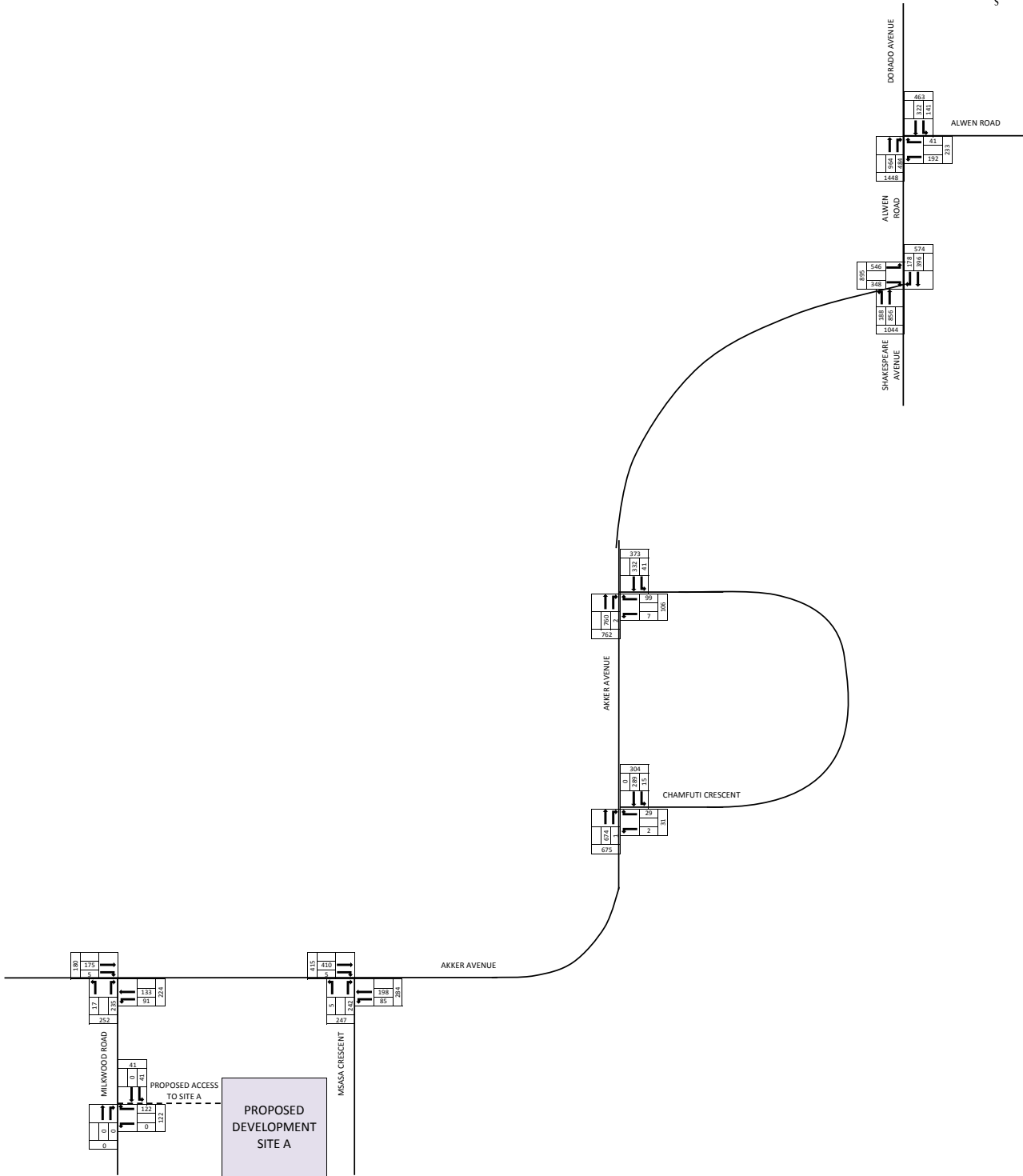


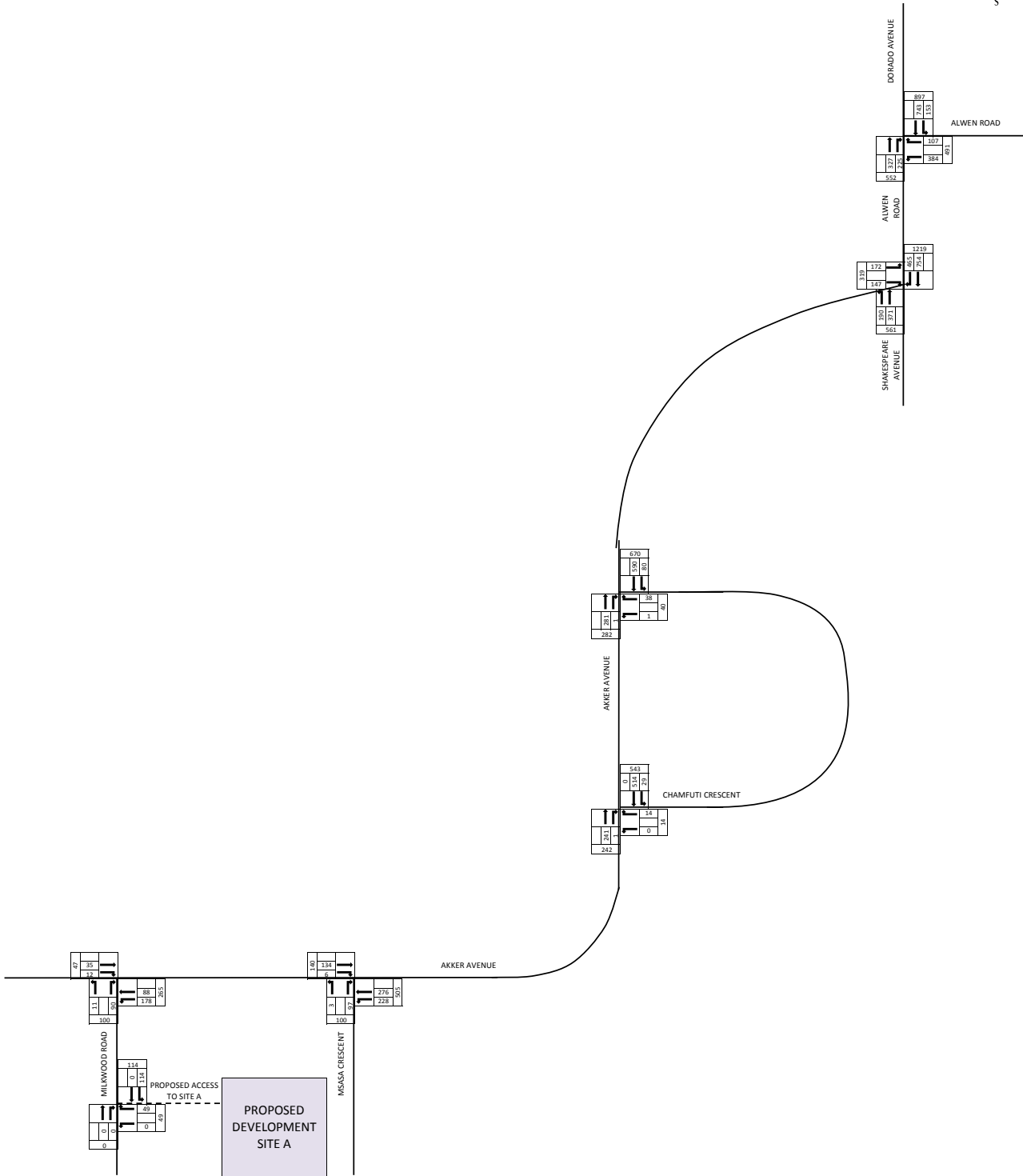
Project Number: C2284
 Job Description: Ormonde - Site A
 Date: 2016/11/21 09:03
 Done by: TP Mponshane



2017 WEEKDAY MORNING PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

FIGURE 3.19

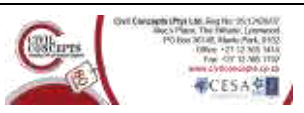
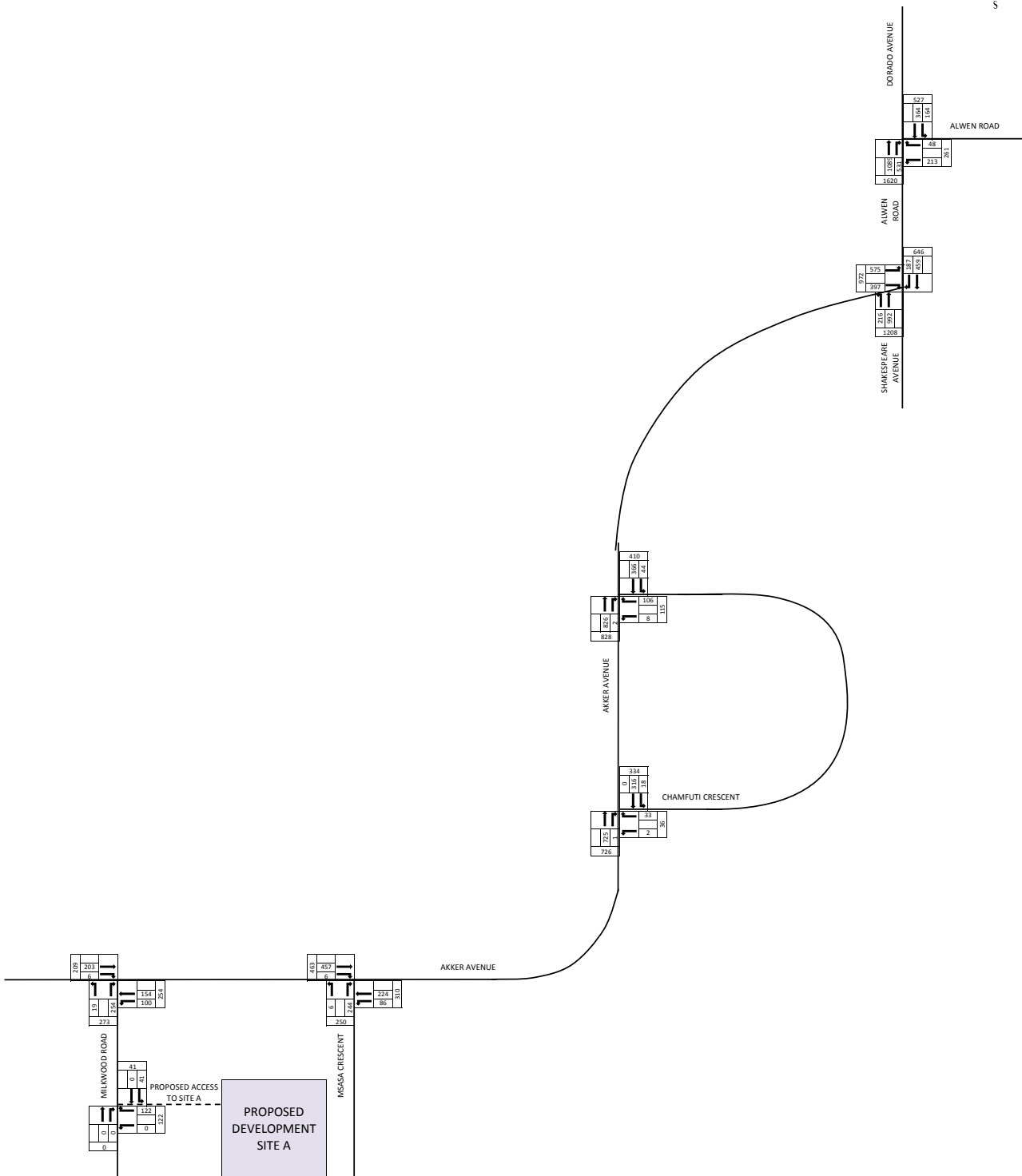
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2017 WEEKDAY AFTERNOON PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

