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UPDATED TRAFFIC IMPACT STATEMENT IN RESPECT OF PROPOSED RESIDENTIAL DEVELOPMENT ON PORTION 29 OF FARM RHEEBOKSFONTEIN 142 & PORTION 1 OF FARM RHEEBOKSFONTEIN 331, MOSSEL BAY (MR344)

REEBOK ONTWIKKELINGS (PTY) LTD

JANUARY 2022

K&T PROJECT REFERENCE: 16591R

REVISION 1

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Details of this report

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Prepared by	Mr Hoosain Cassoo

Report Revision Record

Revision	Date	Description
0	18/01/2022	Draft for Comment
1	21/01/2022	Final Report

This report has been prepared by Kantey & Templer (Pty) Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

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For and on behalf of **Kantey & Templer (Pty) Ltd**	
Prepared by: H Cassoo ECSA Reg. No.: 2020300726 Signed: Position: Project Manager Date: 21/01/2022	Reviewed by: B A Phillips ECSA Reg. No.: 200770081 Signed: Position: Consultant Date: 21/01/2022

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EXECUTIVE SUMMARY

This report documents the traffic impacts of the proposed residential development to be situated on Portion 29 of Farm 142 Rheeboksfontein and Portion 1 of Farm 331 in Rheebok, located east of Mossel Bay in the Southern Cape district.

PROJECT DESCRIPTION

The Client, Reebok Ontwikkelings (Pty) Ltd, intends on developing the abovementioned properties for residential purposes. The proposed development will consist of 137 group housing dwelling units. This Traffic Impact Statement Report forms part of the engineering and built environment planning.

STUDY AREA AND ANALYSIS SCENARIOS

The study intersection of the MR344 and the site access road was selected for AM and PM peak hour traffic operations evaluation because it would likely be most affected by traffic generated by the proposed development. For this study, the following scenarios were evaluated:

- ***Existing –*** Existing Conditions (2022)
- ***Future –*** Future Conditions "Five Year Horizon" (2027) – *excluding & including additional site traffic*

SIGNIFICANCE RATINGS DEFINITIONS FOR IMPACT ASSESSMENTS[1]

No Impact: Zero impact

Slightly Significant (Low Impact): Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both.

Significant (Medium Impact): Impact is real, but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly easily made possible.

Highly Significant (High Impact): Of the highest order possible within the bounds of impacts that could occur. In the case of adverse impacts, there is no mitigation that could offset the impact, or mitigation is difficult, expensive, time consuming or some combination of these.

CONCLUSIONS AND RECOMMENDATIONS

According to the results of the SIDRA analysis it appears that the traffic operations at the existing intersection are currently operating at acceptable levels of service (LOS) during the AM and PM peak hours. The study found that the implementation of the proposed project is expected to have a low impact on the traffic operations at the key intersection and thus, there are no intersection improvements needed at the key intersection.

[1] Impact Significance, DEAT, 2002, ISBN 0797039767

However, a right turn lane in MR344 to access the site is warranted in terms of the Access Management Guidelines[2], but according to the SIDRA capacity analysis a right turn lane is not warranted in terms of LOS, delays and v/c ratios.

Therefore, it recommended that no right turn lane be implemented at the site access road as the development was found to have a low impact on the traffic operations at the key intersection, particularly on the MR344 approaches.

1. INTRODUCTION

This chapter discusses the purpose of the Traffic Impact Statement (TIS), identifies the study area and the specific objective of the report.

Kantey & Templer was previously appointed to prepare a TIS (dated 14 February 2019) for a proposed residential development comprising 87 single residential dwelling units to be situated on Portion 29 of Farm 142 Rheeboksfontein and Portion 1 of Farm 331 in Rheebok, Mossel Bay (herein referred to as “the site”). An addendum report (dated 16 July 2019) was subsequently produced to evaluate an alternative access position to the proposed development as the original access position was deemed unfeasible.

Kantey & Templer have now been appointed by Reebok Ontwikkelings (Pty) Ltd (herein referred to as “the Client”) to prepare an updated TIS in respect of a revised residential development, comprising 137 units in a group housing scheme.

Refer to Figure 1 for the locality plan.

This report is prepared in accordance with standards and guidelines set by the South African Committee of Transport Officials[3] (COTO) and Western Cape Government. The specific objectives of the report are to:

(i) Describe the extent of the proposed development.
(ii) Assess the existing traffic operations on the road network in the vicinity of the site.
(iii) Predict the extent of the traffic generated by the new development and estimate the distribution of that new traffic.
(iv) Evaluate the service and promotion of public transport to the development study area
(v) Make recommendations for improvements to the existing road network affected by the site traffic.

[2] Western Cape Government, Access Management Guidelines (AMG), 2019

[3] COTO, TMH16 Vol 1, South African Traffic Impact and Site Traffic Assessment Manual, Sep 2012

Figure 1: Site locality plan

2. LAND USE

The site is situated between the N2 Freeway and MR344, in Rheebok. The site, which measures ±11.26 Ha in extent, was recently rezoned from Agricultural Zone 1 for Single Residential Zone 1 purposes which was the subject of the previously approved Traffic Impact Statement. The previous scheme consisted of 87 single residential dwelling units.

An application will be made for the rezoning and subdivision of the site to include 137 General Residential Zone 1 erven (group housing), 5 Open Space Zone 2 erven, 2 Utility Zone (sewerage pumpstation and electrical substation) and 2 Transport Zone 3 even (internal streets).

3. ROAD NETWORK

The site is well served by existing road infrastructure. The site is located in the predominantly residential area of Rheebok within a suburban roadside development environment. The N2 Freeway borders the site to the north with MR344 bordering the site to the south.

Access to the site will be situated on the MR344, approximately 300m west of Wildeperske Street via the existing access to the sewerage pumpstation located on the western boundary of Farm 4/142. The MR344 was recently upgraded to a Class 2 Primary Arterial with an operating speed of 100km/h.

4. EXISTING TRAFFIC CONDITIONS

Due to the Covid-19 induced lockdown, traffic patterns across the country are still considered to be abnormal. It was agreed in consultation with the Western Cape Government (WCG) Road Network Management branch that historic traffic count information from 2016 for the intersection of the MR344 and Wildeperske Street be used and projected to depict the 2022-year traffic scenario by using growth factors from the WCG Road Network Information System (RNIS).

The historic and projected traffic count data is illustrated in the Figures A1 and A2 contained in Appendix A. Refer to Appendix B for a summary of the traffic count data.

The established peak hours of the study area are 06:45 – 07:45 during the AM peak period and 16:15 – 17:15 during the PM peak period.

According to the results of the SIDRA analysis it appears that the traffic operations at the key intersection is currently operating at levels of service (LOS) at LOS A.

5. TRIP GENERATION

The trip generation requires an estimation of the additional traffic to be generated by the additional land uses. This estimation was based on the COTO TMH 17 Trip Data Manual[4].

The development will consist of the following land use(s):

- Residential: Group Housing Units – 137 DU's

The site layout plans designed by Formaplan are contained in Appendix C.

Table 1: Trip generation estimation

COTO Code: 210 – Single Dwelling Unit				
Dwelling Units	137			
Trip Generation Rate (TGR) / DU	Weekday AM		Weekday PM	
	1.00		1.00	
Trips Generated (TG)	137		137	
Directional Split & Vehicular Trips	IN	OUT	IN	OUT
	25%	75%	70%	30%
	34	103	96	41

The additional traffic is to be superimposed on the existing background traffic on the road network during the weekday AM and PM peak hours. It can be seen that 137 trips may be expected during the weekday AM and PM peak hours.

In the previous scheme, the estimated trip generation amounted to 87 trips during the weekday AM and PM peak hours. Therefore, there is a ±57% increase in the trip generation.

6. SITE TRAFFIC DISTRIBUTION

Traffic that is expected to be generated by a development project must be distributed and assigned to the road network so that the impact of the proposed project on the roadway links and intersections within the study area can be analysed.

The trip distribution is based on the anticipated travel patterns in and out of the site by analysing the traffic count data. The trip distribution patterns are illustrated in Figure A3 in Appendix A.

[4] COTO, TMH17, South African Trip Data Manual, Version 1.01, Sep 2013

7. POTENTIAL IMPACT

The traffic operations were analysed using Signalised and Unsignalised Intersection Design and Research Aid software package[5] (SIDRA). The software package determines the existing and future operational Levels of Service (LOS) and expected average delays at the key intersections in the study area with the additional traffic from the proposed development.

ANALYSIS METHODOLOGY

Level of Service

Traffic operations at intersections are typically described in terms of "Level of Service" (LOS). LOS is a qualitative measure of the effect of several factors on traffic operating conditions, including speed, travel time, traffic interruptions, freedom to manoeuvre, safety, driving comfort, and convenience. It is generally measured quantitatively in terms of vehicular delay and described using a scale that ranges from LOS A to F, with LOS A representing essentially free-flow conditions and LOS F indicating over-capacity conditions with substantial congestion and delay.

Table 2 summarises the relationships between the average control delay per vehicle and LOS for signalized intersections, roundabouts and stop and yield controls.

The traffic generated by the site can be expected to influence the key intersection of the study area, namely:

1. MR344 / Site Access Road

For this study, the following scenarios were evaluated:

- ***Existing –*** Existing Conditions (2022)
- ***Future –*** Future Conditions "Five Year Horizon" (2027) – *excluding & including additional site and background project traffic*

[5] SIDRA Version 9 Software, SidraSolutions, Australia, 2020

Table 2: Level-of-Service definitions based on delay (HCM method)

Level of Service		Control delay per vehicle in seconds (d) (including geometric delay)	
		Signals and Roundabouts	Stop Signs and Give Way (Yield) Signs
A	Good progression, few stops, short cycle lengths	$d \leq 10$	$d \leq 10$
B	Good progression and/or short cycle lengths, more vehicle stops	$10 < d \leq 20$	$10 < d \leq 15$
C	Fair progression, significant proportion of vehicles must stop	$20 < d \leq 35$	$15 < d \leq 25$
D	Congestion becomes noticeable; longer delays, high v/c ratio	$35 < d \leq 55$	$25 < d \leq 35$
E	At or beyond acceptable delay, poor progression, long queues	$55 < d \leq 80$	$35 < d \leq 50$
F	Unacceptable to drivers. Arrival volumes greater than discharge capacity, unstable unpredictable flows	$80 < d$	$50 < d$

The growth rate factors adopted in this report were based on information obtained from the RNIS website. The growth rate factor on MR344 was based on data sets from Node no. 2277 (Leg C – MR344 / DR1578) between the years 2001 and 2016. Based on the Growth Rate Report, an annual growth rate of 5.58% was applied to the 2016 traffic count data to determine the projected 2022-year (existing) and 2027-year (future) traffic volumes. Refer to Appendix D for the RNIS Growth Rate Report.

The AM and PM peak hour traffic operations at the key intersection are summarised in Tables 3 and 4 in terms of LOS, delay and volume-to-capacity (v/c) ratios (measures of effectiveness). More detailed SIDRA movement summaries are contained in Appendix E.

