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1 June 2015

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For attention: Mr D Henning

NEMAI Consulting
P O Box 1673
SUNNINGHILL
2157

Dear Sir

PROPOSED DEVELOPMENT OF FOXWOOD DAM: SPECIALIST OPINION ON NEED FOR RELOCATION OF MR00639

1. BACKGROUND

The purpose of this opinion is to determine the need to relocate a portion of MR00639 due to the proposed development of Foxwood Dam northwest of Adelaide. The proposed dam is anticipated to inundate a portion of MR00639 approximately 1km in length from the junction with R344 southwards.

MR00639 is a provincial gravel road approximately 6.3km in length linking TR05701 (R63) in the south with MR00638 (R344) in the north. The road permits motorists who wish to travel between the R63 and R344 to bypass Adelaide, with a saving in distance travelled of approximately 8.4 km per direction.

The condition of the road was recently assessed as part of the Rural Road Asset Maintenance programme currently being conducted by the Engineering Advice and Services on behalf of the Eastern Cape District Municipalities and the Eastern Cape Department of Roads and Public Works and is in a fair condition.

This opinion will address current traffic patterns on MR00639, and provide an assessment of the need to relocate MR00639.

The extent of the proposed dam and the portion MR00639 expected to be inundated by the dam are indicated on the Locality Plan **Figure 1** attached as **Annexure A**.

2. TRAFFIC VOLUMES

Traffic volumes were conducted over 12-hour periods between 06:00 and 18:00 on Monday 11 May 2014 at six junctions in the vicinity of the proposed dam including the R344 and R63 junctions with MR00639.

The locations of the traffic survey stations are indicated on **Figure 1**. **Figure 2** attached as **Annexure B** summarises the traffic volumes surveyed at the count stations on MR00639.

A total of 21 vehicles, 11 approaching and 10 leaving the R344 junction were surveyed at station 1355.

A total of 4010 vehicles, 18 approaching and 22 leaving the R63 junction were surveyed at station 1354.

The detailed survey information at each survey station is recorded on the output sheets attached as **Annexure C**.

3. ORIGIN-DESTINATION SURVEYS

Origins and destinations of vehicles entering and exiting MR00639 were determined by recording vehicle registration number plates at both the R63 and R344 junctions. The results of these surveys are attached as **Annexure D**.

Of the 11 vehicles recorded exiting MR00639 at the R344 junction, 10 of these vehicles were recorded entering MR00639 at the R63 junction.

Of the 10 vehicles recorded entering MR00639 at the R344 junction, 8 of these vehicles were recorded exiting MR00639 at the R63 junction.

Thus 18 of 21 vehicles entering and exiting MR00639 at the R344 travelled the entire length of MR00639 to and from the R63.

Of further interest is that of the remaining 12 vehicles recorded entering from the R63, 10 exited back onto the R63. It is noted that the average time that vehicles spent travelling along MR00639 is in the order of 6 minutes. Based on the distance that vehicles would have had to travel through Adelaide, it is assumed that a time saving in the order of 10 minutes can be achieved.

4. CONCLUSIONS

The following conclusions can be drawn from the study:

- Based on the 12-hour surveys, less than 50 vehicles per day use MR00639;
- The surveyed traffic volumes indicates that 40 vehicles entered and exited MR00639 from and to the R63;
- The surveyed traffic volumes indicates that of 21 vehicles entered and exited MR00639 from and to the R344;
- Of the 21 vehicles recorded at the R344 junction 18 vehicles (85%) travelled the entire length of MR00639 to and from the R63;
- The observations indicate the use of MR00639 as a short-cut as opposed to travelling through Adelaide, with a saving in traveling distance of 8.3km per direction;
- The survey results further indicate that 3 vehicles made the trip in both directions (1 of which travelled south to north twice), 6 in one direction from south to north and 5 in one direction from north to south – a total of only 14 different vehicles travelling (19 one-way trips);
- Closing MR00639 will result in an additional 160km travel per day for the affected vehicles.