FIGURE 3.20

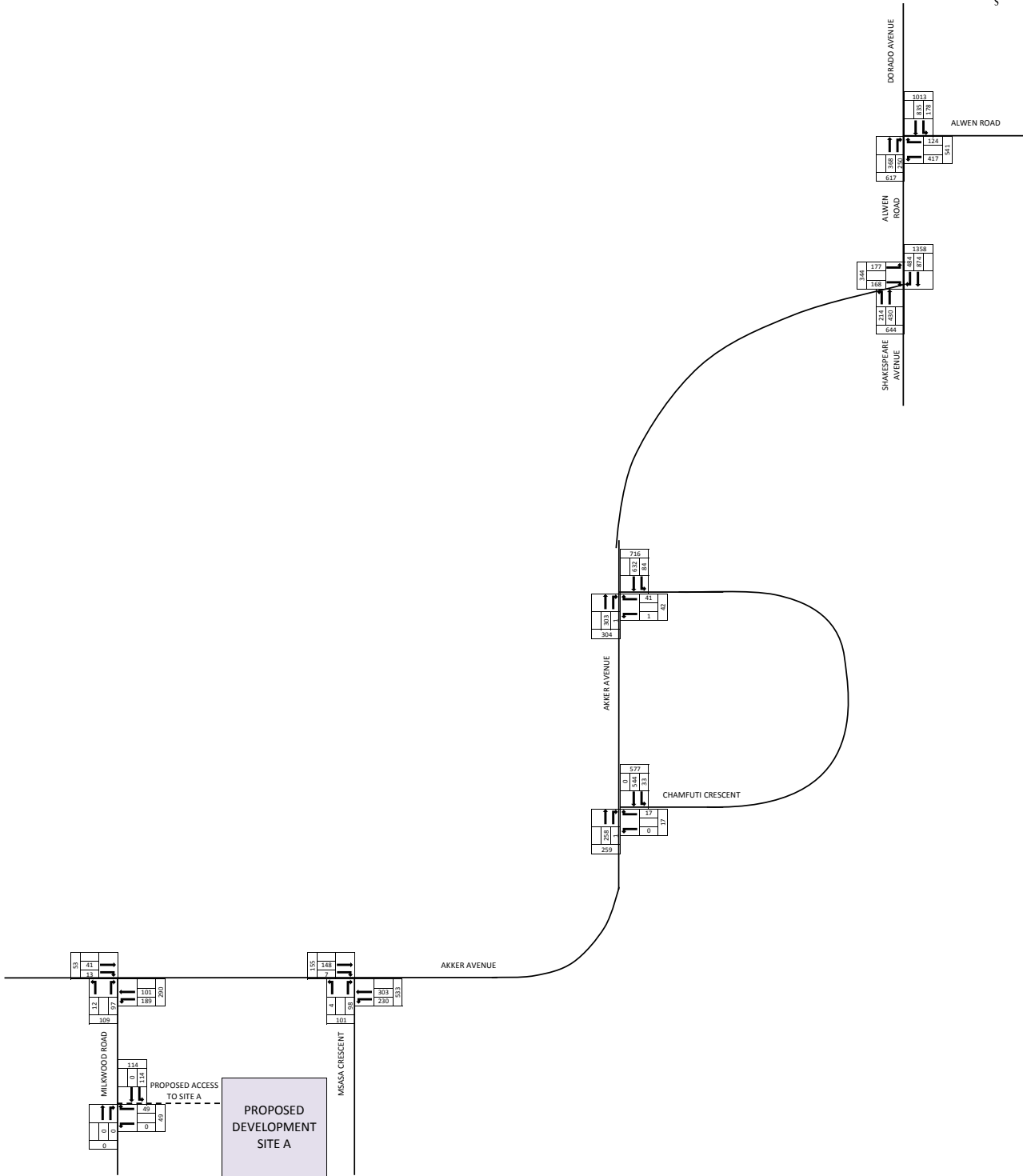
Project Number: C2284
 Job Description: Ormonde - Site A
 Date: 2016/11/21 09:03
 Done by: TP Mponshane



2022 WEEKDAY MORNING PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

FIGURE 3.21

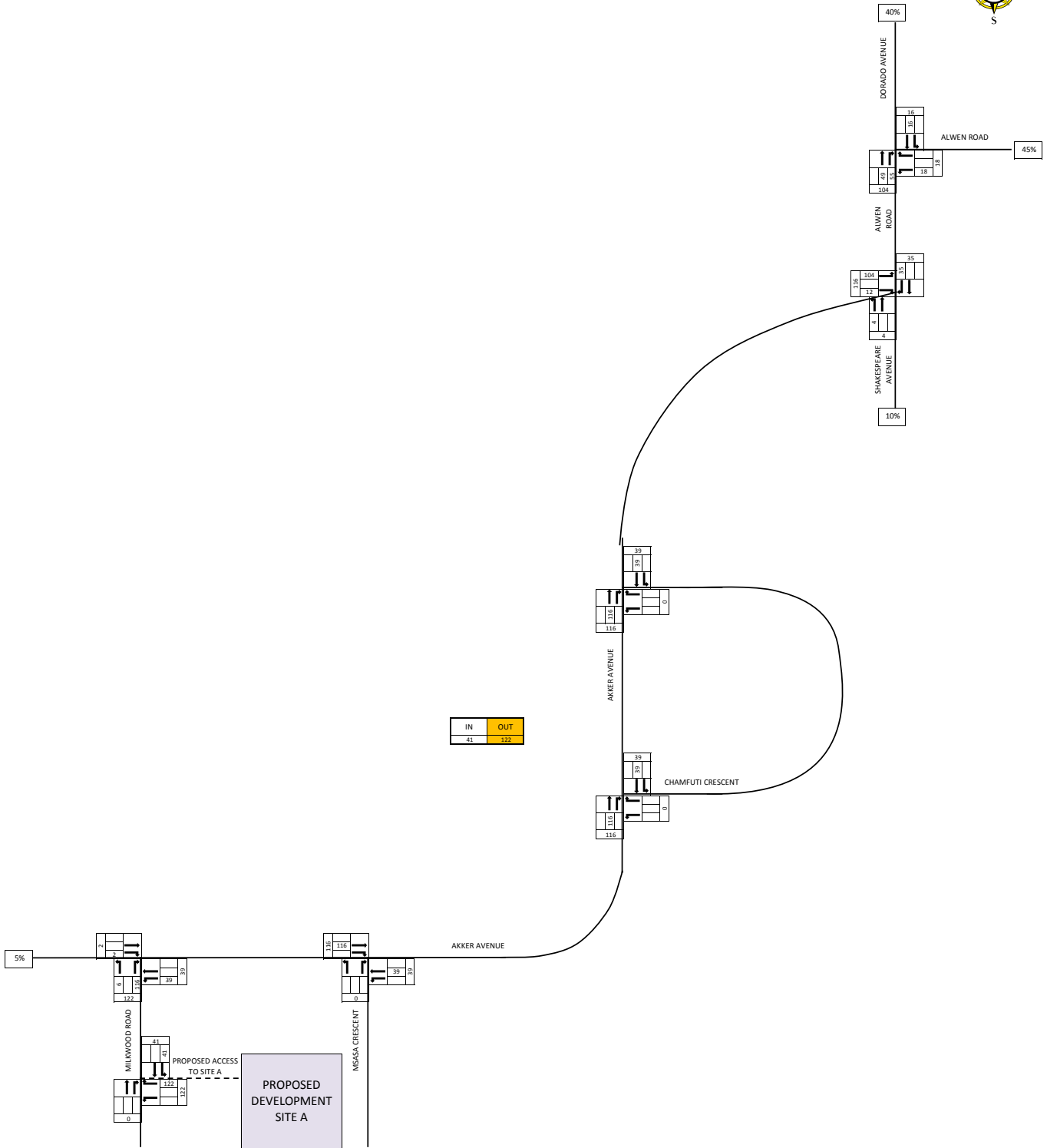
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2022 WEEKDAY AFTERNOON PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