The findings indicate that the key intersection under existing traffic conditions is operating at acceptable levels of service (LOS A) and would continue to operate at acceptable LOS during the future year scenario with the inclusion of the site traffic.

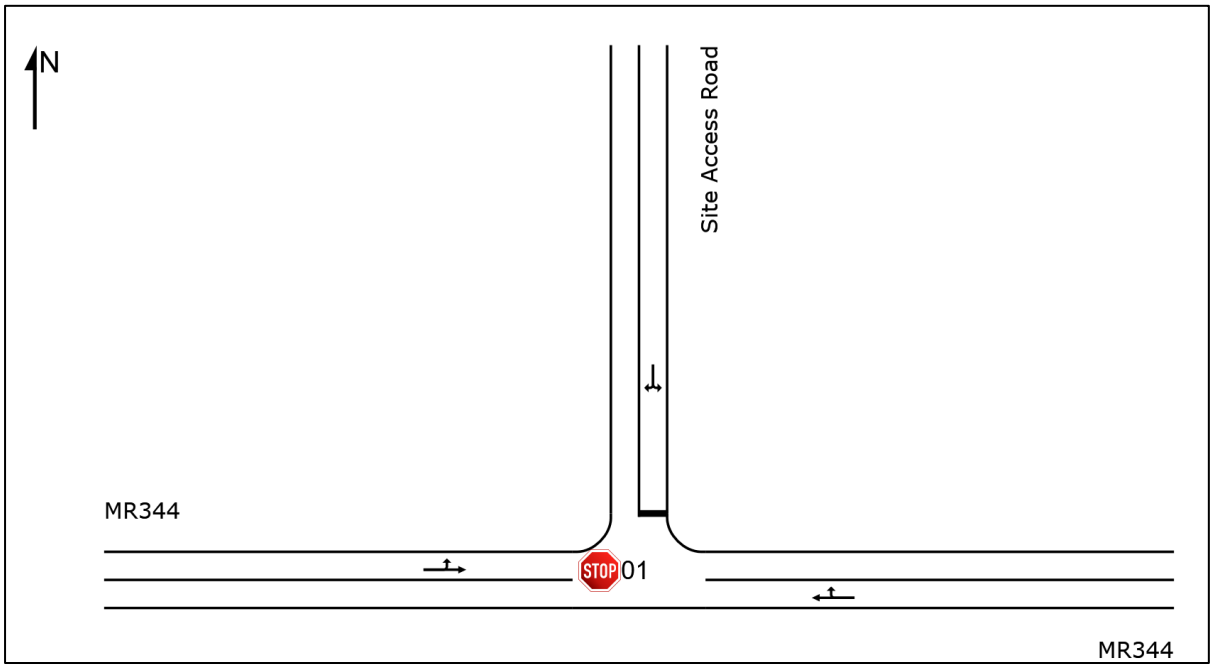
Table 3: AM peak hour traffic operations at intersection of MR344 / Site Access Road

Approach	Movement	Intersection Type: Unsignalised T-Junction								
		Existing 2022 Scenario			Future 2027 Scenario					
		Background Traffic			Excluding site traffic			Including site traffic		
		v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS
East: MR344	Through	0.053	0.0	LOS A	0.097	0.0	LOS A	0.108	0.1	LOS A
	Right	0.053	6.8	LOS A	0.097	7.0	LOS A	0.108	7.0	LOS A
	Approach	**0.053**	**0.1**	**NA**	**0.097**	**0.0**	**NA**	**0.108**	**0.7**	**NA**
North: Site Access Road	Left	0.002	6.9	LOS A	0.002	7.1	LOS A	0.098	7.1	LOS A
	Right	0.002	6.9	LOS A	0.002	7.6	LOS A	0.098	7.9	LOS A
	Approach	**0.002**	**6.9**	**LOS A**	**0.002**	**7.3**	**LOS A**	**0.098**	**7.5**	**LOS A**
West: MR344	Left	0.032	7.8	LOS A	0.057	7.8	LOS A	0.065	7.7	LOS A
	Through	0.032	0.0	LOS A	0.057	0.0	LOS A	0.065	0.0	LOS A
	Approach	**0.032**	**0.1**	**NA**	**0.057**	**0.1**	**NA**	**0.065**	**0.9**	**NA**
All Vehicles		**0.053**	**0.2**	**NA**	**0.097**	**0.1**	**NA**	**0.108**	**2.4**	**NA**

Table 4: PM peak hour traffic operations at intersection of MR344 / Site Access Road

Approach	Movement	Intersection Type: Unsignalised T-Junction								
		Existing 2022 Scenario			Future 2027 Scenario					
		Background Traffic			Excluding site traffic			Including site traffic		
		v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS
East: MR344	Through	0.103	0.0	LOS A	0.186	0.0	LOS A	0.230	0.2	LOS A
	Right	0.103	6.9	LOS A	0.186	7.3	LOS A	0.230	7.5	LOS A
	Approach	**0.103**	**0.0**	**NA**	**0.186**	**0.0**	**NA**	**0.230**	**1.3**	**NA**
North: Site Access Road	Left	0.002	7.0	LOS A	0.002	7.3	LOS A	0.050	7.4	LOS A
	Right	0.002	7.6	LOS A	0.002	9.2	LOS A	0.050	10.2	LOS B
	Approach	**0.002**	**7.3**	**LOS A**	**0.002**	**8.3**	**LOS A**	**0.050**	**8.6**	**LOS A**
West: MR344	Left	0.054	7.8	LOS A	0.097	7.8	LOS A	0.115	7.7	LOS A
	Through	0.054	0.0	LOS A	0.097	0.0	LOS A	0.115	0.0	LOS A
	Approach	**0.054**	**0.1**	**NA**	**0.097**	**0.0**	**NA**	**0.115**	**1.2**	**NA**
All Vehicles		**0.103**	**0.1**	**NA**	**0.186**	**0.1**	**NA**	**0.230**	**1.7**	**NA**

Figure 2: Existing Intersection Geometry of MR344 / Site Access Road



8. INTERSECTION IMPROVEMENTS

According to the SIDRA capacity analysis, there are no intersection improvements needed at the key intersection as the site is expected to have a low impact on the traffic operations at the key intersection.

However, the need to introduce left and right turn lanes in MR344 at the intersection with the site access road were investigated in accordance with the Access Management Guidelines (AMG). It is evident from Figures 3 and 4 that only a right turn lane is warranted in MR344.

It is evident from Tables 3 and 4 that the future year LOS is acceptable and thus, no turning lanes are warranted in terms of LOS, delays and v/c ratios. However, the right turn lane may be required in terms of safety.

Therefore, it recommended that no right turn lane be implemented as the development was found to have a low impact on the traffic operations at the key intersection, particularly on the MR344 approaches.

Furthermore, it must be noted that the neighbouring side streets, namely, Wildeperske Street, Da Gama Street and Impala Avenue have no turning lanes and these streets are expected to carry larger traffic volumes than the site access road given the density of the Rheebok residential area south of MR344.

Figure 3: Right turn lane warrants – future 2027-year scenario (worst-case – PM peak)

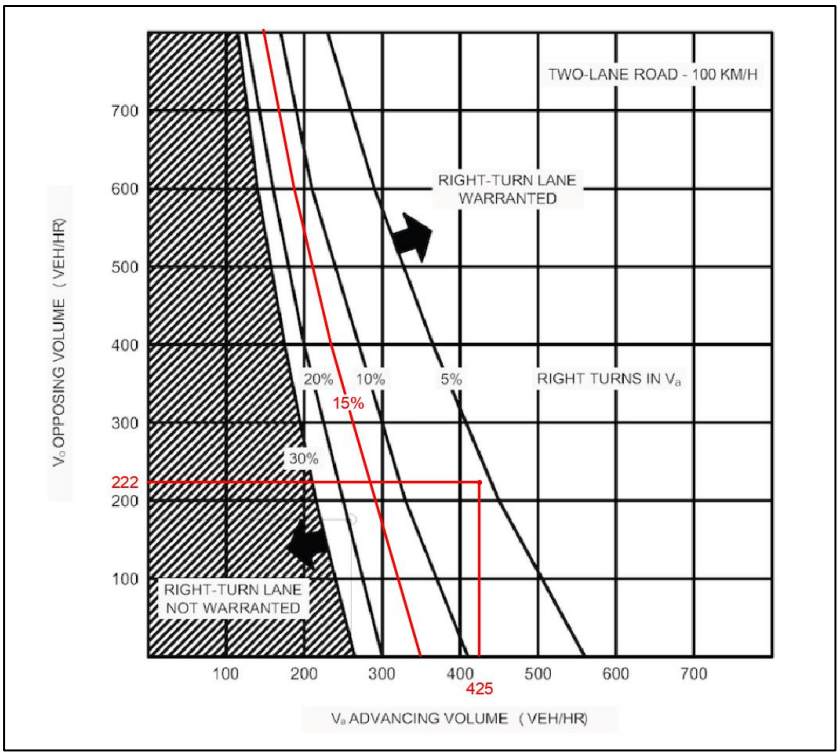
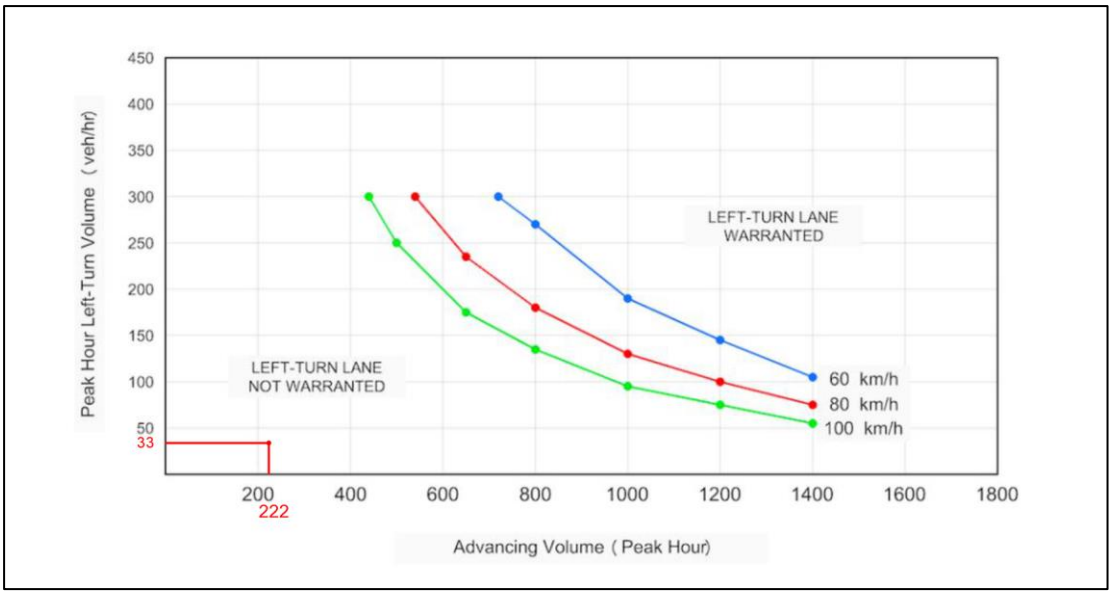


Figure 4: Left turn lane warrants – future 2027-year scenario (worst-case – PM peak)



9. ACCESS TO SITE

Access to the site will be situated on the MR344, approximately 300m west of Wildeperske Street via the existing access to the sewerage pumpstation located on the western boundary of Farm 4/142.