Assuming vehicle consumption of 9 litres / 100km and a fuel price of R12/km, the additional cost for all affected vehicles per year over 300 days amounts to R51 094 per annum. Over 20 years assuming escalation in the fuel price of 5% per annum, the total additional cost amounts to R2 711 352.

5. OPINION

When considering that only 14 vehicles per day travel along the full length of MR00639 over 19 trips and that these trips represent only 15% of the surveyed two-way traffic volume on the R344 just north of MR00639 - 115 vehicles, it can be concluded that the additional cost to these vehicles over a 20 year period does not justify the cost to realign MR00639.

6. REFERENCES

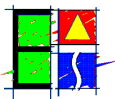
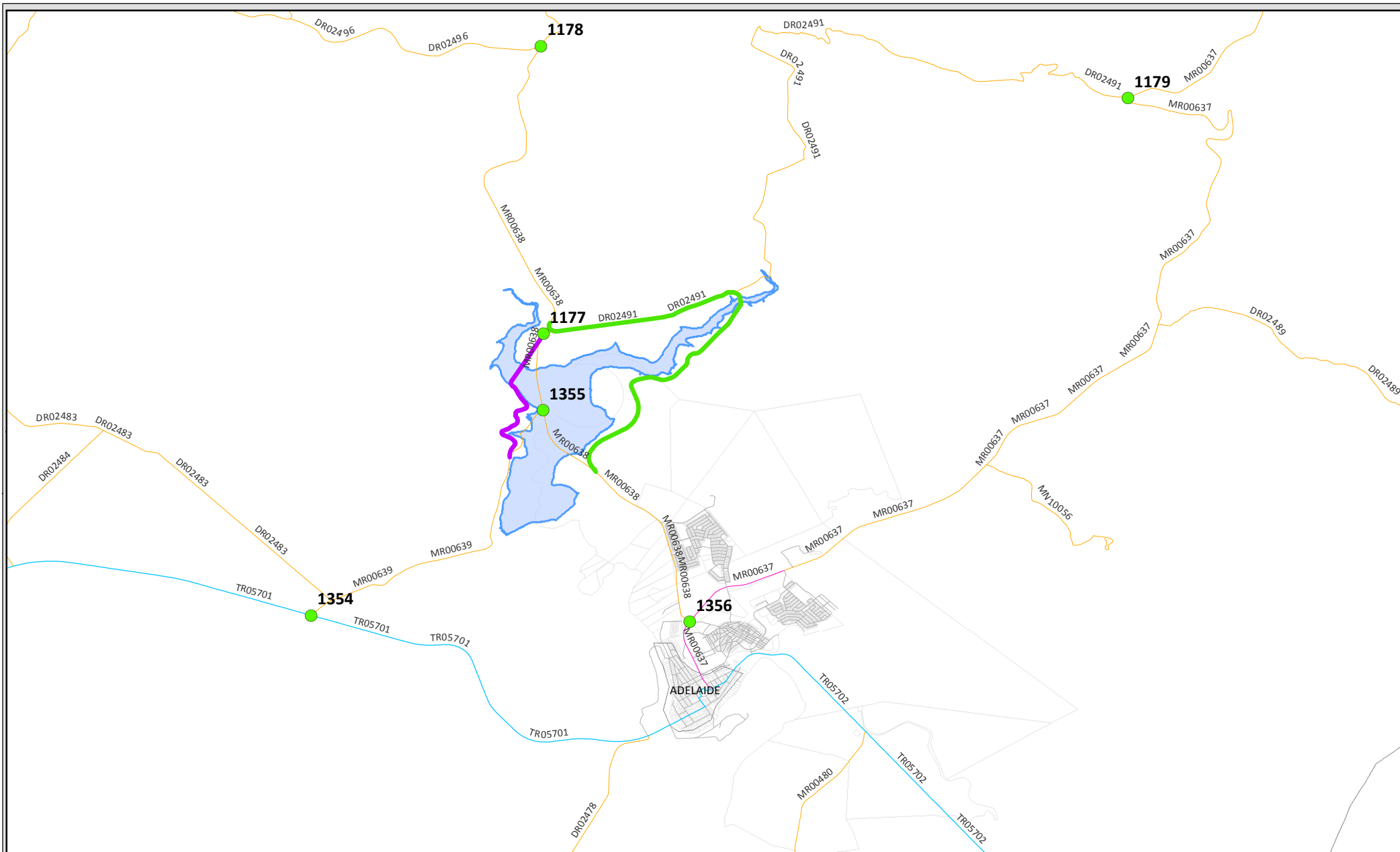
1. Joubert, Sampson, et al, **TMH 16 Volume 1- South African Traffic Impact and Site Assessment Manual**, COTO, August 2012.