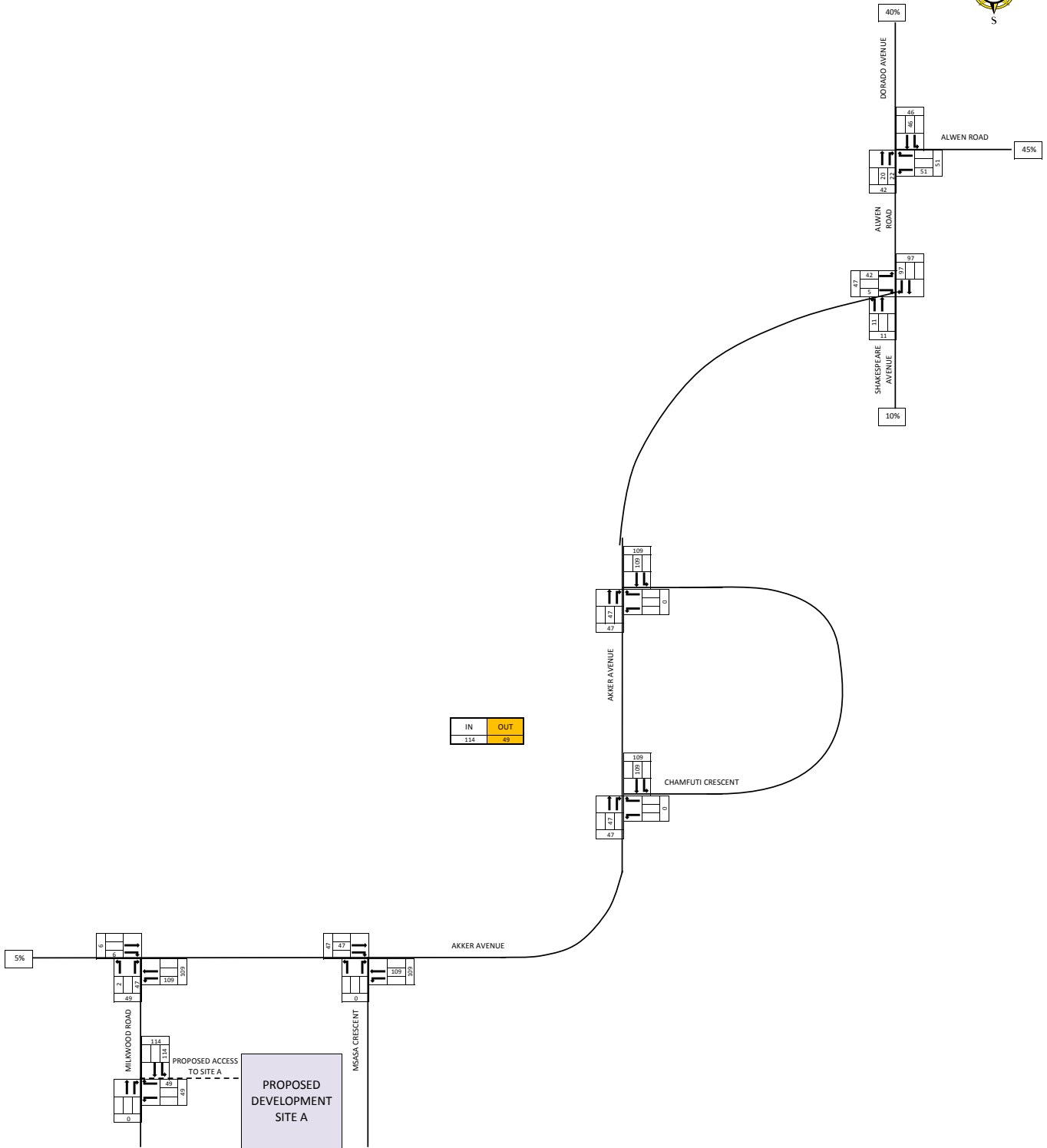
FIGURE 3.22

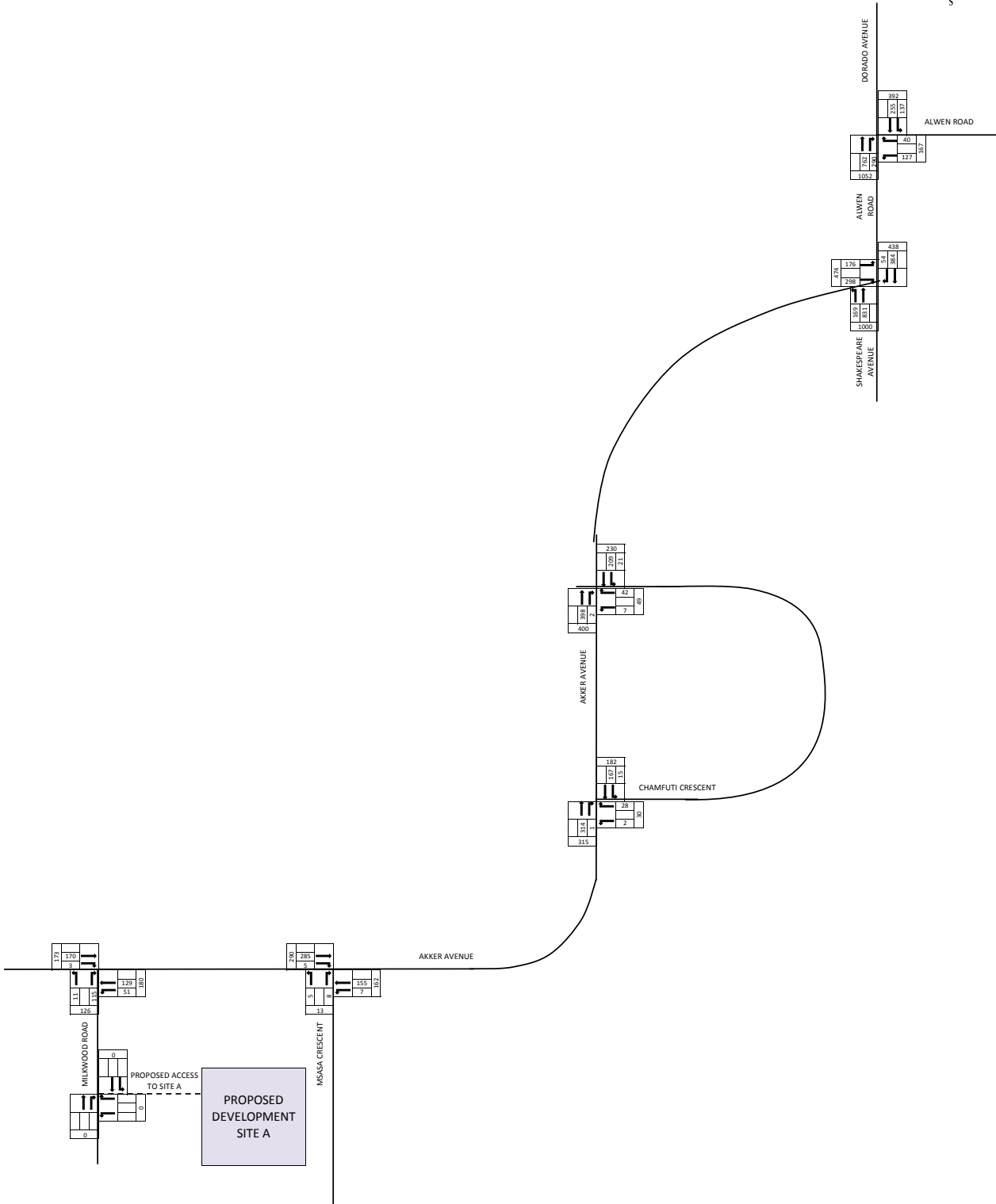
Project Number: C2284
 Job Description: Ormonde - Site A
 Date: 2016/11/21 09:03
 Done by: TP Mponshane