The initial access to the site was positioned directly opposite Wildeperske Street. However, the access position was deemed to be unfeasible due to the level difference between the site and the upgraded MR344.

The access has adequate site distance in both directions and will have a throat length measuring in excess of 30m (5 vehicles) for stacking purposes and is compliant with the requirements set out in the AMG.

10. PARKING REQUIREMENTS

In accordance with the Mossel Bay Municipality Zoning Scheme By-Law the minimum off-street parking requirement for a dwelling house on an individual erf exceeding 350m^2 is 2 bays per dwelling unit. The requirement for a dwelling house on an erf between 100m^2 and 350m^2 is 1 bay per dwelling unit.

The erven within the proposed development vary in size but each individual erf will be subject of the abovementioned parking ratios upon further development.

11. CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that:

1. The site will be developed for residential purposes to include 137 residential dwelling units within a group housing scheme.

2. The site is well served by existing road infrastructure. The site is located in the predominantly residential area of Rheebok within a suburban roadside development environment.

3. Historic traffic count information from 2016 for the intersection of the MR344 and Wildeperske Street was used and projected to depict a 2022-year (existing) traffic scenario by using growth factors from the WCG Road Network Information System (RNIS).

4. The established peak hours of the study area are 06:45 – 07:45 during the AM peak period and 16:15 – 17:15 during the PM peak period.

5. The trip generation for the proposed development is approximately 137 vehicular trips in the weekday AM and PM peak hours. This up 57% on the previous study and the key intersection will continue to operate acceptably.

6. An annual growth rate of 5.58% obtained from the RNIS was applied to the 2016 traffic count data to determine the projected 2022-year (existing) and 2027-year (future) traffic volumes; this is to account for any background developments under consideration which also affect the surrounding road network.

7. The key intersection of MR344 / Site Access Road was studied in detail and analysed in terms of the levels of service (LOS), delay and volume-to-capacity (v/c) ratios. The findings indicate that the intersection will continue to operate at acceptable LOS during the future year scenarios despite the inclusion of site traffic.

8. According to the SIDRA capacity analysis, there are no intersection improvements needed at the key intersection in terms of LOS, delay and volume-to-capacity (v/c) as the site is expected to have a low impact on the traffic operations at the key intersection, particularly on the MR344 approaches. However, in terms of safety, a right turn lane is warranted in MR344 in accordance with the Access Management Guidelines (AMG).

9. The neighbouring side streets, namely, Wildeperske Street, Da Gama Street and Impala Avenue have no turning lanes and these streets are expected to carry larger traffic volumes than the site access road given the density of the Rheebok residential area south of MR344.

10. The access to the site will be situated on the MR344, approximately 300m west of Wildeperske Street via the existing access to the sewerage pumpstation located on the western boundary of Farm 4/142. The access has adequate site distance in both directions and will have a throat length in excess of 30m (5 vehicles) for stacking purposes and is compliant with the requirements set out in the AMG.

11. The minimum off-street parking requirement for a dwelling house on an individual erf exceeding 350m^2 is 2 bays per dwelling unit. The requirement for a dwelling house on an erf between 100m^2 and 350m^2 is 1 bay per dwelling unit. The erven within the proposed development vary in size but each individual erf will be subject of the abovementioned parking ratios upon further development.

We therefore recommend that:

1. The application should be approved by the Mossel Bay Municipality and Western Cape Government as the development was found to have a low impact on traffic operations at the key intersection in the study area.

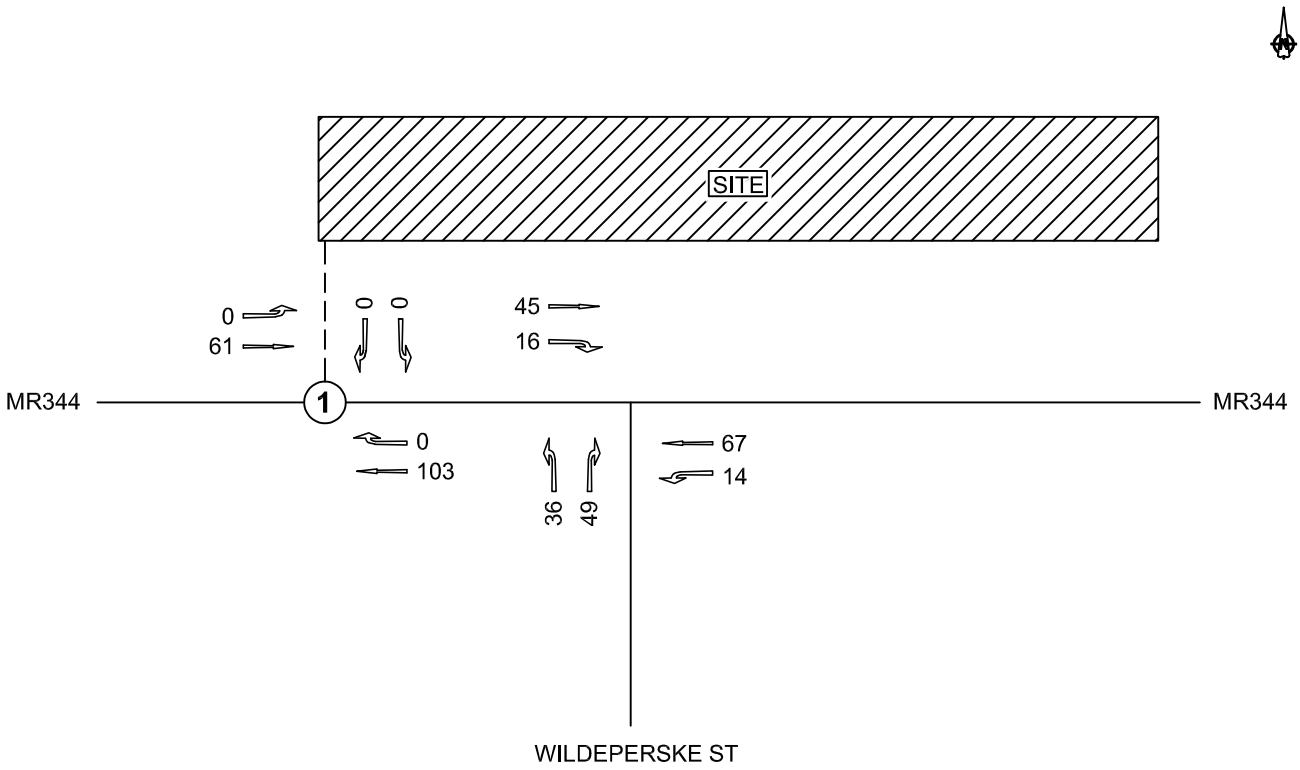
2. No right turn lane be implemented in MR344 based on the findings of the SIDRA capacity analysis.

H CASSOO (PR TECH ENG)
(Pr No. 2020300726)