Yours faithfully



Cary Hastie Pr Tech Eng (200070122)
For Engineering Advice & Services (Pty) Ltd

ANNEXURE A
LOCALITY PLAN



Engineering Advice
and Services
Tel: (041) 581 2421



Legend

- Counting Stations
- Proposed R344 Diversion
- Proposed MR00639 Diversion
- Proposed Foxwood Dam

Project Title:

TIA - Proposed Foxwood Dam

Drawing Title:

Figure 1: Locality Plan

Drawing No.:

1204-P-001

Drawing Date:

May 2015

Scale 1:100 000

Prepared by : JC

Checked by : CH

ANNEXURE B
TRAFFIC VOLUME

LEGEND

10 (2) – 12-hr (24 hr – ADT)

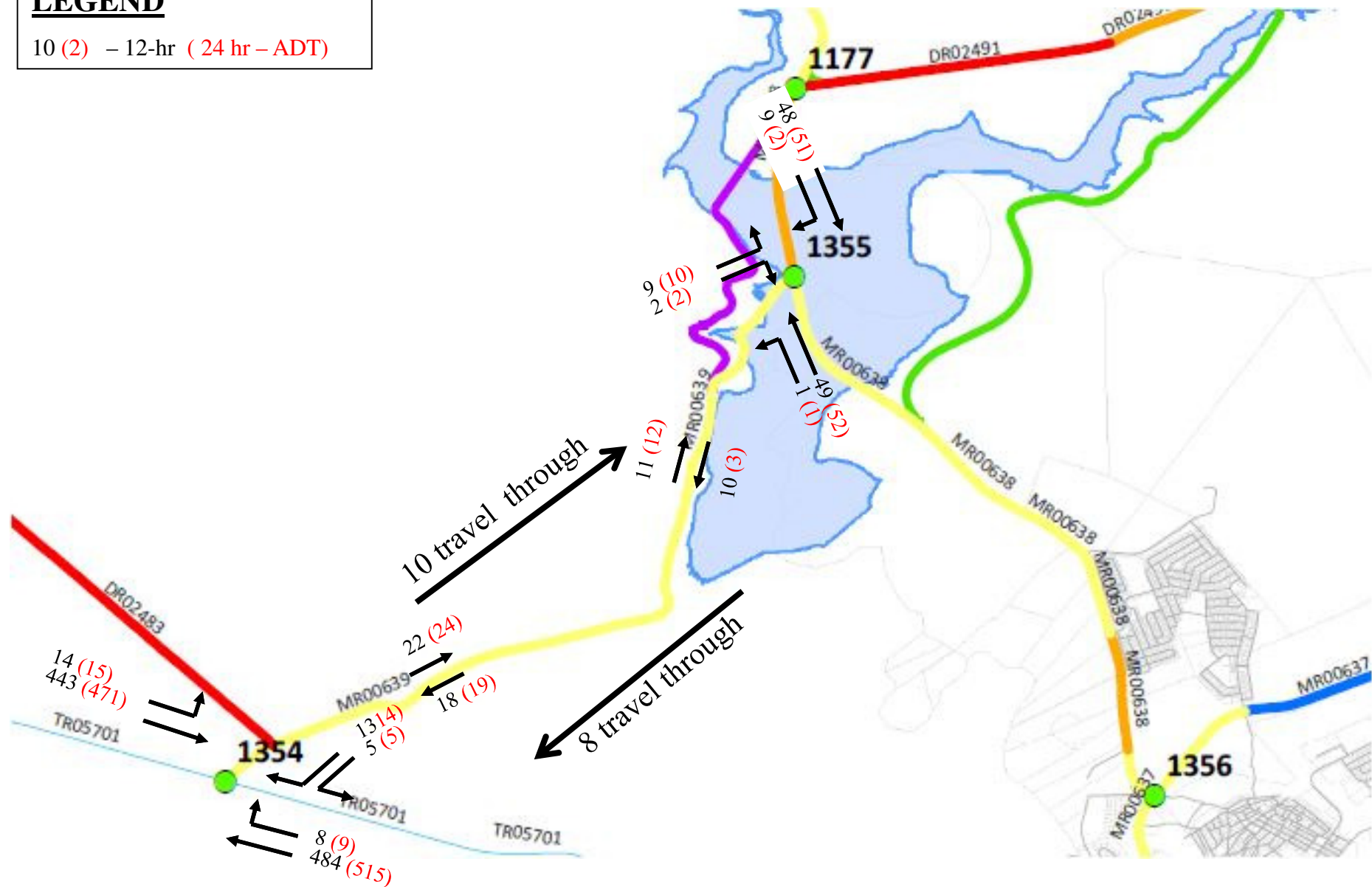


Figure 2: Traffic Volumes

ANNEXURE C
TRAFFIC SURVEY SHEETS

RRAMS INTERSECTION TRAFFIC COUNT OUTPUT

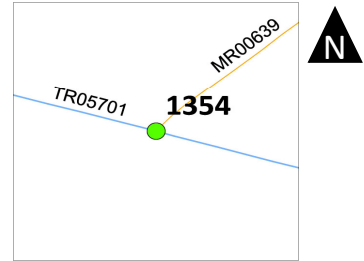
Station ID 1354

Intersection MR00639 / TR05701

Local Municipality Amahlati

District Municipality Amathole

Date: 2015-05-11



Enumerator: Nicholas Masiphula

Co-ord : X 27.27867

Y -32.61530

Volumes per movement																	
Direction	NB				WB				SB				EB				TOTAL
Link ID	1059848				1060173				No Road				1059844				
Road Name	MR00639				TR05701								TR05701				