WEEKDAY MORNING PEAK HOUR RESIDENTIAL DEVELOPMENT TRIPS

FIGURE 2.1

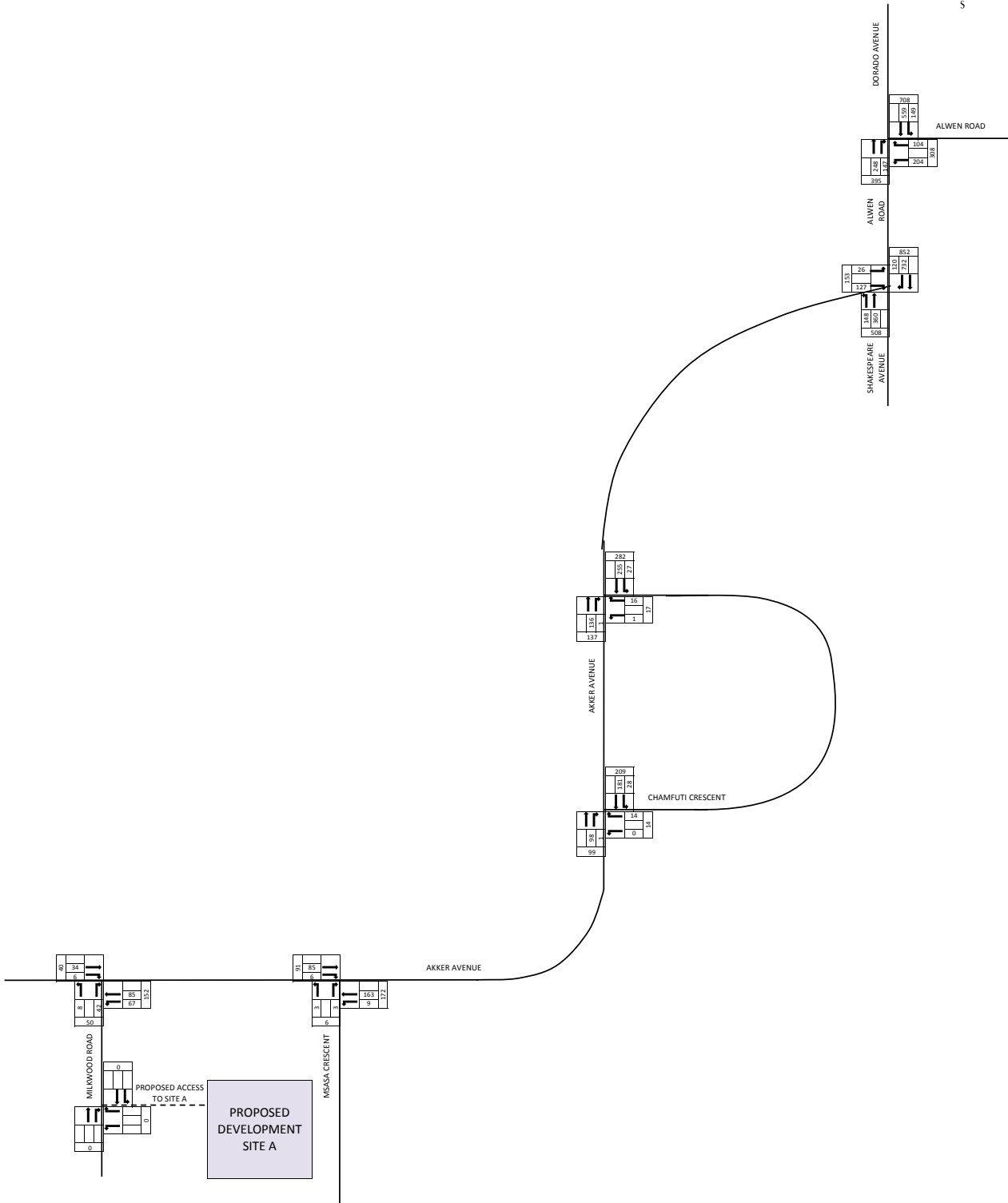




2016 WEEKDAY MORNING PEAK HOUR TRAFFIC COUNTS (PCUs)

FIGURE 3.1

Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane

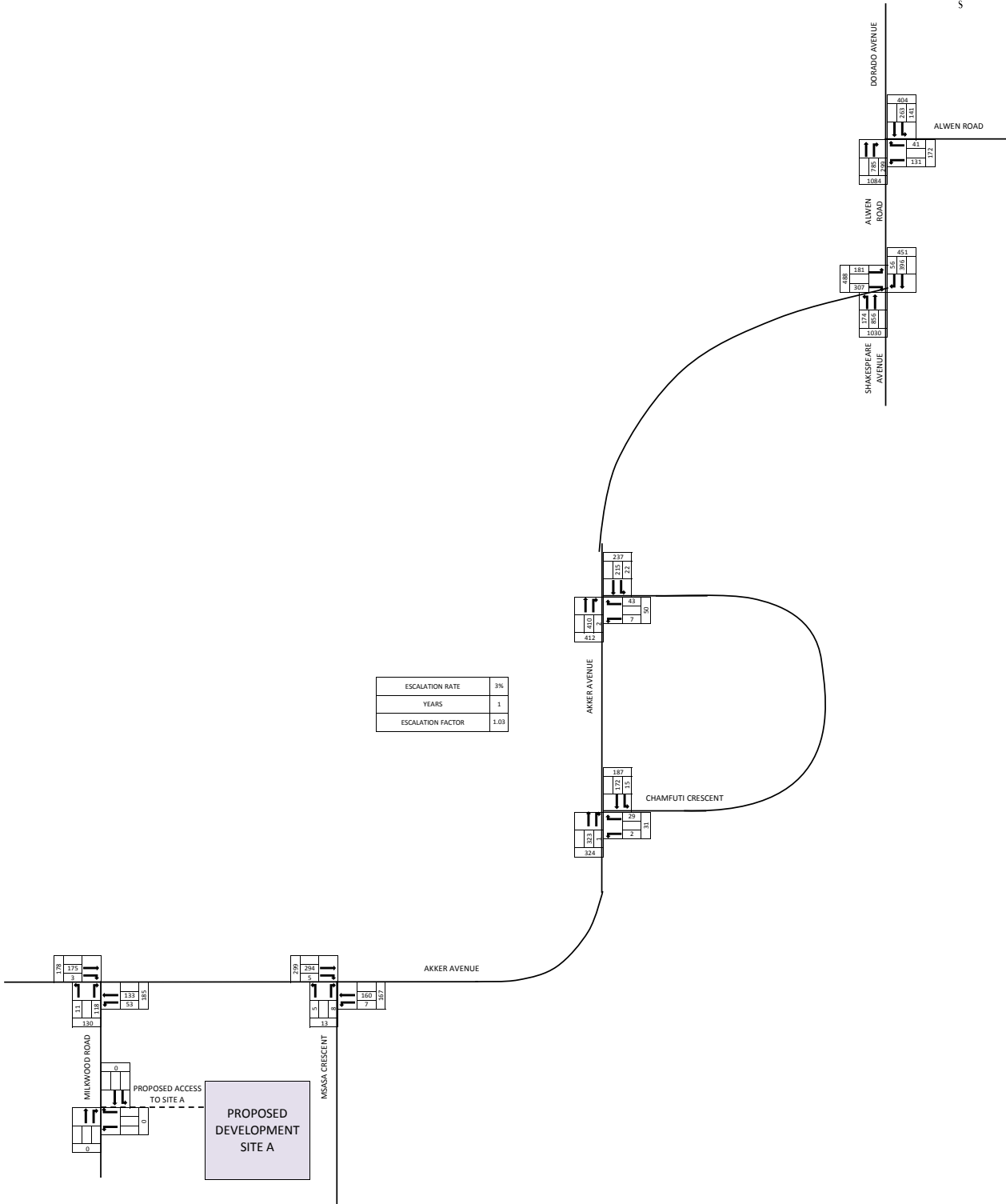


2016 WEEKDAY AFTERNOON PEAK HOUR TRAFFIC COUNTS (PCUs)

FIGURE 3.2



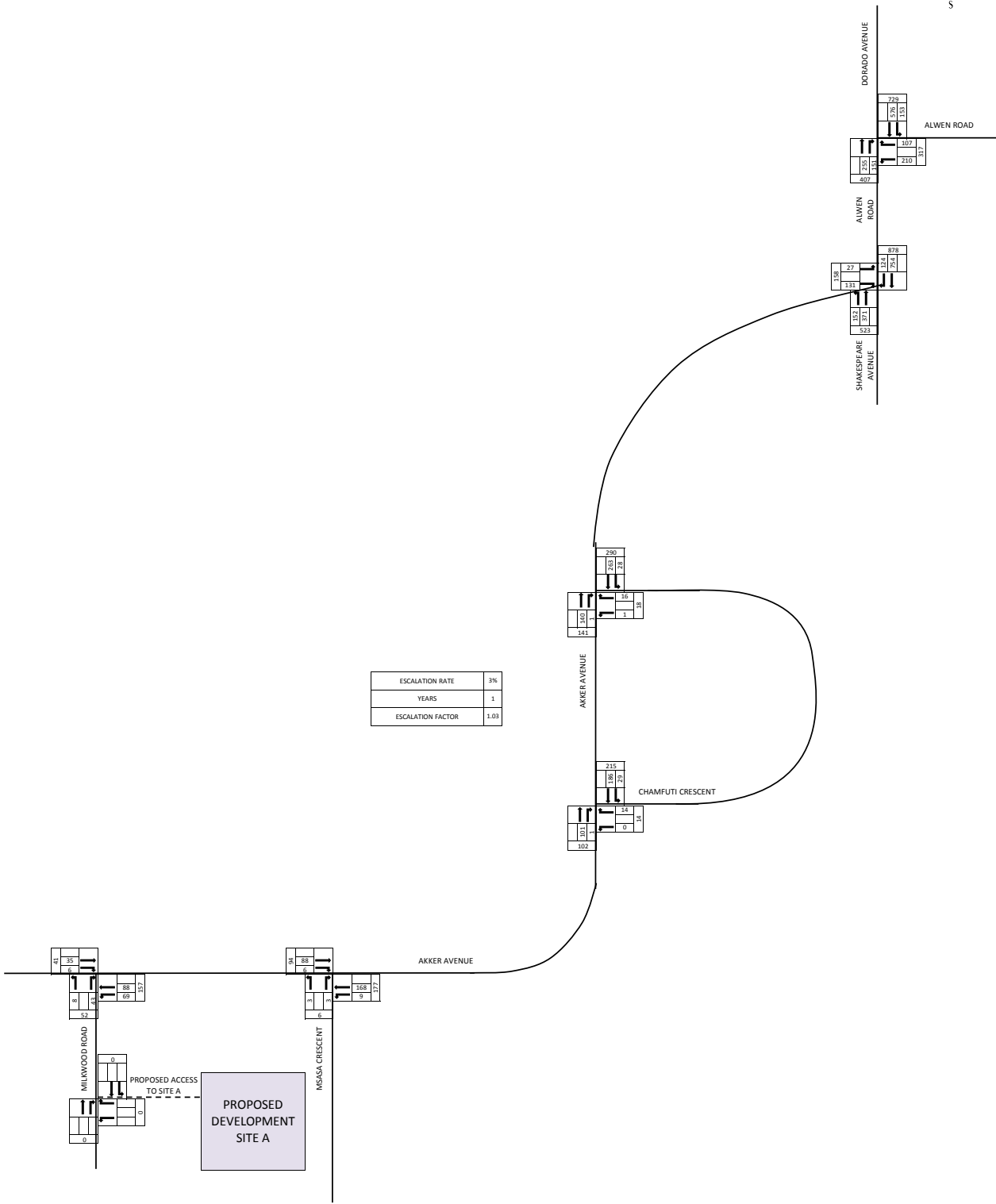
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 Date 2016/11/21 09:03
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2017 WEEKDAY MORNING PEAK HOUR TRAFFIC VOLUMES

FIGURE 3.3

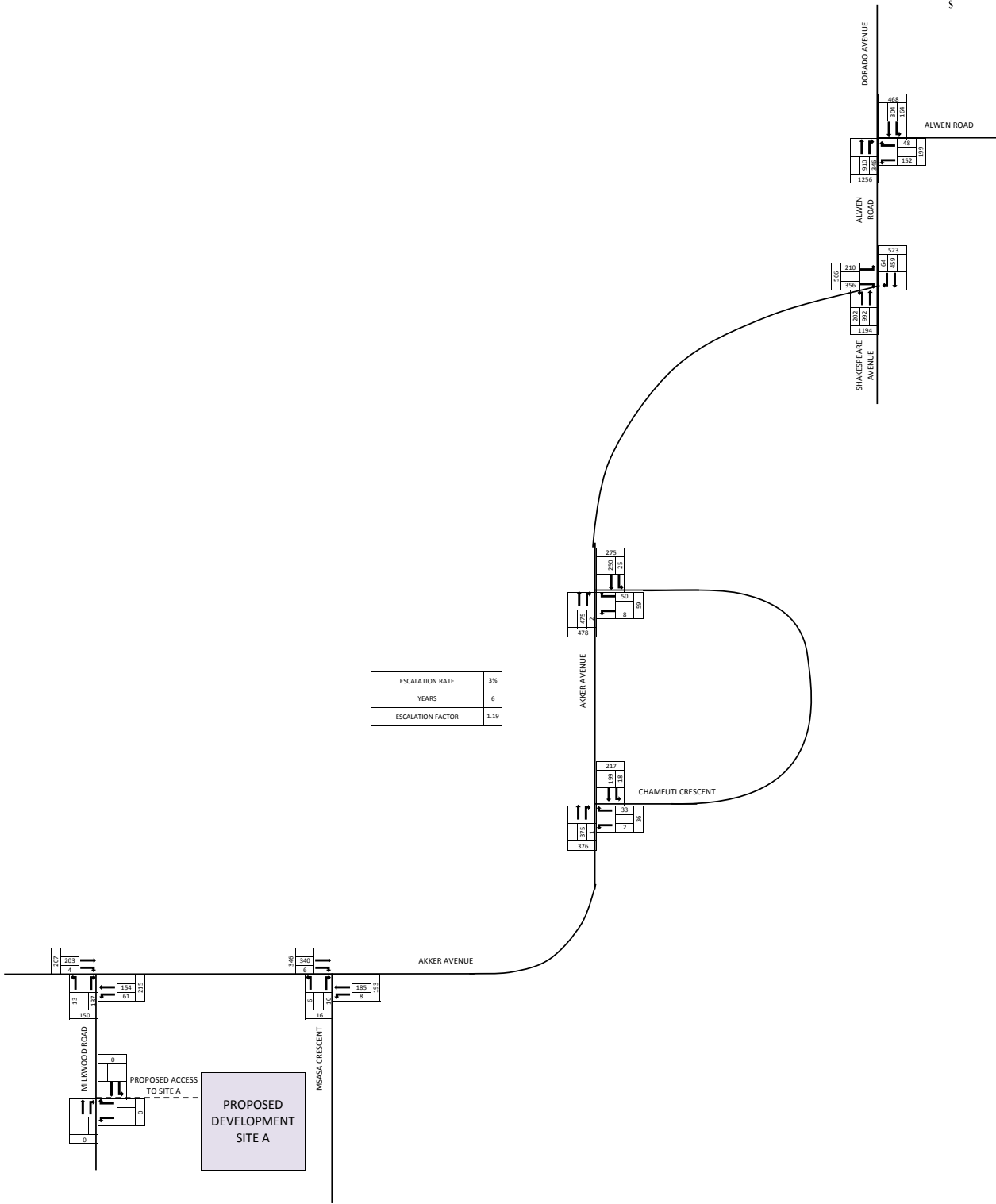
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2017 WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES

FIGURE 3.4

Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



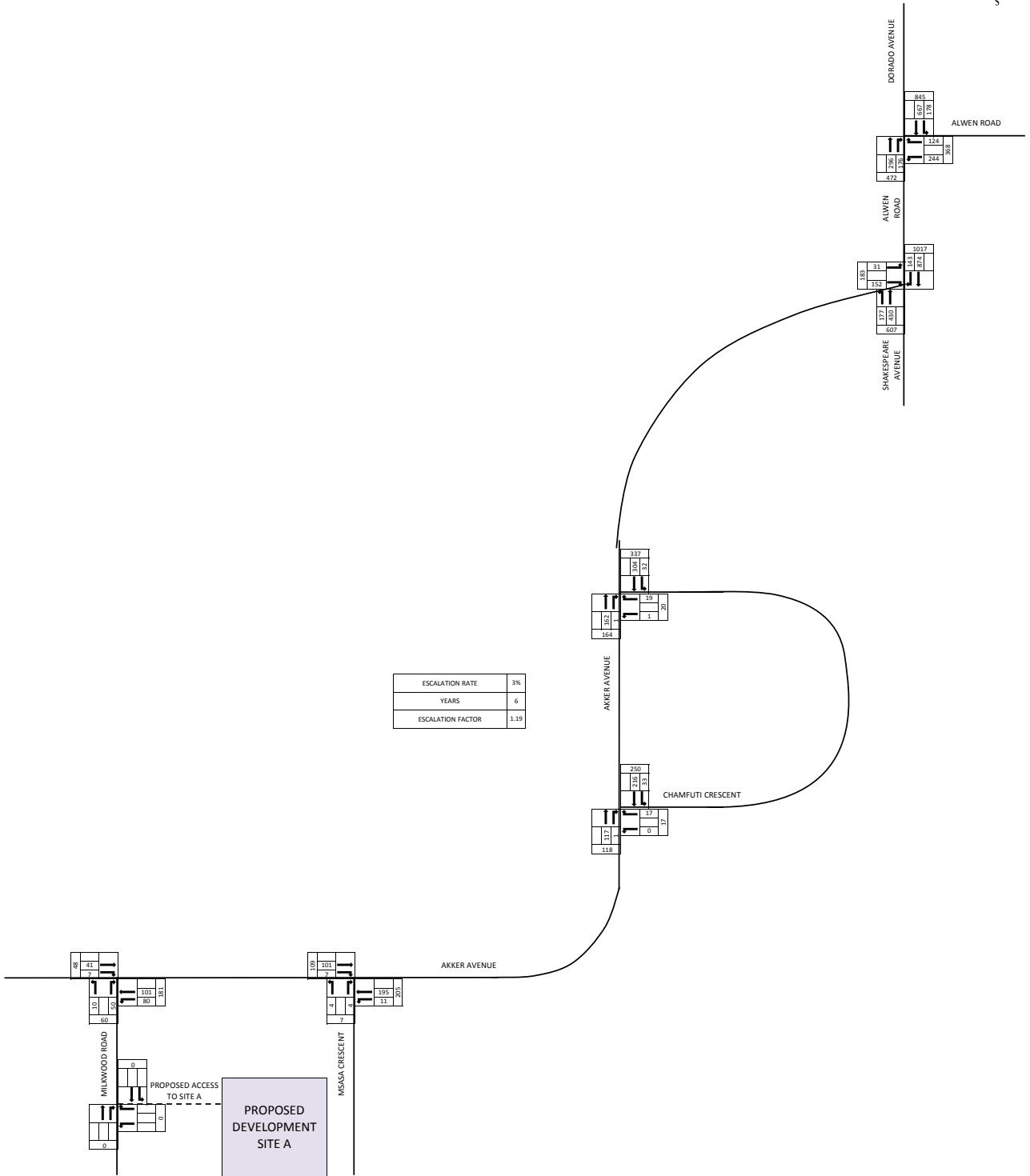
PROPOSED DEVELOPMENT SITE A



2022 WEEKDAY MORNING PEAK HOUR TRAFFIC VOLUMES

FIGURE 3.5

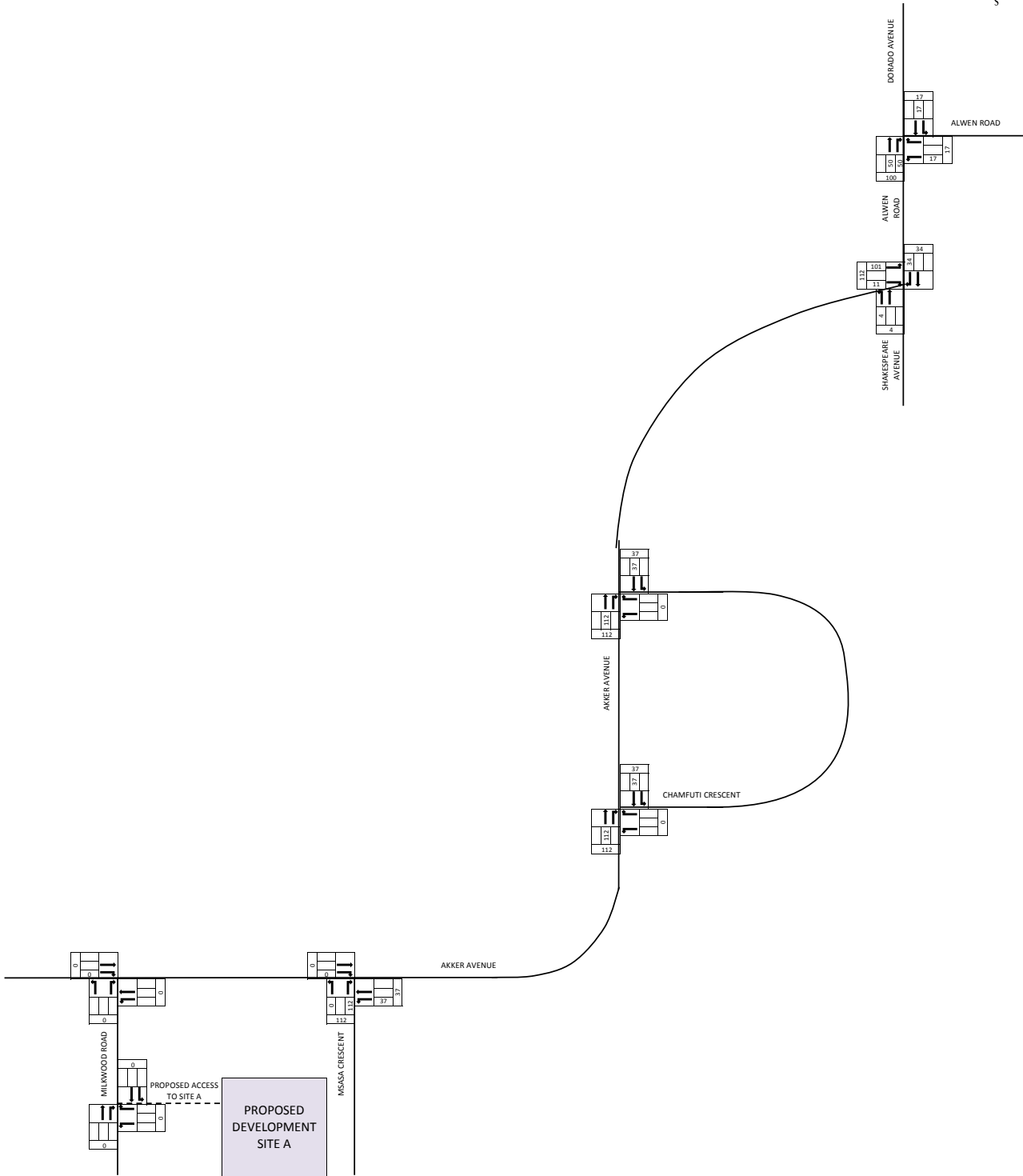
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2022 WEEKDAY AFTERNOON PEAK HOUR TRAFFIC VOLUMES