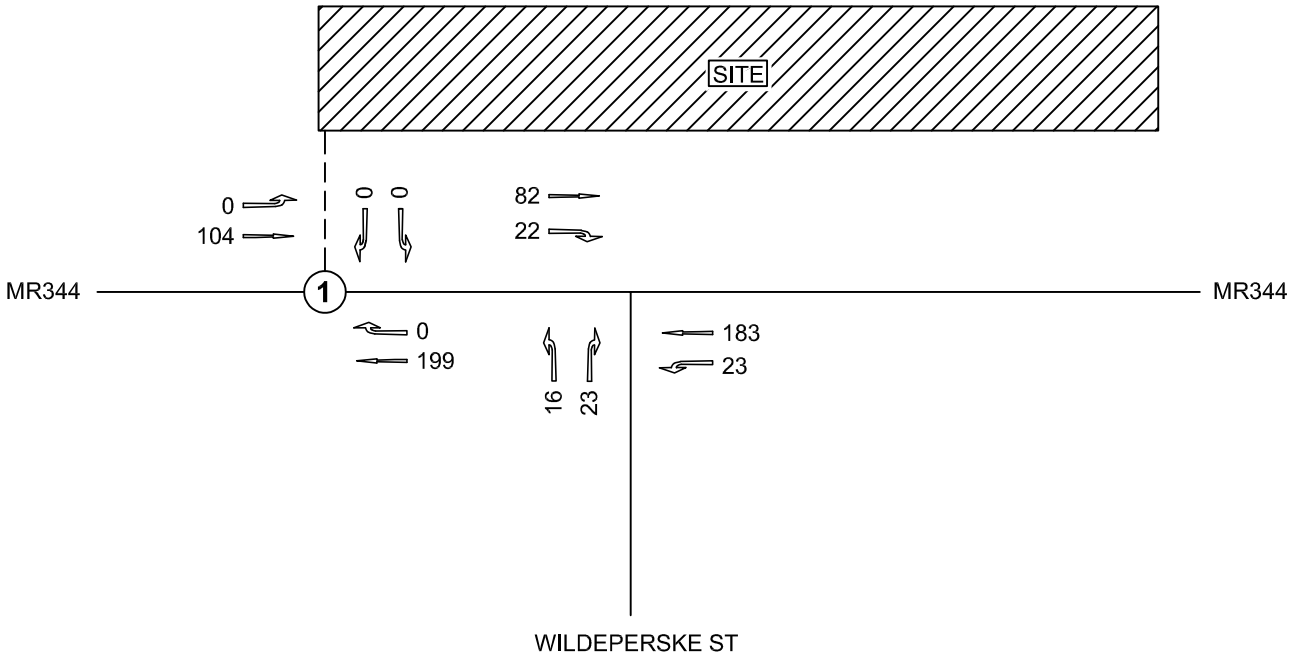
21 January 2022

APPENDIX A

TRAFFIC SCHEMATIC DIAGRAMS



THURSDAY, 09 JUNE 2016
WEEKDAY AM PEAK HOUR: 06:45 - 07:45



THURSDAY, 09 JUNE 2016
WEEKDAY PM PEAK HOUR: 16:15 - 17:15

LEGEND	
10	TRAFFIC MOVEMENT
1	INTERSECTION NO.
— — —	SITE ACCESS ROAD

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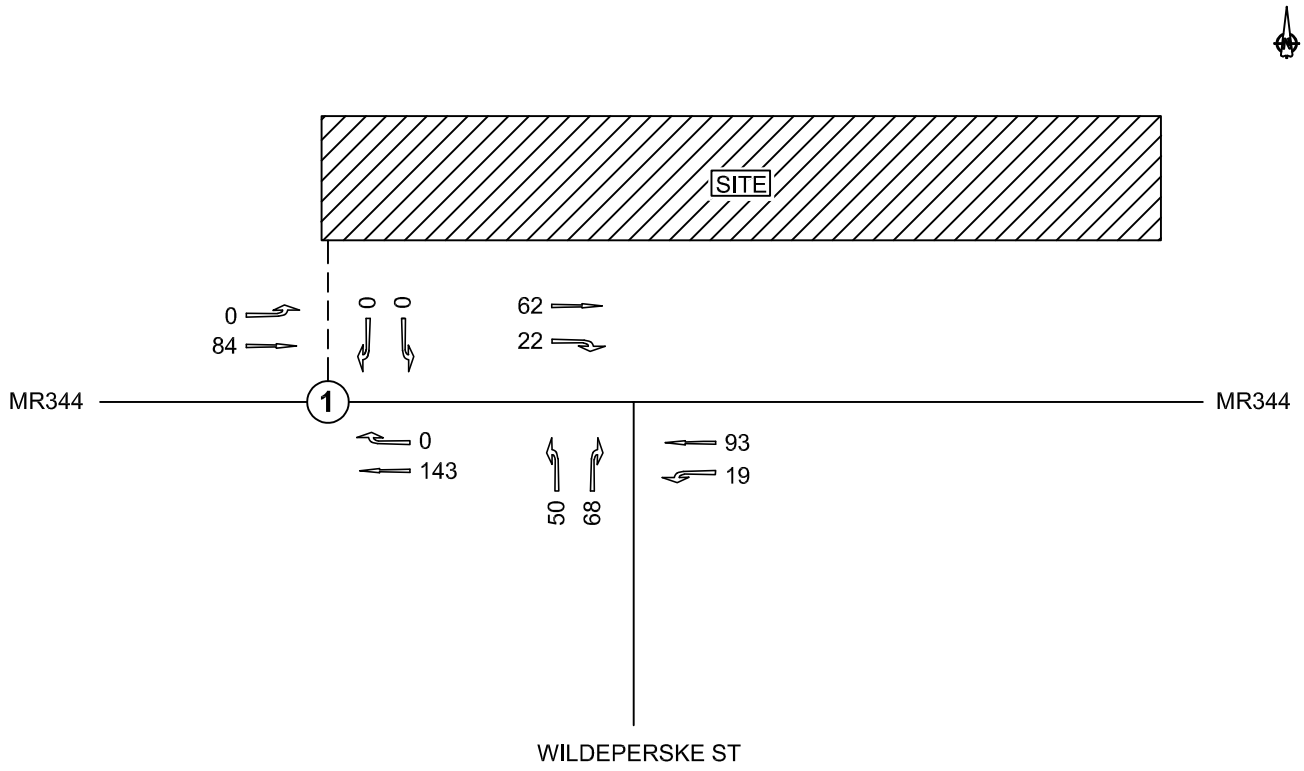
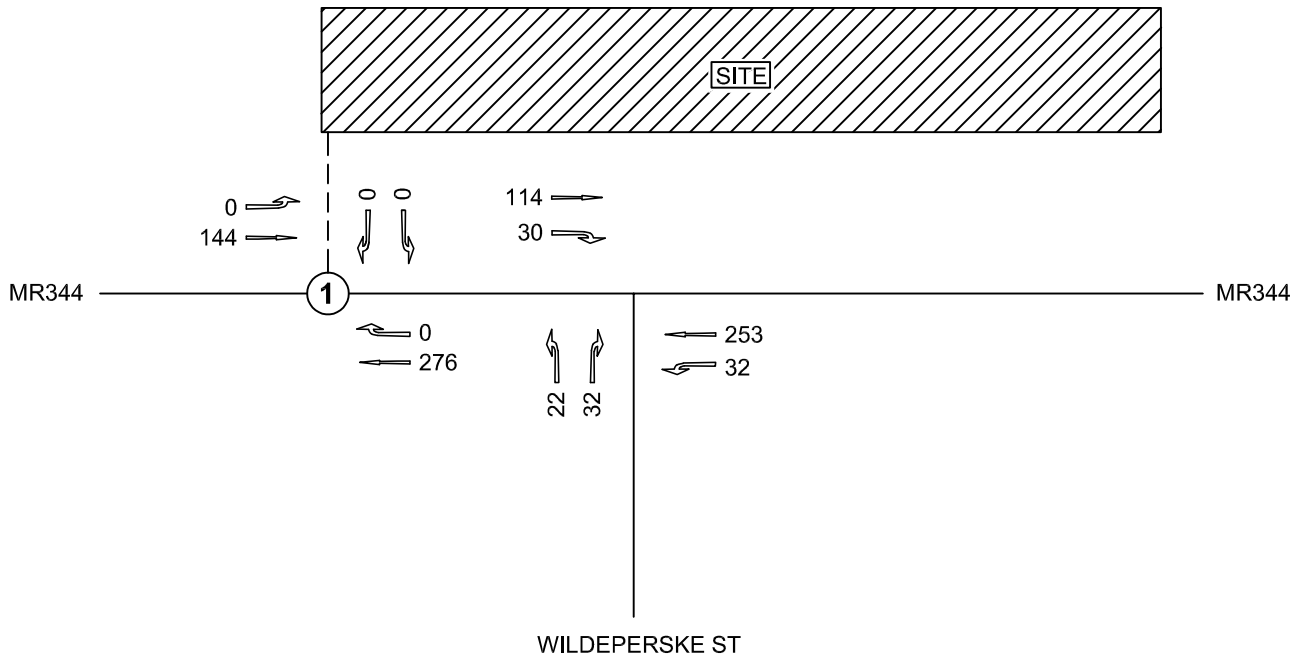
DRAWN	HC	JAN 2022	PROJECT: RHEEBOK RESIDENTIAL UPDATED TIS	PROJECT NO.	SCALE	FIGURE
CHECKED	BAP	JAN 2022	TITLE: 2016 TRAFFIC COUNT DATA	16591R	N.T.S	A1
APPROVED	GRT	JAN 2022				



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

LEGEND	
10	TRAFFIC MOVEMENT
1	INTERSECTION NO.
– – –	SITE ACCESS ROAD

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DRAWN	HC	JAN 2022	PROJECT: RHEEBOK RESIDENTIAL UPDATED TIS
CHECKED	BAP	JAN 2022	
APPROVED	GRT	JAN 2022	TITLE: PROJECTED 2022 TRAFFIC

PROJECT NO.	SCALE	FIGURE
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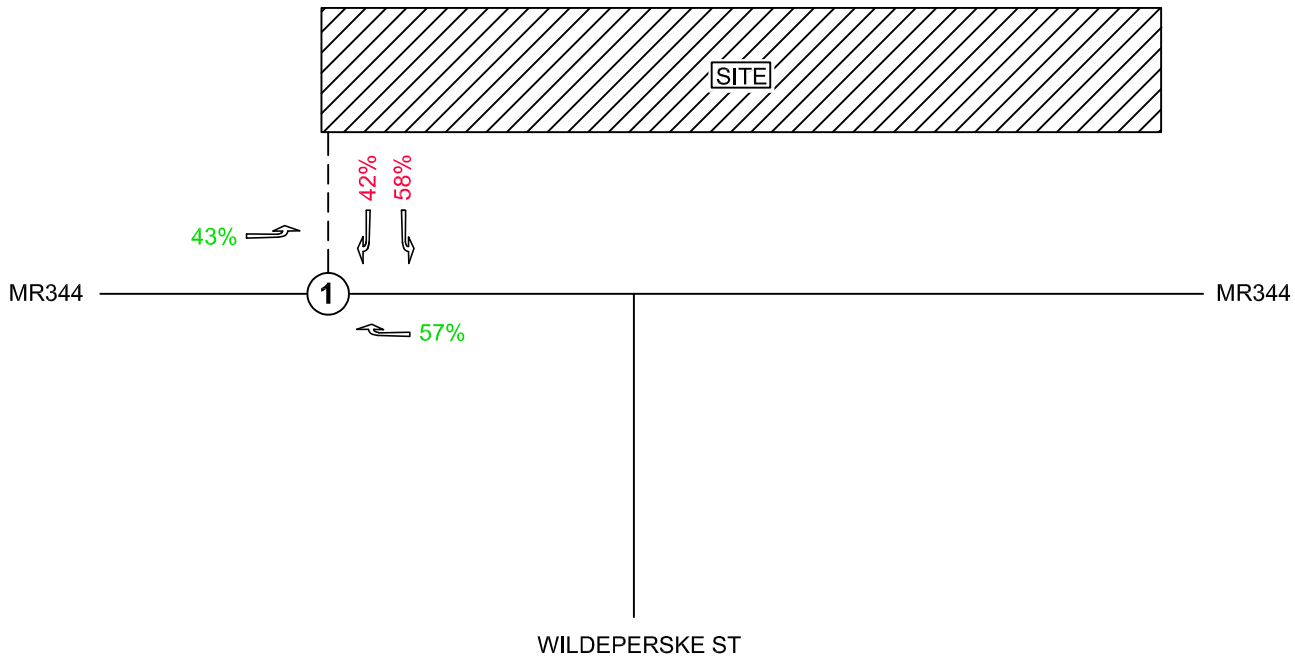
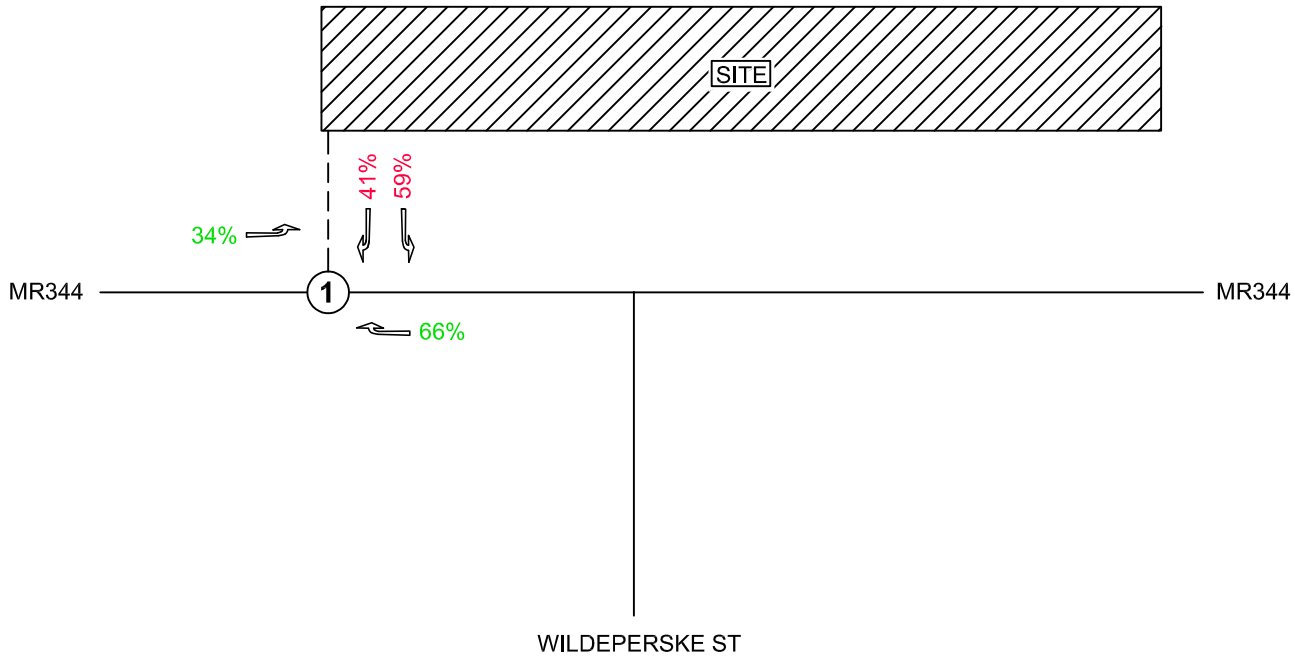