Movement	Left	Through	Right	Total	Left	Through	Right	Total	Left	Through	Right	Total	Left	Through	Right	Total	
M'ment ID	1	2	3		4	5	6		7	8	9		10	11	12		

12-hr																	
12-hr car	5	0	12	17	13	378	0	391	0	0	0	0	0	413	8	421	
12-hr taxi	0	0	0	0	0	22	0	22	0	0	0	0	0	22	0	22	
12-hr bus	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	
12-hr HV	0	0	1	1	1	41	0	42	0	0	0	0	0	47	0	47	
12-hr all veh	5	0	13	18	14	443	0	457	0	0	0	0	0	484	8	492	

AM peak hr																	
AM peak car	0	0	5	5	4	30	0	34	0	0	0	0	0	47	0	47	
AM peak taxi	0	0	0	0	0	6	0	6	0	0	0	0	0	1	0	1	
AM peak bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AM peak HV	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	
AM peak all veh	0	0	5	5	4	36	0	40	0	0	0	0	0	51	0	51	

OFF peak hr																	
OFF peak car	0	0	0	0	2	38	0	40	0	0	0	0	0	37	0	37	
OFF peak HV	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	
OFF peak bus	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	
OFF peak taxi	0	0	0	0	0	5	0	5	0	0	0	0	0	6	0	6	
OFF peak all veh	0	0	0	0	2	46	0	48	0	0	0	0	0	44	0	44	