FIGURE 3.6

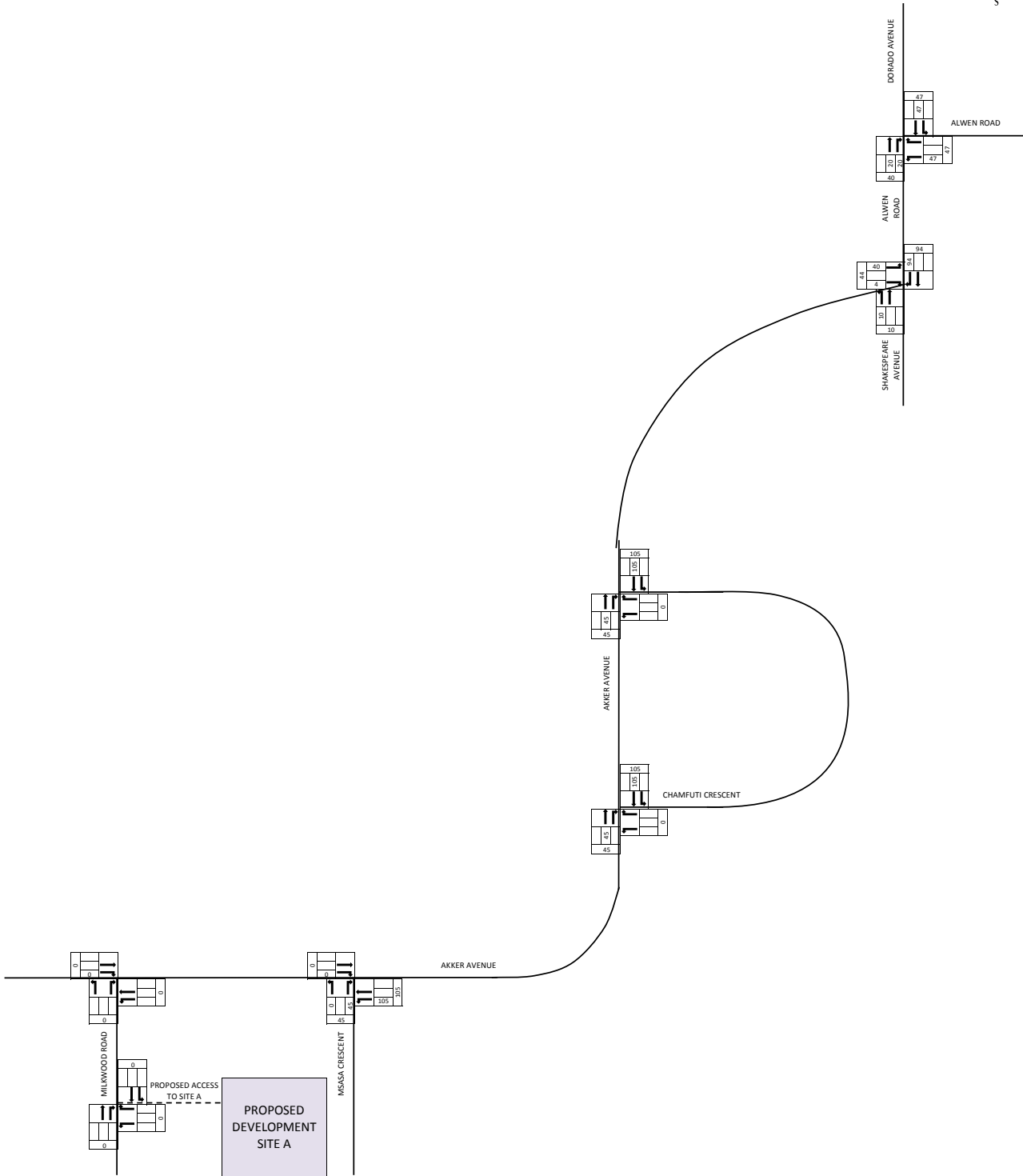
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



WEEKDAY MORNING PEAK HOUR LATENT TRIPS FOR ERVEN 962 AND 963, ORMONDE EXTENSION 22

FIGURE 3.7

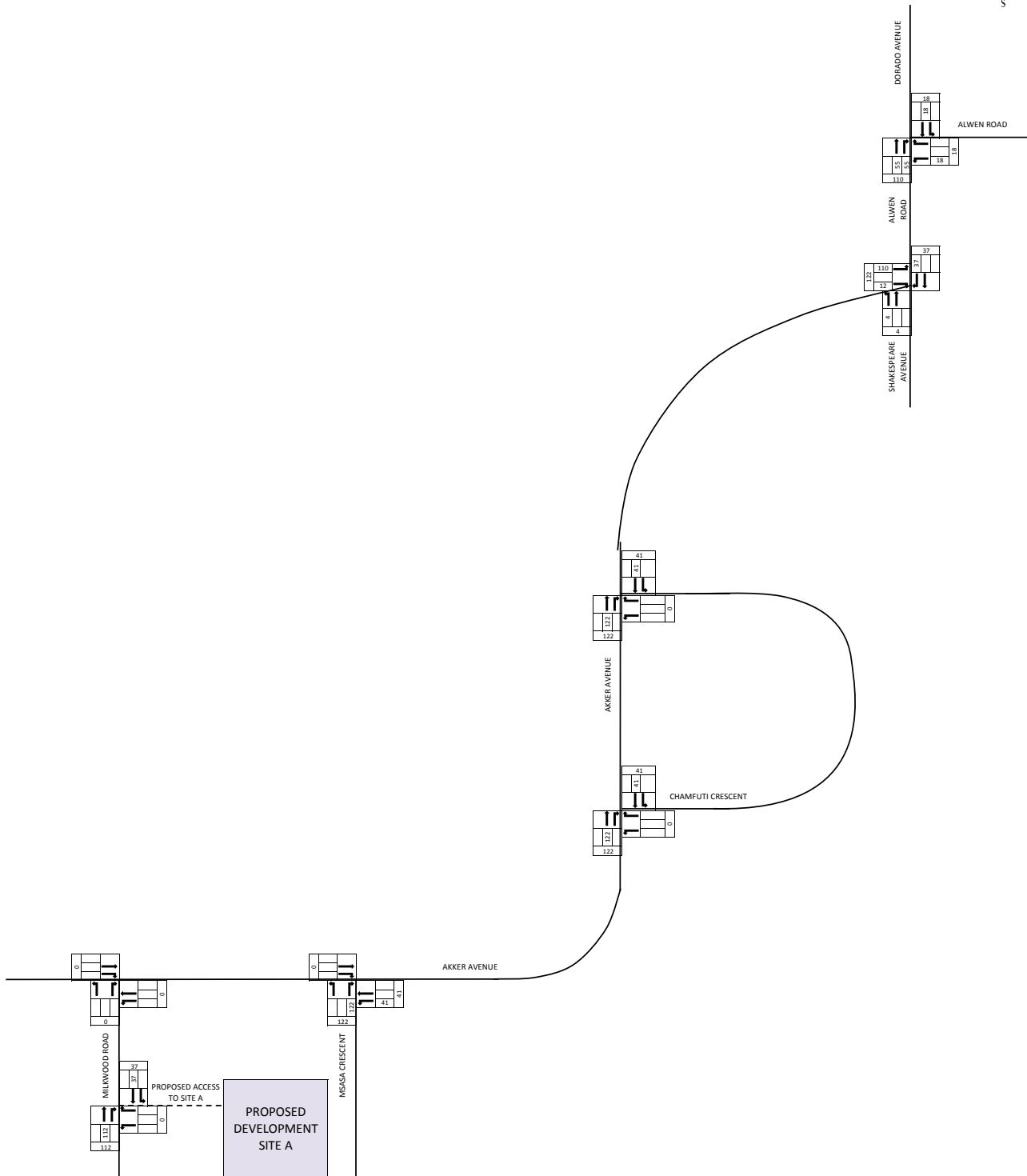
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



WEEKDAY AFTERNOON PEAK HOUR LATENT TRIPS FOR ERVEN
 962 AND 963, ORMONDE EXTENSION 22

FIGURE 3.8

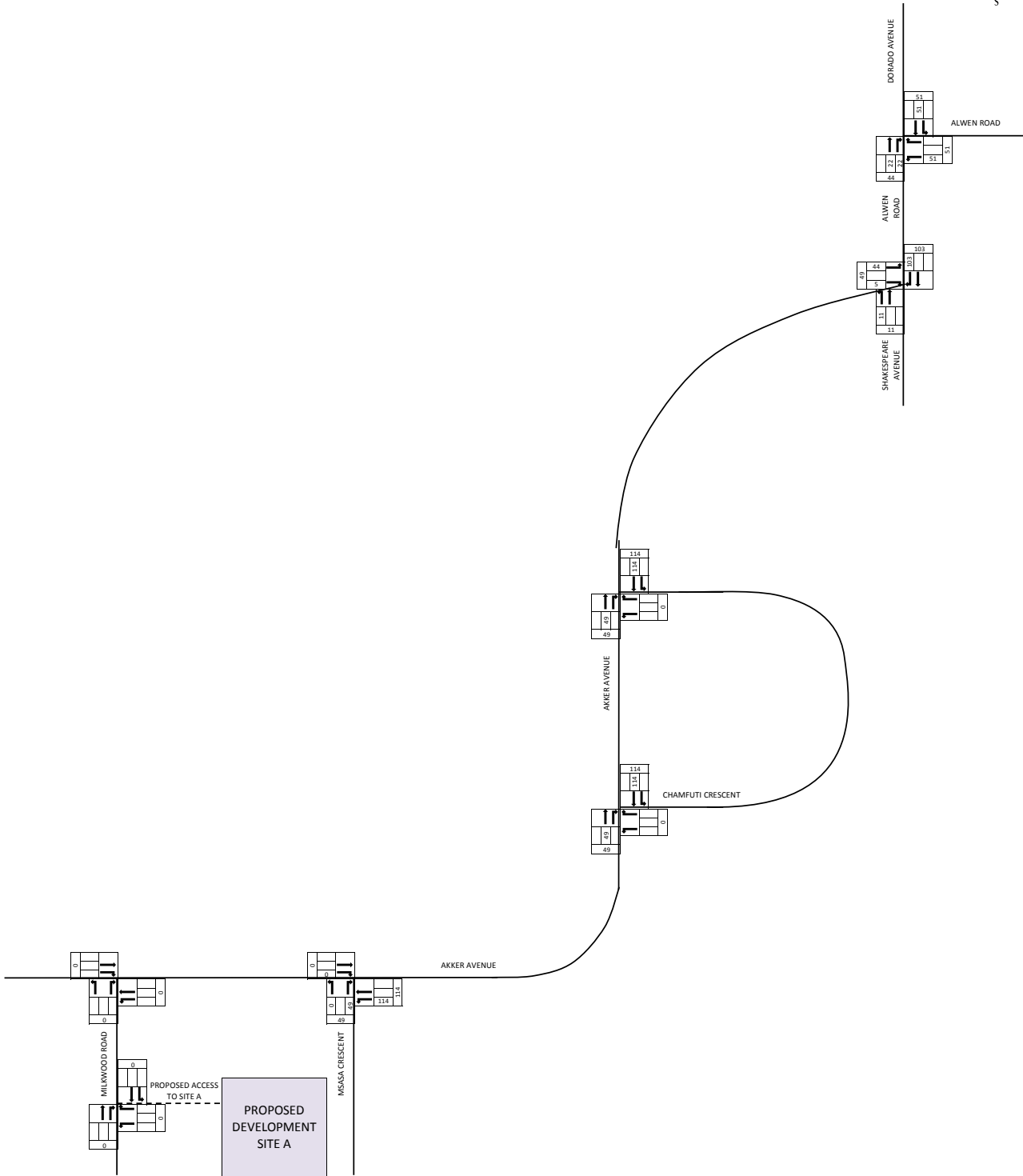
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 Job Description: Ormonde - Site A
 Date: 2016/11/21 09:03
 Done by: TP Mponshane