WEEKDAY AM PEAK HOUR

10% / 10%	INBOUND / OUTBOUND TRAFFIC



WEEKDAY PM PEAK HOUR

LEGEND	
10	TRAFFIC MOVEMENT
1	INTERSECTION NO.
— — —	SITE ACCESS ROAD

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DRAWN	HC	JAN 2022	
CHECKED	BAP	JAN 2022	
APPROVED	GRT	JAN 2022	

PROJECT: RHEEBOK RESIDENTIAL UPDATED TIS

TITLE: PERCENTAGE DISTRIBUTION

PROJECT NO.	SCALE	FIGURE
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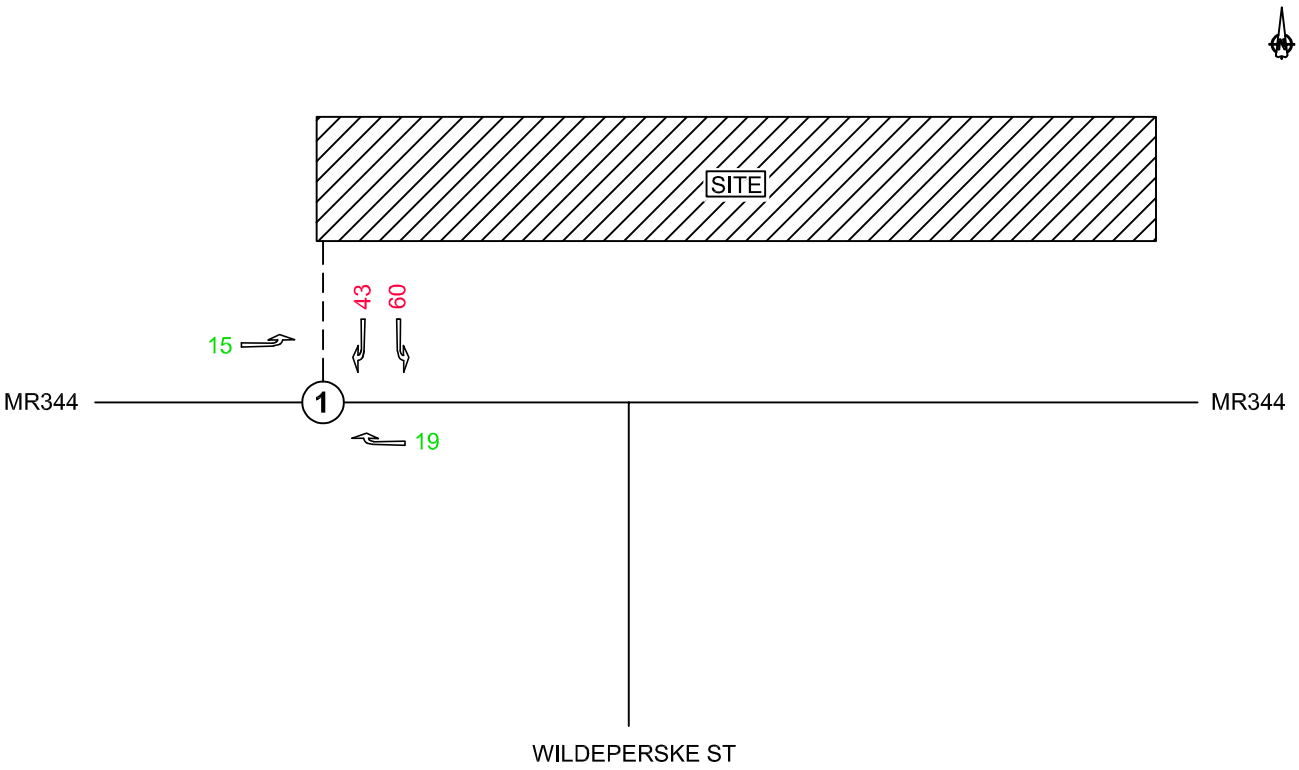
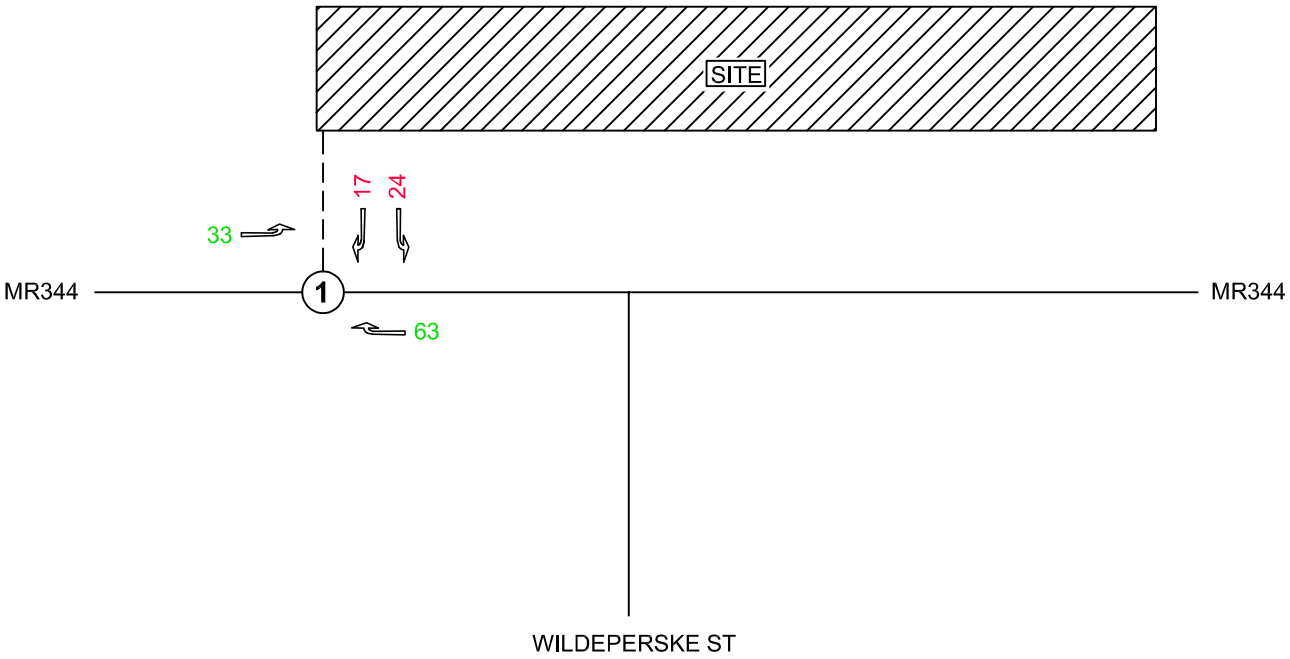


WEEKDAY AM PEAK HOUR

10 / 10	INBOUND / OUTBOUND TRAFFIC



WEEKDAY PM PEAK HOUR

LEGEND	
10	TRAFFIC MOVEMENT
1	INTERSECTION NO.
— — —	SITE ACCESS ROAD

KANTEY & TEMPLER CONSULTING ENGINEERS

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APPROVED	GRT	JAN 2022	

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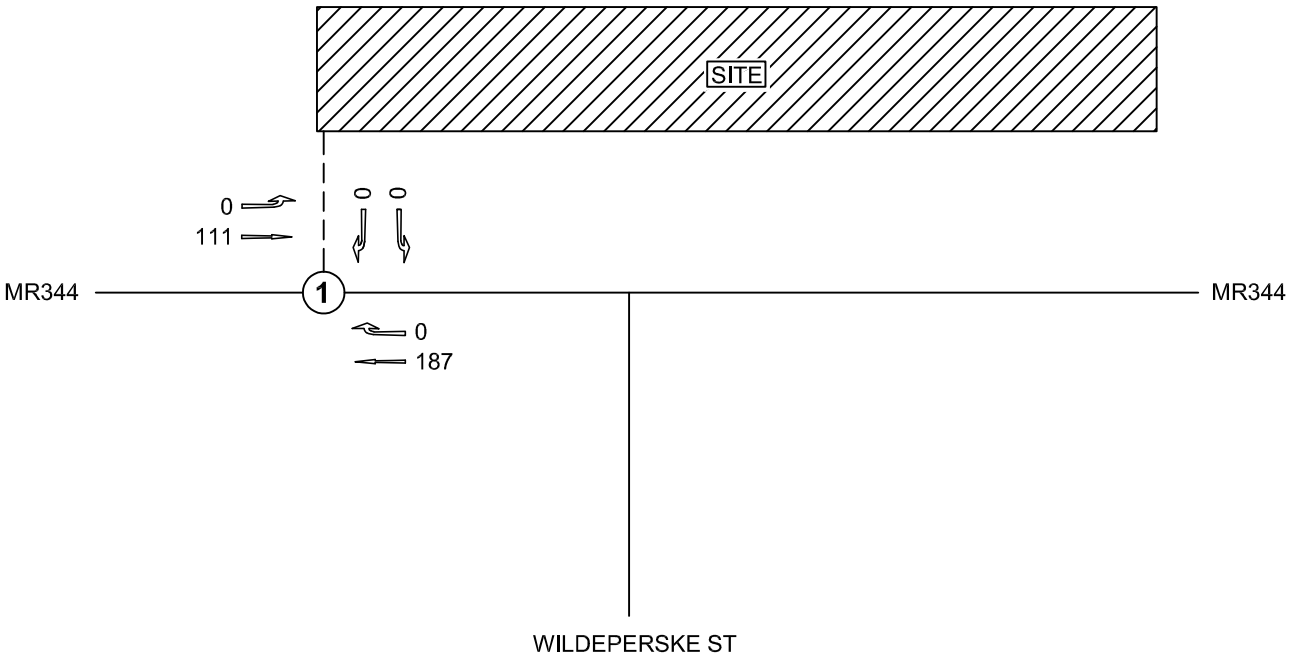
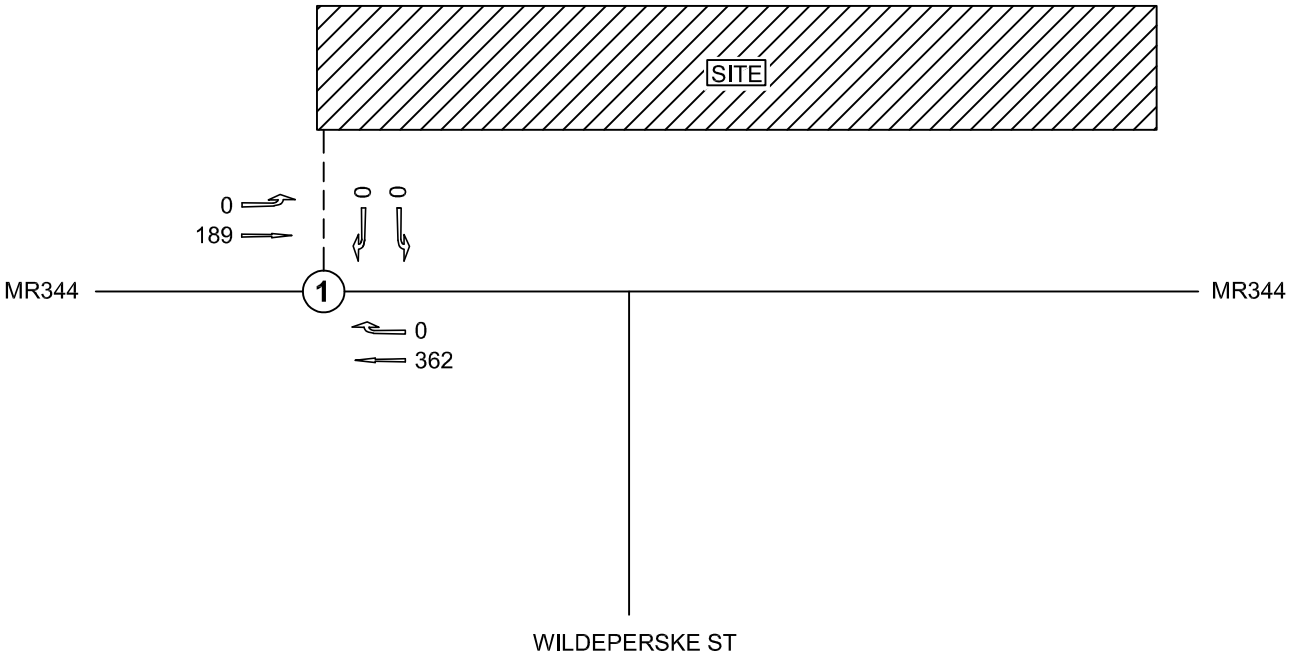


WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

LEGEND	
10	TRAFFIC MOVEMENT
(1)	INTERSECTION NO.
– – –	SITE ACCESS ROAD

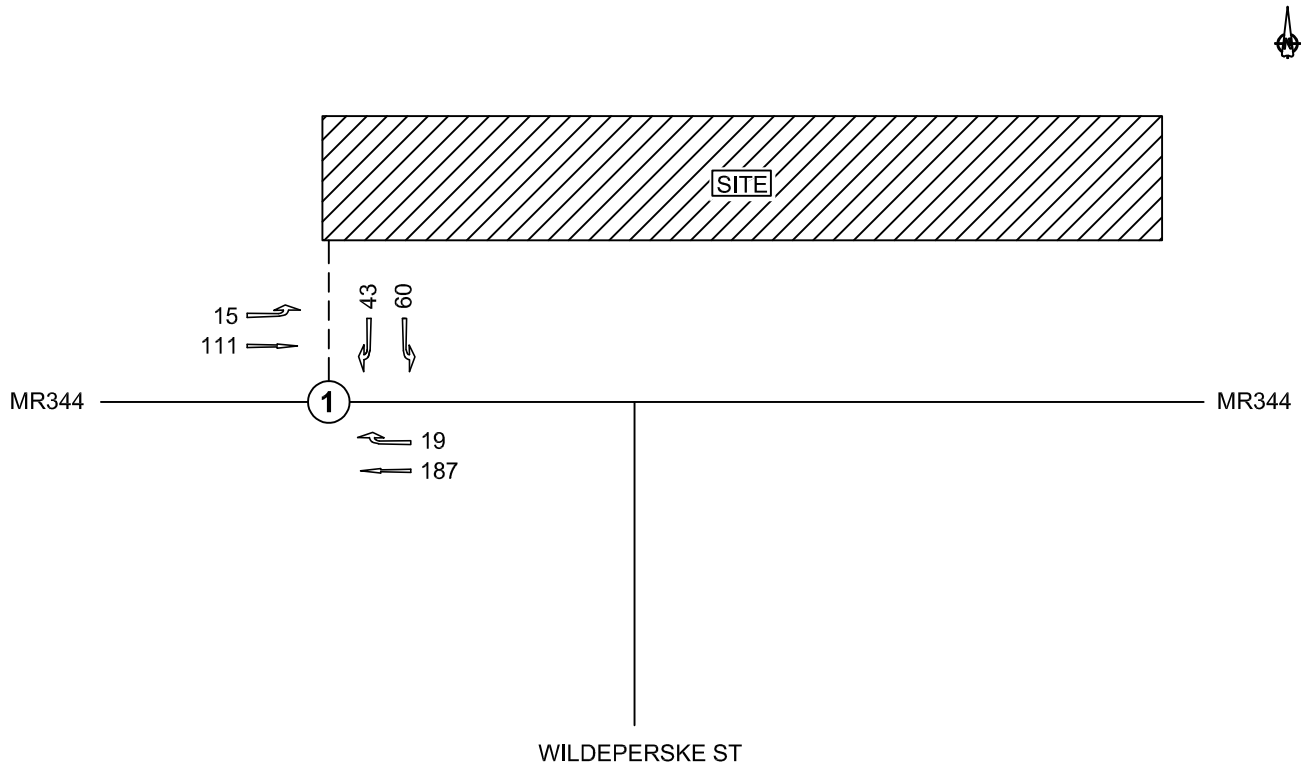
KANTEY & TEMPLER
CONSULTING ENGINEERS

DRAWN	HC	JAN 2022	
CHECKED	BAP	JAN 2022	
APPROVED	GRT	JAN 2022	

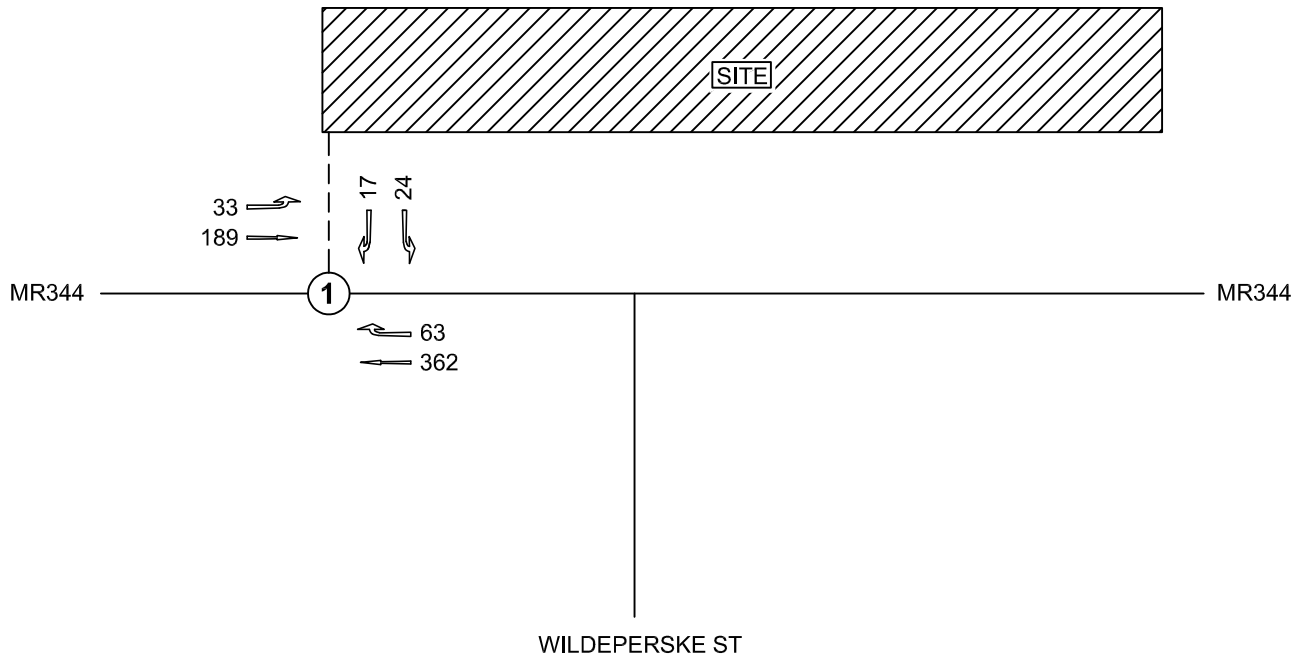
PROJECT: RHEEBOK RESIDENTIAL UPDATED TIS

TITLE: FUTURE 2027 TRAFFIC EXCLUDING SITE TRAFFIC

PROJECT NO.	SCALE	FIGURE
16591R	N.T.S	A5



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

LEGEND	
10	TRAFFIC MOVEMENT
1	INTERSECTION NO.
– – –	SITE ACCESS ROAD

KANTEY & TEMPLER CONSULTING ENGINEERS

DRAWN	HC	JAN 2022	
CHECKED	BAP	JAN 2022	
APPROVED	GRT	JAN 2022	

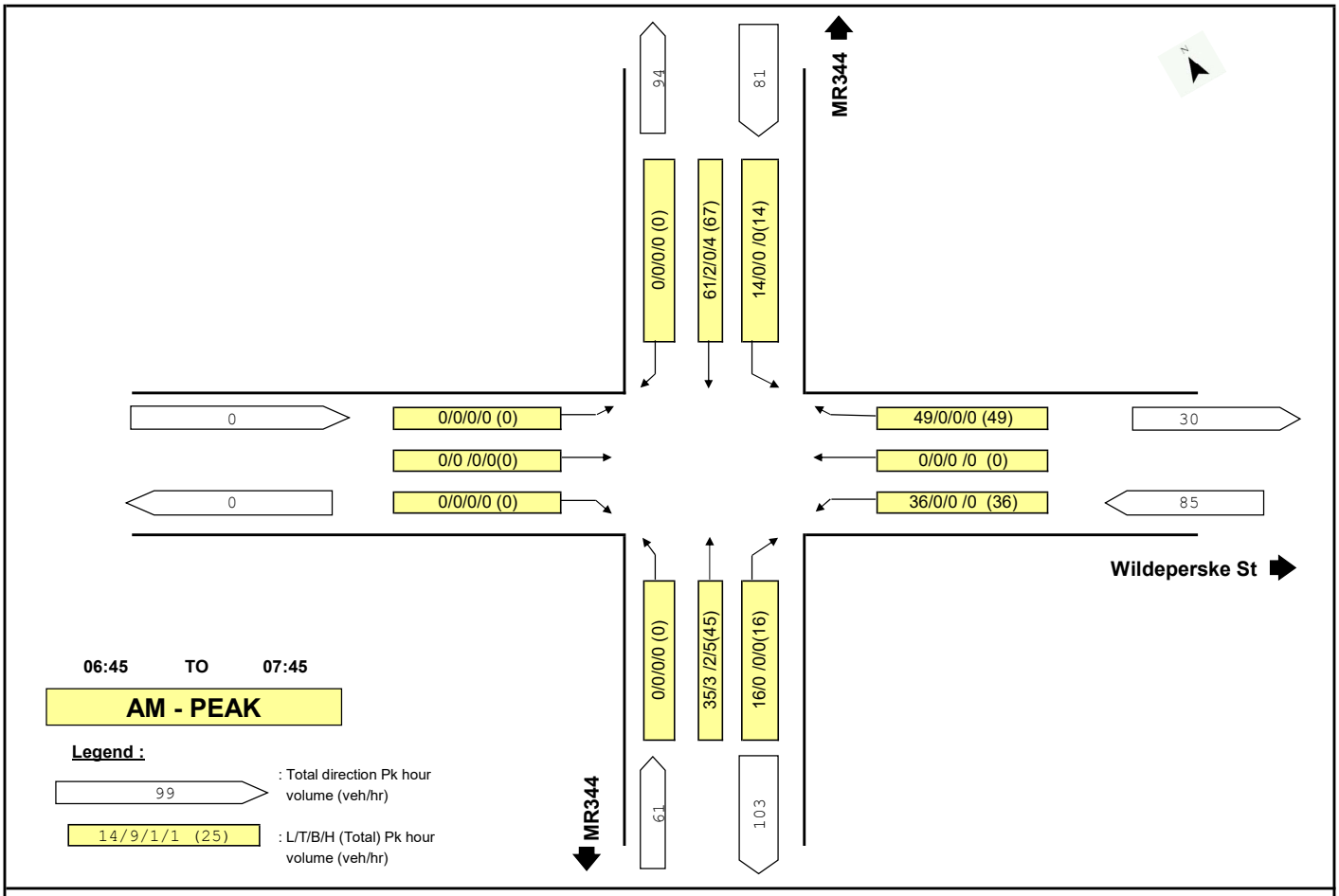
PROJECT: RHEEBOK RESIDENTIAL UPDATED TIS