PM peak hr																	
PM peak car	0	0	0	0	1	39	0	40	0	0	0	0	0	45	2	47	
PM peak HV	0	0	0	0	0	3	0	3	0	0	0	0	0	3	0	3	
PM peak bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM peak taxi	0	0	0	0	0	4	0	4	0	0	0	0	0	10	0	10	
PM peak all veh	0	0	0	0	1	46	0	47	0	0	0	0	0	58	2	60	

ADT (24-hr)																	
24-hr car	5	0	13	18	14	402	0	416	0	0	0	0	0	439	9	448	
24-hr taxi	0	0	0	0	0	23	0	23	0	0	0	0	0	23	0	23	
24-hr bus	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	
24-hr HV	0	0	1	18	1	44	0	441	0	0	0	0	0	50	0	473	
24-hr all veh	5	0	14	19	15	471	0	486	0	0	0	0	0	515	9	523	

Volumes per approach link (2-way)				
	NB	WB	SB	EB
Link ID	1059848	1060173	No Road	1059844
ADT	43	1015	0	1000
% HV	5%	10%	-	10%

RRAMS INTERSECTION TRAFFIC COUNT OUTPUT

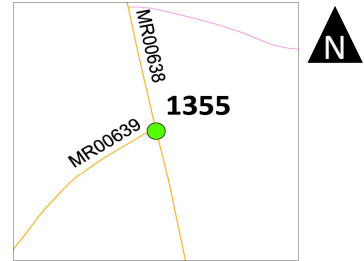
Station ID 1355

Intersection MR00639 / MR00638

Local Municipality Amahlati

District Municipality Amathole

Date: 2015-05-11



Enumerator: Nicholas Masiphula

Co-ord : X 27.27867

Y -32.61530

Volumes per movement																	
Direction	NB				WB				SB				EB				TOTAL
Link ID	1060193				1060352				No Road				1060354				
Road Name	MR00639				MR00638								MR00638				
Movement	Left	Through	Right	Total	Left	Through	Right	Total	Left	Through	Right	Total	Left	Through	Right	Total	
M'ment ID	1	2	3		4	5	6		7	8	9		10	11	12		

12-hr																	
12-hr car	7	0	2	9	1	46	0	47	0	0	0	0	0	46	7	53	109
12-hr taxi	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
12-hr bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-hr HV	2	0	0	2	0	2	0	2	0	0	0	0	0	2	2	4	8
12-hr all veh	9	0	2	11	1	49	0	50	0	0	0	0	0	48	9	57	118

AM peak hr																	
AM peak car	1	0	2	3	1	16	0	17	0	0	0	0	0	4	4	8	28
AM peak taxi	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
AM peak bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM peak HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM peak all veh	1	0	2	3	1	17	0	18	0	0	0	0	0	4	4	8	29

OFF peak hr																	
OFF peak car	0	0	0	0	0	3	0	3	0	0	0	0	0	5	1	6	9
OFF peak HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OFF peak bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OFF peak taxi	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	2	3
OFF peak all veh	0	0	0	0	0	4	0	4	0	0	0	0	0	6	2	8	12

PM peak hr																	
PM peak car	2	0	0	2	0	5	0	5	0	0	0	0	0	8	0	8	15
PM peak HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM peak bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM peak taxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM peak all veh	2	0	0	2	0	5	0	5	0	0	0	0	0	8	0	8	15

ADT (24-hr)																	
24-hr car	7	0	2	10	1	49	0	50	0	0	0	0	0	49	7	56	116
24-hr taxi	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
24-hr bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24-hr HV	2	0	0	10	0	2	0	51	0	0	0	0	0	2	2	56	117
24-hr all veh	10	0	2	12	1	52	0	53	0	0	0	0	0	51	10	61	126

Volumes per approach link (2-way)				
	NB	WB	SB	EB
Link ID	1060193	1060352	No Road	1060354
ADT	22	106	0	122
% HV	19%	4%	-	7%

ANNEXURE D

NUMBER PLATE SURVEY SHEETS

[illegible]

[illegible]