WEEKDAY MORNING PEAK HOUR LATENT TRIPS FOR ERVEN 1010 AND 1011, ORMONDE EXTENSION 22

FIGURE 3.9

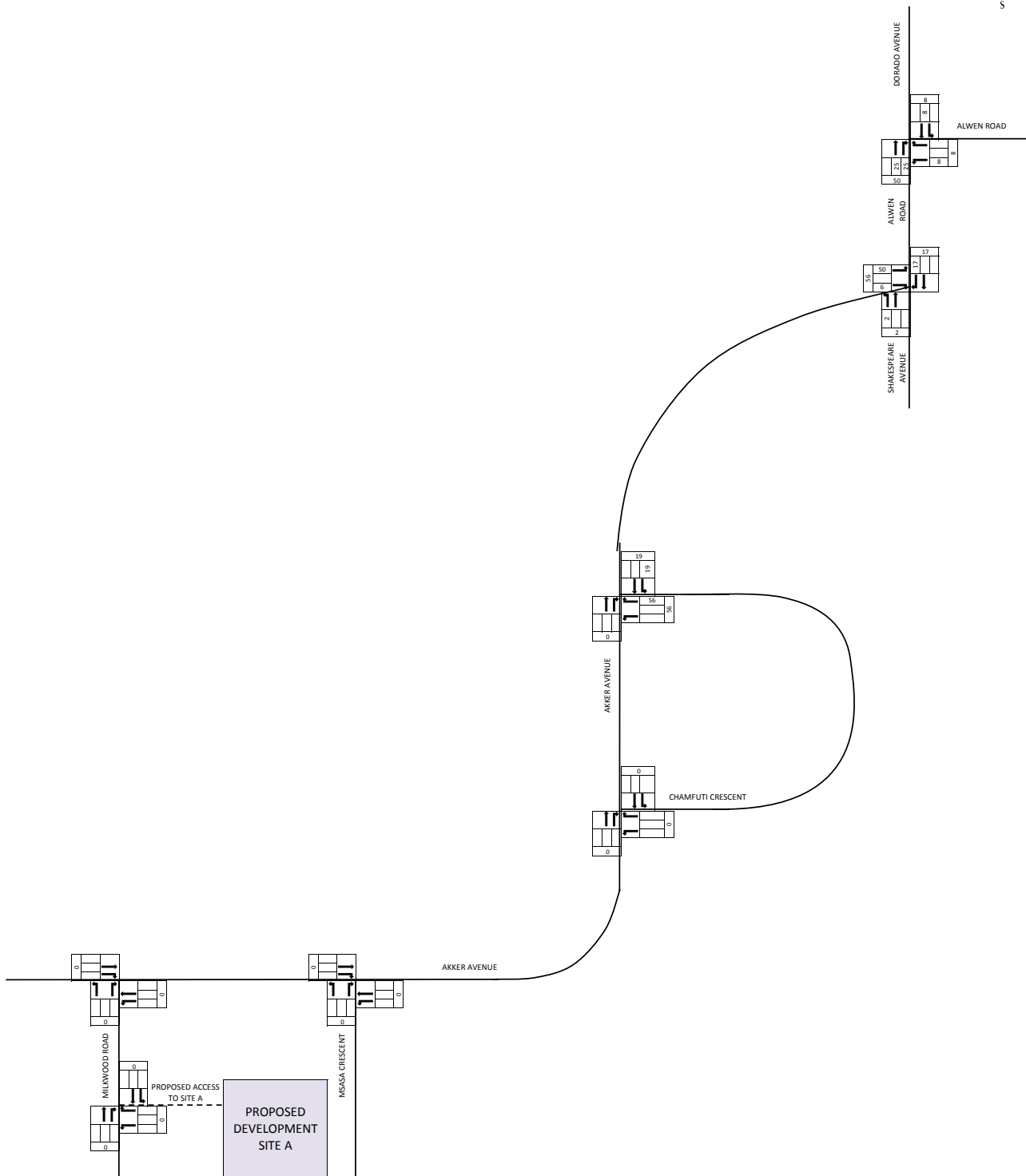
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



**WEEKDAY AFTERNOON PEAK HOUR LATENT TRIPS FOR ERVEN
 1010 AND 1011, ORMONDE EXTENSION 22**

FIGURE 3.10

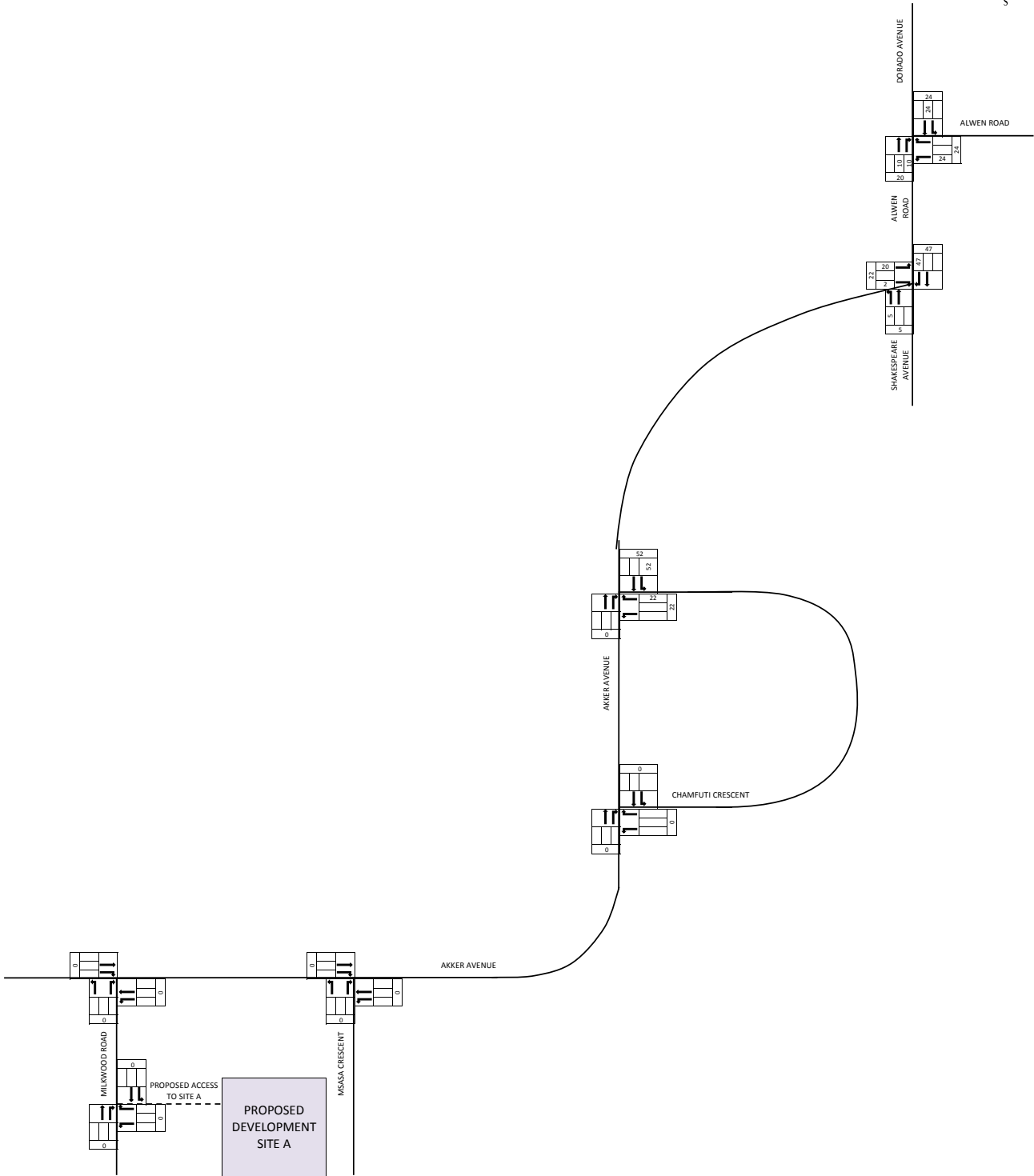
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 Date: 2016/11/21 09:03
 Done by: TP Mponshane



WEEKDAY MORNING PEAK HOUR LATENT TRIPS FOR ERF 982,
 ORMONDE EXTENSION 22

FIGURE 3.11

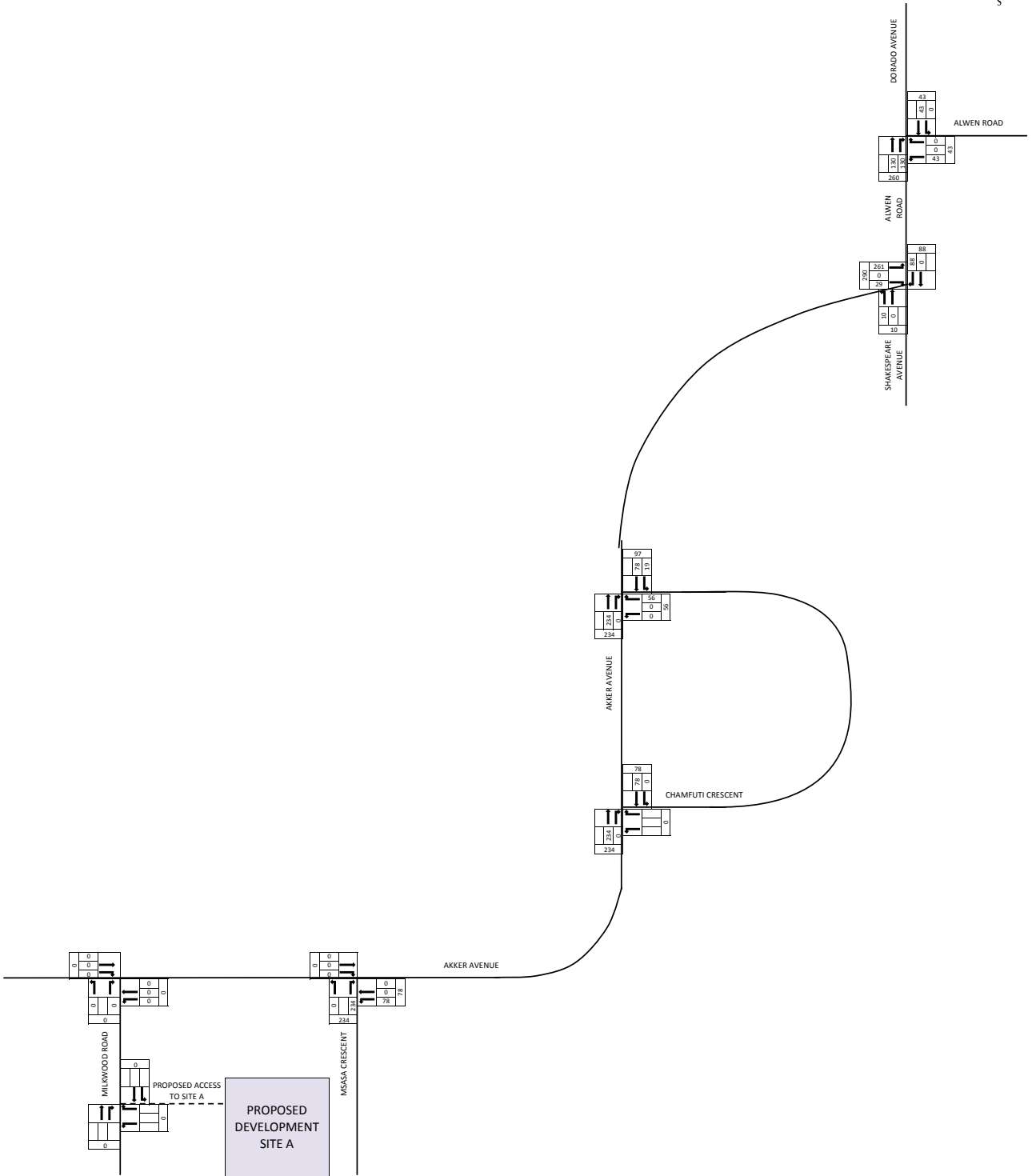
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 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mpotshane



