1	64,7	0,40	0,44	54,1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.