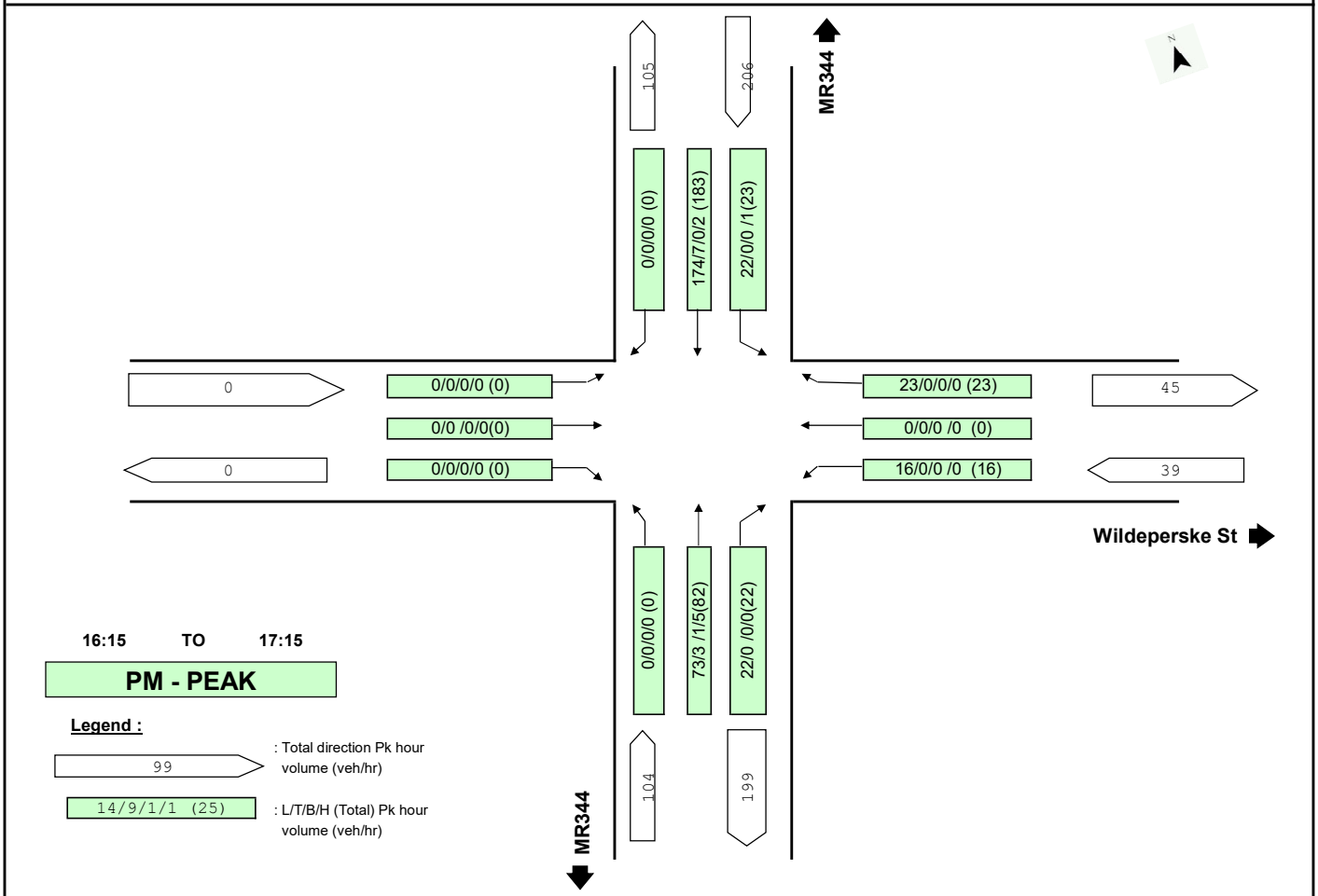
TITLE: FUTURE 2027 TRAFFIC INCLUDING SITE TRAFFIC

PROJECT NO.	SCALE	FIGURE
16591R	N.T.S	A6

APPENDIX B

TRAFFIC COUNT DATA





K&T

INTERSECTION OF MR344 / WILDEPERSKE RAOD

AM & PM PEAK HOURS: 09 JUNE 2016

APPENDIX C

SITE LAYOUT PLANS

LEGEND

1. Application for subdivision of Farm 1/331 into Ptn A 4.1607ha and a Remainder as shown on PLAN A below.

2. Application is made for rezoning of the above Ptn A to Subdivisional Area for 68 group housing units, private open spaces and private street.

3. Application is made for subdivision of the Subdivisional Area as follows:

68 erven - General Residential Zone I - Erven 1 to 68 = 2,1669Ha - average 318 m²

3 erven - Open Space Zone II - Erven 69 to 71 = 1.2560ha

1 erf - Transport Zone III Erf 72 = 7378m²

NOTE: This development will gain access to the R102 through Rem of Ptn 4 of Farm 142.

- General Res Zone I Erven
- Open Space Zone II (Private Open Space)
- Utility Zone
- Transport Zone III (Private Street)

8m Buffer area accommodating a 5m wide berm as requested by Minister and a 3m wide servitude area for sewerage pipe line

FARM No. 331

Pr OS 71

Pr OS 69

Pr OS 70

72

13m

5m Building Line

From NZ Boundary

Pipeline Servitute

MR 344

PLAN A
Not To Scale

Proposed Ptn A of Farm 1/331 4,1607Ha

Remainder of Farm 1/331 ±7,1031Ha

R 102 Road Reserve

N

LEGEND

NOTE / NOTA
Alle mates op die plan is by benadering en moet deur 'n landmeter bevestig word.
All measurements on this plan are approximate and must be verify by a landsurveyor.

Klient: Client:
L. de Jager

FORMAPLAN cc
STADS- & STREEKSBEPLANNERS
TOWN- & REGIONAL PLANNERS
P.O. Box 9824, George 6530 / 8 St John St
Tel: (044) 873-0305 Faks: (044) 874-5632

Projek: Project:
REZONING & SUBDIVISION PLAN

Eiendom: Property:
Ptn of Farm 331.

Skaal : Scale:
1 : 3000 on A3

Tekening Nommer: Drawing Number :
De Jag 2.1

Datum: Date :
December 2021

LEGEND

1. Application for subdivision of Farm R/4/142 into Ptn B & a Remainder was already approved previously and Ptn B is now known as Ptn 29 of Farm 142.

2. Application is now made for rezoning of the above Ptn 29 to Subdivisional Area for 69 group housing units, private open spaces, utility zone ervenand private street.
29 to Subdivisional Area for 69 group housing units, pri-

3. Application is made for subdivision of the Subdivisional Area as follows:

69 erven - General Residential Zone **I** - Erven 1 to 69 = 2,5601Ha - average 371 m²

1 erf - Utility Zone Sew. Pumpstation - Erf 70 = 708m²

1 erf - Utility Zone Electr. Substation - Erf 71 = 65m²

2 erven - Open Space Zone **II** - Erven 72 & 73 = 6668m²

1 erf - Transport Zone III Erf 74 = 6666m²

- General Res Zone **I** Erven
- Open Space Zone **II** (Private Open Space)
- Utility Zone
- Transport Zone **III** (Private Street)

8m Buffer area accommodating a 5m wide berm as requested by Minister and a 3m wide servitude area for sewerage pipe line

5.5m Buffer area accommodating a 2.5m wide strip area as requested by Minister and a 3m wide servitude area for sewerage pipe line

Ptn 1/331

Ptn 1/331 See Plan De Jag 2.1 Dated Dec 2021

PROPOSED NEW ACCESS TO DEVELOPMENTS ON FARMS 331/1 & 142/29

Area to be expropriated = ±3117m²

Area to be expropriated = ±3117m²

New fence line

NOTE / NOTA

Alle mates op die plan is by benadering en moet deur 'n landmeter bevestig word.

All measurements on this plan are approximate and must be verify by a landsurveyor.

Klient: / Client:
De Jager Brothers

FORMAPLAN cc
STADS- & STREEKSBEPLANNERS
TOWN- & REGIONAL PLANNERS
P.O. Box 9824, George 6530 / 8 St John St
Tel: (044) 873-0305 Faks: (044) 874-5632

Projek: / Project:
Rezoning & Subdivision

Titel: / Title:
Subdivision Plan

Eiendom: / Property:
Ptn 29 of Farm Reeboksfontein No 142, Mossel Bay

Skaal : / Scale:
1:1500 on A3 Plot

Tekening Nommer: / Drawing Number :
De Jag 1.1

Datum: / Date :
December 2021

APPENDIX D

RNIS GROWTH RATE REPORT

Western Cape Government
BETTER TOGETHER.