WEEKDAY AFTERNOON PEAK HOUR LATENT TRIPS FOR ERF 982,
 ORMONDE EXTENSION 22

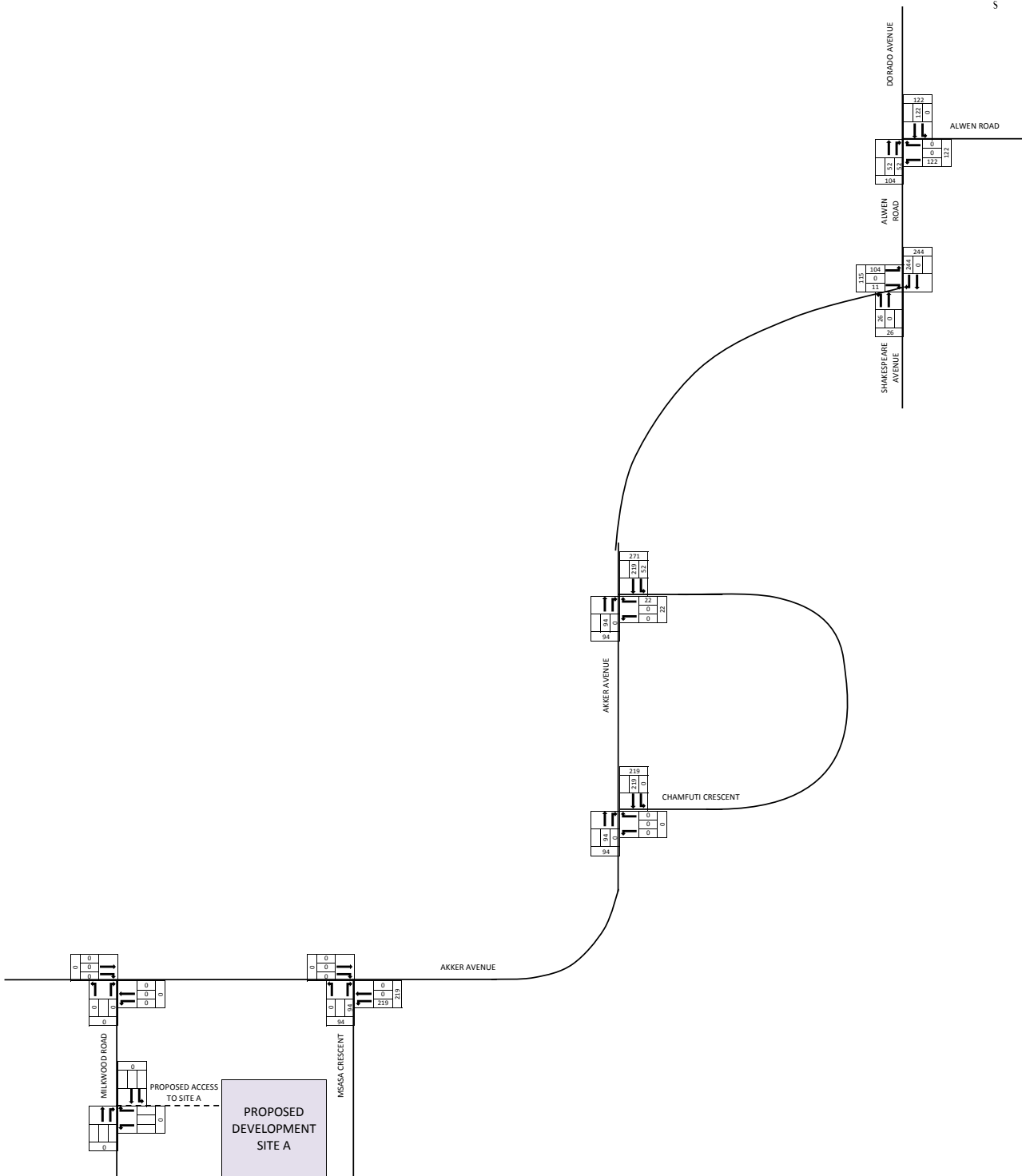
FIGURE 3.12

Project Number: C2284
 Job Description: Ormonde - Site A
 Date: 2016/11/21 09:03
 Done by: TP Mponshane