Growth Rate Chart

Station Data

Road Number:	**MR00344**
Km Distance:	**11.32**
Growth Rate: (Based on the last 5 available counts)	**4.50 (C)**
Recalculated Growth Rate: (Based on Selected Counts)	**5.58**
Node:	**2277**
Leg:	**A**

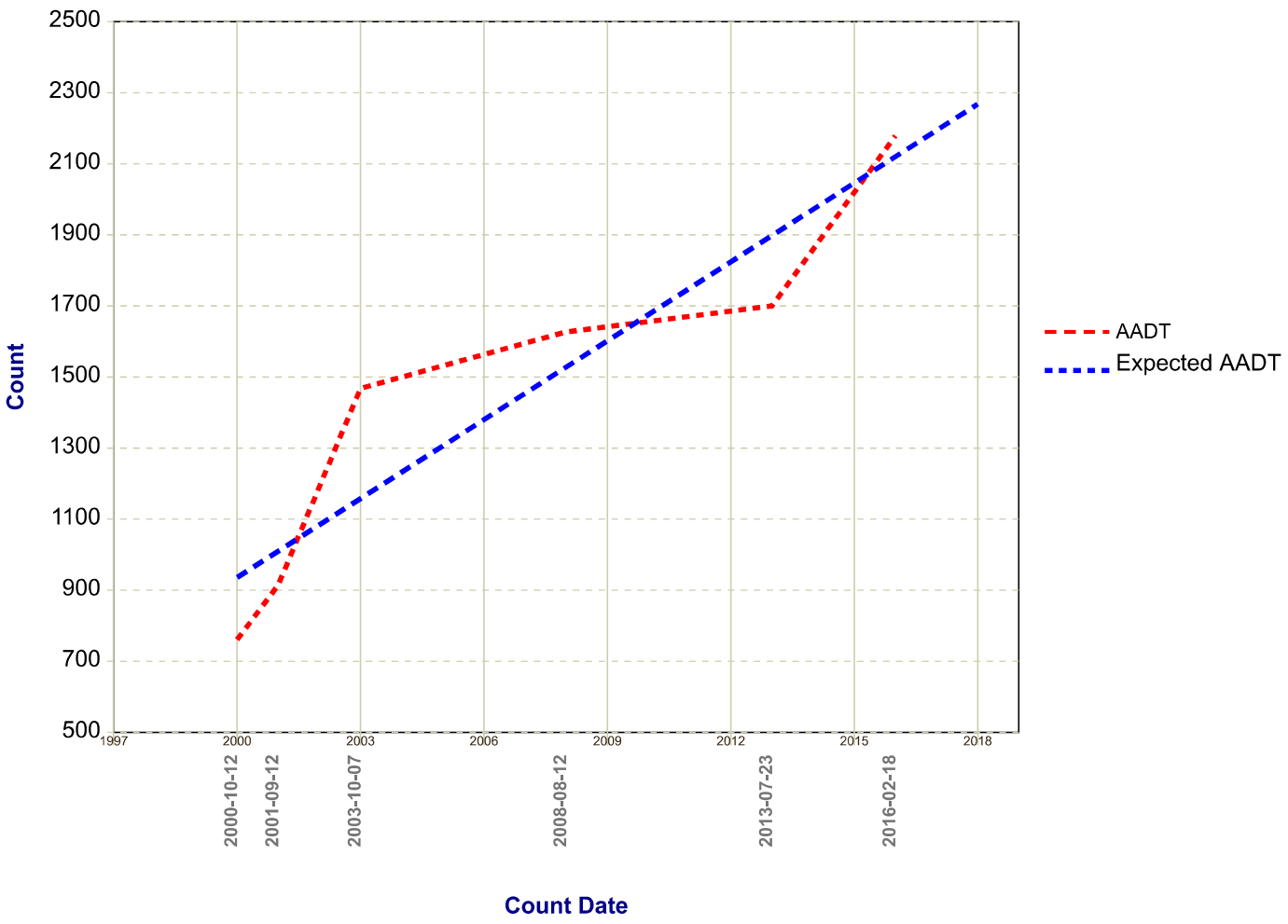
Count Dates

> >
> <
> >>
> <<

2000-10-12
2001-09-12
2003-10-07
2008-08-12
2013-07-23
2016-02-18

Print

Exit



APPENDIX E

SIDRA MOVEMENT SUMMARIES

MOVEMENT SUMMARY

Site: 01 [01am2022existing (Site Folder: Existing 2022)]

MR344 / Site Access Road
AM Peak Hour
2022
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	103	0.0	103	0.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.7
6	R2	1	0.0	1	0.0	0.053	6.8	LOS A	0.0	0.0	0.00	0.01	0.00	79.9
Approach		104	0.0	104	0.0	0.053	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.5
North: Site Access Road														
7	L2	1	0.0	1	0.0	0.002	6.9	LOS A	0.0	0.0	0.16	0.89	0.16	35.9
9	R2	1	0.0	1	0.0	0.002	6.9	LOS A	0.0	0.0	0.16	0.89	0.16	35.5
Approach		2	0.0	2	0.0	0.002	6.9	LOS A	0.0	0.0	0.16	0.89	0.16	35.7
West: MR344														
10	L2	1	0.0	1	0.0	0.032	7.8	LOS A	0.0	0.0	0.00	0.01	0.00	48.9
11	T1	61	0.0	61	0.0	0.032	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.2
Approach		62	0.0	62	0.0	0.032	0.1	NA	0.0	0.0	0.00	0.01	0.00	98.3
All Vehicles		168	0.0	168	0.0	0.053	0.2	NA	0.0	0.0	0.00	0.02	0.00	97.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [01pm2022existing (Site Folder: Existing 2022)]

MR344 / Site Access Road
PM Peak Hour
2022
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	199	0.0	199	0.0	0.103	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	1	0.0	1	0.0	0.103	6.9	LOS A	0.0	0.0	0.00	0.00	0.00	80.1
Approach		200	0.0	200	0.0	0.103	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.7
North: Site Access Road														
7	L2	1	0.0	1	0.0	0.002	7.0	LOS A	0.0	0.0	0.23	0.86	0.23	35.8
9	R2	1	0.0	1	0.0	0.002	7.6	LOS A	0.0	0.0	0.23	0.86	0.23	35.3
Approach		2	0.0	2	0.0	0.002	7.3	LOS A	0.0	0.0	0.23	0.86	0.23	35.5
West: MR344														
10	L2	1	0.0	1	0.0	0.054	7.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
11	T1	104	0.0	104	0.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.5
Approach		105	0.0	105	0.0	0.054	0.1	NA	0.0	0.0	0.00	0.01	0.00	98.9
All Vehicles		307	0.0	307	0.0	0.103	0.1	NA	0.0	0.0	0.00	0.01	0.00	98.8

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [01am2027future - Excl Site Traffic (Site Folder: Future 2027 - Excl Site Traffic)]

MR344 / Site Access Road
AM Peak Hour
2027
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	187	0.0	187	0.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.8
6	R2	1	0.0	1	0.0	0.097	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	80.1
Approach		188	0.0	188	0.0	0.097	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.7
North: Site Access Road														
7	L2	1	0.0	1	0.0	0.002	7.1	LOS A	0.0	0.0	0.23	0.86	0.23	35.8
9	R2	1	0.0	1	0.0	0.002	7.6	LOS A	0.0	0.0	0.23	0.86	0.23	35.3
Approach		2	0.0	2	0.0	0.002	7.3	LOS A	0.0	0.0	0.23	0.86	0.23	35.6
West: MR344														
10	L2	1	0.0	1	0.0	0.057	7.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
11	T1	111	0.0	111	0.0	0.057	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.6
Approach		112	0.0	112	0.0	0.057	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.0
All Vehicles		302	0.0	302	0.0	0.097	0.1	NA	0.0	0.0	0.00	0.01	0.00	98.7

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [01pm2027future - Excl Site Traffic (Site Folder: Future 2027 - Excl Site Traffic)]

MR344 / Site Access Road
PM Peak Hour
2027
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	362	0.0	362	0.0	0.186	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	1	0.0	1	0.0	0.186	7.3	LOS A	0.0	0.0	0.00	0.00	0.00	80.2
Approach		363	0.0	363	0.0	0.186	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.8
North: Site Access Road														
7	L2	1	0.0	1	0.0	0.002	7.3	LOS A	0.0	0.0	0.34	0.84	0.34	35.3
9	R2	1	0.0	1	0.0	0.002	9.2	LOS A	0.0	0.0	0.34	0.84	0.34	34.9
Approach		2	0.0	2	0.0	0.002	8.3	LOS A	0.0	0.0	0.34	0.84	0.34	35.1
West: MR344														
10	L2	1	0.0	1	0.0	0.097	7.8	LOS A	0.0	0.0	0.00	0.00	0.00	49.1
11	T1	189	0.0	189	0.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.7
Approach		190	0.0	190	0.0	0.097	0.0	NA	0.0	0.0	0.00	0.00	0.00	99.4
All Vehicles		555	0.0	555	0.0	0.186	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.3

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [01am2027future - Incl Site Traffic (Site Folder: Future 2027 - Incl Site Traffic)]

MR344 / Site Access Road
AM Peak Hour
2027
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	187	0.0	187	0.0	0.108	0.1	LOS A	0.1	0.4	0.05	0.06	0.05	96.5
6	R2	19	0.0	19	0.0	0.108	7.0	LOS A	0.1	0.4	0.05	0.06	0.05	76.6
Approach		206	0.0	206	0.0	0.108	0.7	NA	0.1	0.4	0.05	0.06	0.05	95.1
North: Site Access Road														
7	L2	60	0.0	60	0.0	0.098	7.1	LOS A	0.1	1.0	0.24	0.90	0.24	35.7
9	R2	43	0.0	43	0.0	0.098	7.9	LOS A	0.1	1.0	0.24	0.90	0.24	35.3
Approach		103	0.0	103	0.0	0.098	7.5	LOS A	0.1	1.0	0.24	0.90	0.24	35.5
West: MR344														
10	L2	15	0.0	15	0.0	0.065	7.7	LOS A	0.0	0.0	0.00	0.08	0.00	47.1
11	T1	111	0.0	111	0.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	94.8
Approach		126	0.0	126	0.0	0.065	0.9	NA	0.0	0.0	0.00	0.08	0.00	88.0
All Vehicles		435	0.0	435	0.0	0.108	2.4	NA	0.1	1.0	0.08	0.27	0.08	73.1

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 01 [01pm2027future - Incl Site Traffic (Site Folder: Future 2027 - Incl Site Traffic)]

MR344 / Site Access Road
PM Peak Hour
2027
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: MR344														
5	T1	362	0.0	362	0.0	0.230	0.2	LOS A	0.2	1.5	0.13	0.10	0.13	94.0
6	R2	63	0.0	63	0.0	0.230	7.5	LOS A	0.2	1.5	0.13	0.10	0.13	74.0
Approach		425	0.0	425	0.0	0.230	1.3	NA	0.2	1.5	0.13	0.10	0.13	91.6
North: Site Access Road														
7	L2	24	0.0	24	0.0	0.050	7.4	LOS A	0.1	0.5	0.34	0.90	0.34	35.2
9	R2	17	0.0	17	0.0	0.050	10.2	LOS B	0.1	0.5	0.34	0.90	0.34	34.7
Approach		41	0.0	41	0.0	0.050	8.6	LOS A	0.1	0.5	0.34	0.90	0.34	35.0
West: MR344														
10	L2	33	0.0	33	0.0	0.115	7.7	LOS A	0.0	0.0	0.00	0.10	0.00	46.6
11	T1	189	0.0	189	0.0	0.115	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	93.5
Approach		222	0.0	222	0.0	0.115	1.2	NA	0.0	0.0	0.00	0.10	0.00	85.3
All Vehicles		688	0.0	688	0.0	0.230	1.7	NA	0.2	1.5	0.10	0.15	0.10	84.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
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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