WEEKDAY MORNING PEAK HOUR TOTAL LATENT TRIPS
 ORMONDE EXTENSION 22

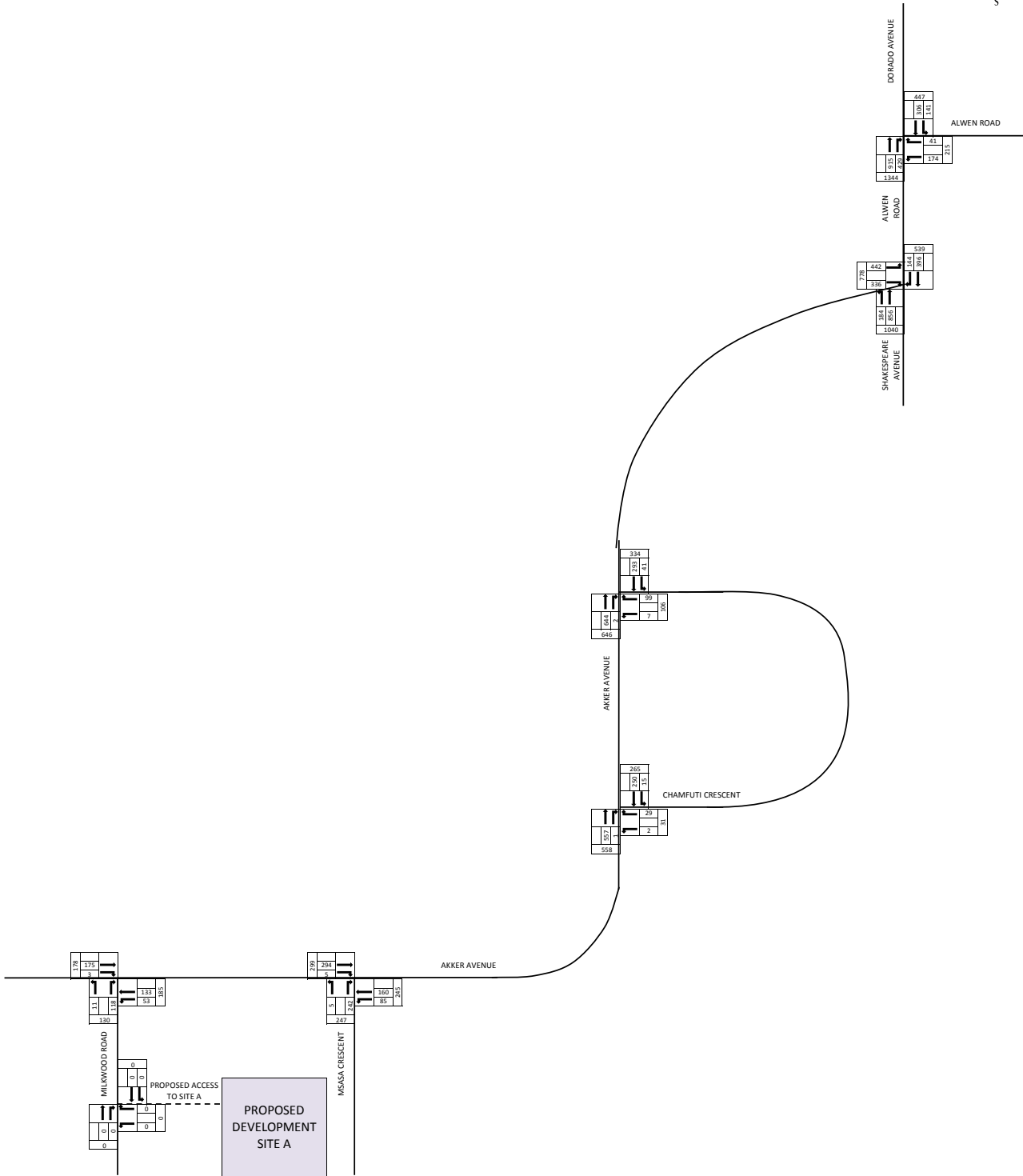
FIGURE 3.13



**WEEKDAY AFTERNOON PEAK HOUR TOTAL LATENT TRIPS FOR
 ORMONDE EXTENSION 22**

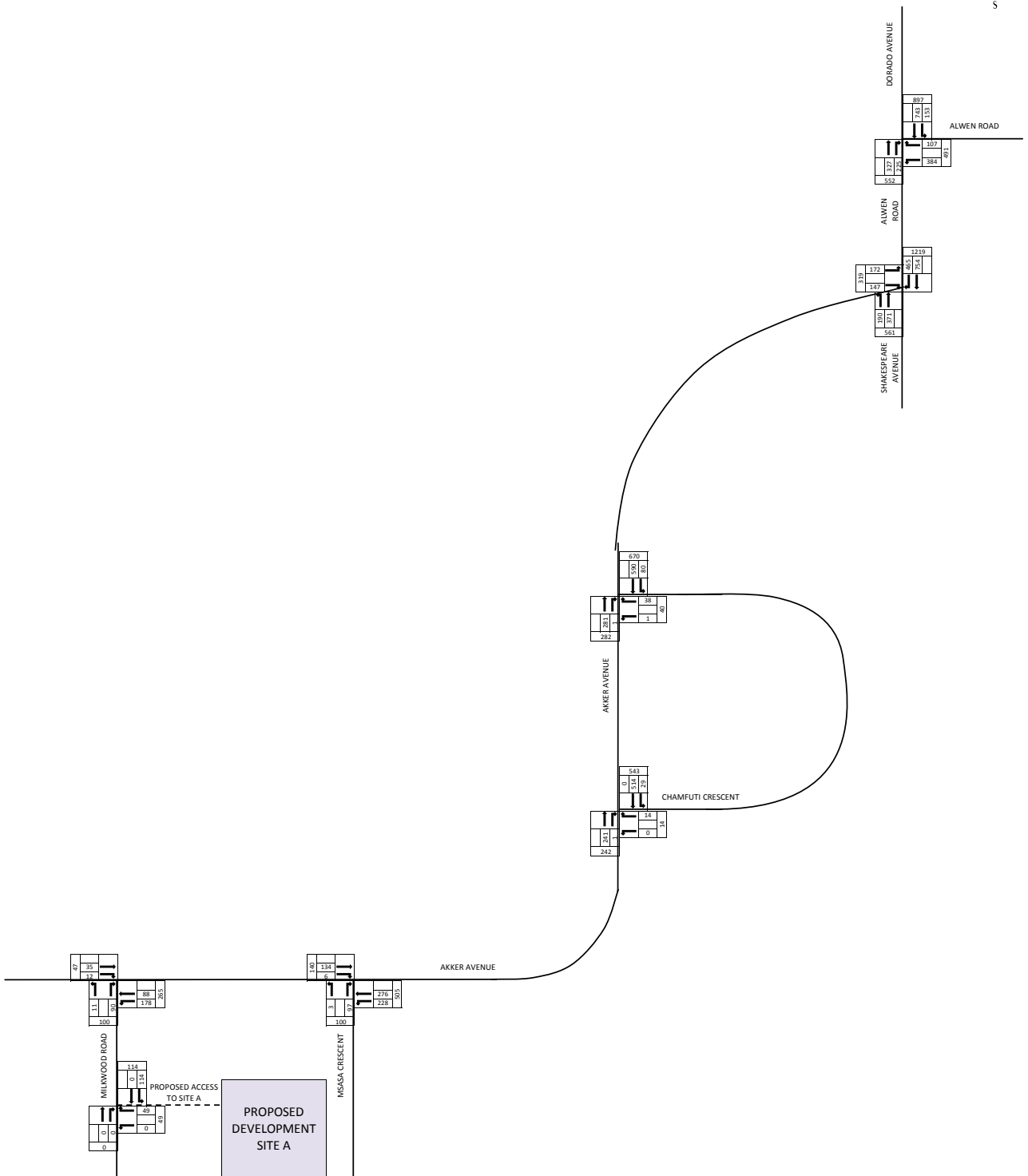
FIGURE 3.14

Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane

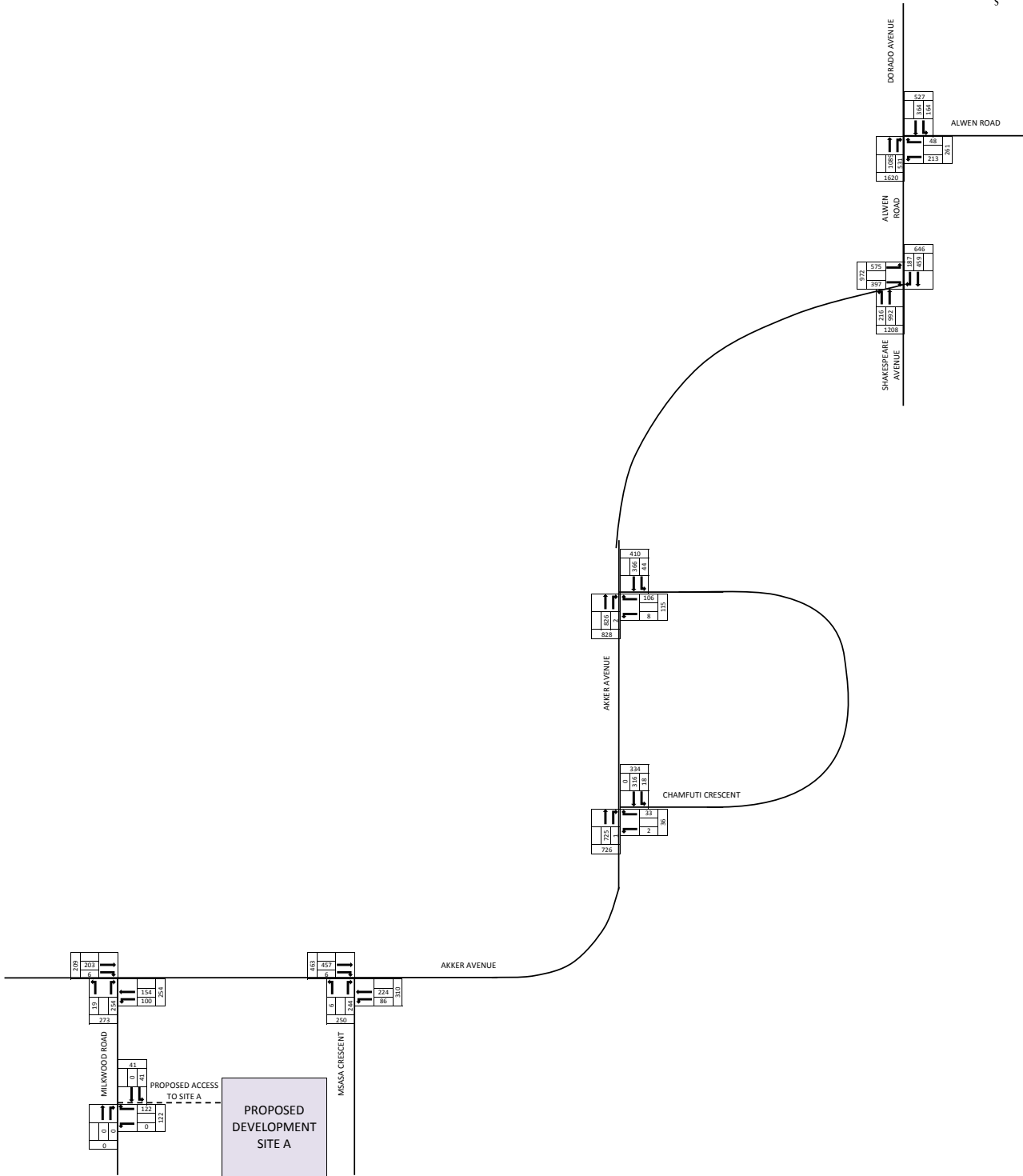


2017 WEEKDAY MORNING PEAK HOUR BACKGROUND TRAFFIC VOLUMES

FIGURE 3.15



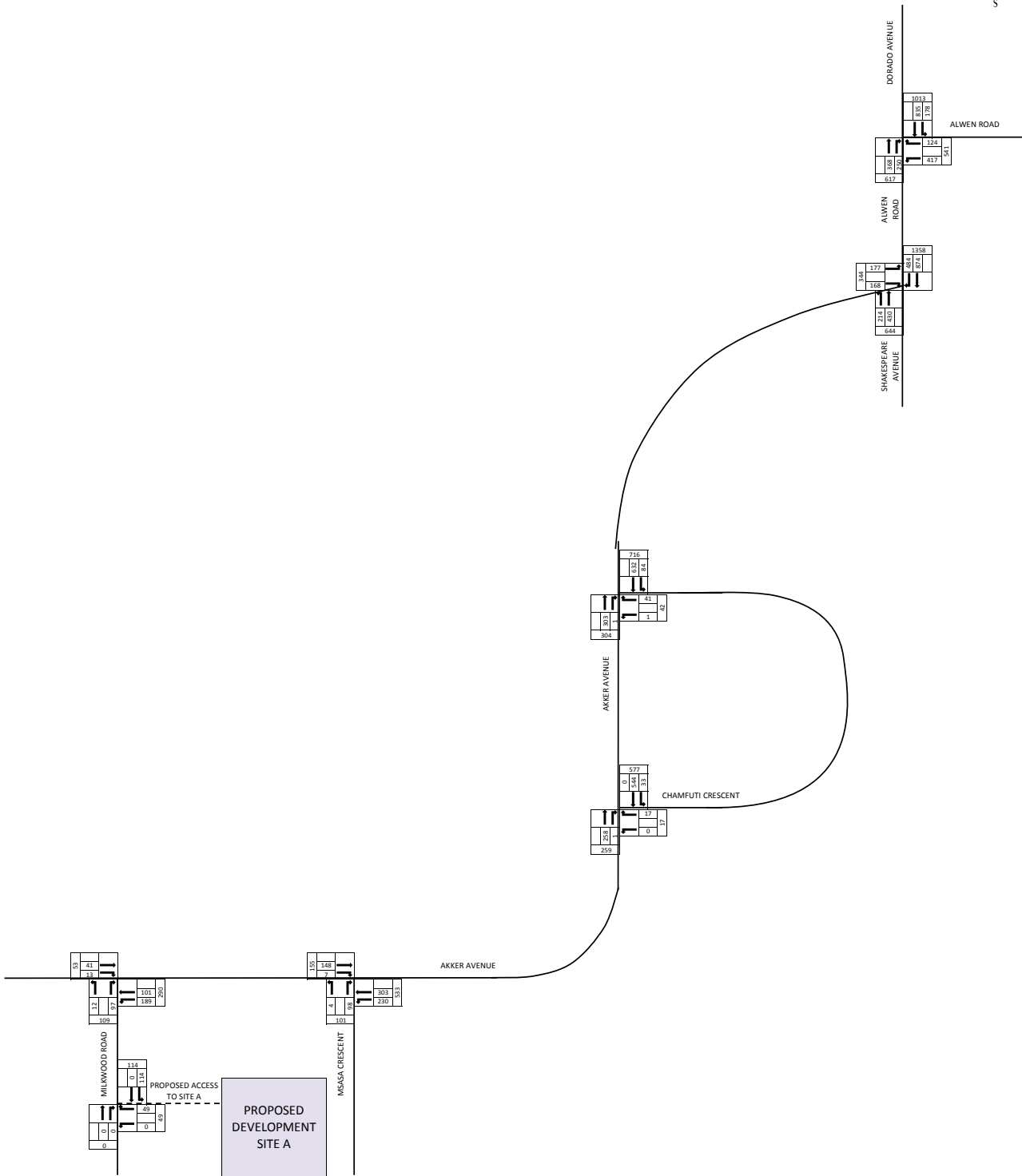
Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2022 WEEKDAY MORNING PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

FIGURE 3.21

Project Number C2284
 Job Description Ormonde - Site A
 Date 2016/11/21 09:03
 Done by TP Mponshane



2022 WEEKDAY AFTERNOON PEAK HOUR BACKGROUND AND DEVELOPMENT TRAFFIC VOLUMES

FIGURE 3.22



Kale Developments (Pty) Ltd

C2284/01TIA

**Proposed Residential Development on Erven 962 and
963, Ormonde Extension 22 in Johannesburg**

Traffic Impact Assessment

November 2016



CIVIL CONCEPTS CONSULTING ENGINEERS, Civil Concepts (Pty) Ltd, 50, 15th Street, Menlo Park (Chr. 17th Street & Justice Mahomed (Charles) Street), PO Box 36148, Menlo Park, 0102. Tel: 012 365 1414, Fax: 012 460 0005, Email: mail@civilconcepts.co.za

ROADS

REPORT SHEET

PROJECT TITLE: PROPOSED RESIDENTIAL DEVELOPMENT ON ERVEN 962 AND 963, ORMONDE EXTENSION 22 IN JOHANNESBURG

TRAFFIC IMPACT ASSESSMENT

PREPARED FOR: KALE DEVELOPMENTS (PTY) LTD

PREPARED BY: CIVIL CONCEPTS (PTY) LTD

PROJECT TEAM: MM GOUNDEN TRAFFIC ENGINEER

JJ POTGIETER TRAFFIC ENGINEER

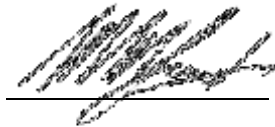
TP MPONTSHANE STUDENT TECHNICIAN

Copy	Date	Done By	Checked	Approved
V1 DRAFT 1	2016/11/10	TP Mpontshane & JJ Potgieter	JJ Potgieter	MM Gounden
V1	2016/11/18	TP Mpontshane & JJ Potgieter	JJ Potgieter	MM Gounden
V2				

DECLARATION

I certify that this study has been prepared under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.

Signed:



Name: MM Gounden

Qualification: BSc Eng (Civil)

Registration Number: ECSA 2013 0143



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- Annexure B - Memorandum Application
- Annexure C - Capacity Calculation Results
- Annexure D - Existing Traffic Signal Timing Plans obtained from JRA
- Annexure E - Traffic Signal Phasings and Timings
- Annexure F - Storage Lane Calculations
- Annexure G - Proposed Road Upgrades Layout Plans for Erven 962 and 963
- Annexure H - Ultimate Proposed Road Upgrades Layout Plans of all Four Sites
- Annexure I - Cost Estimates of the Proposed Upgrades

EXECUTIVE SUMMARY

A residential development is proposed on Erven 962 and 963, Ormonde Extension 22, to be located in the south-western part of the City of Johannesburg Metropolitan Municipality (CoJ) comprising of **176** "Residential 3" dwelling units.

The developer has three (3) other development sites in the close proximity of Erven 962 and 963 and form part of the study area. The developer might construct any of the development sites before Erven 962 and 963. Civil Concepts (Pty) Ltd prepared separate traffic studies for each site (three (3) other development sites):

- A residential development on Erven 1010 and 1011;
- A residential development on Erf 982; and
- A residential development on Erven 1130 and 1131.

The Traffic Impact Assessment of Erven 962 and 963 was prepared first. Erven 962 and 963 development site will contribute towards the ultimate road upgrades proposed (refer to **ANNEXURE H** for the ultimate proposed road upgrades layout plans of all four (4) sites).

The road upgrades proposed to accommodate only Erven 962 and 963 are addressed and shown in this report.

This Traffic Impact Assessment (TIA) has been prepared to determine the impact of the development trips on the surrounding road network. This study is prepared in accordance with the Committee of Transport Officials (COTO) TMH17 – Trip Data Manual, COTO TMH16 – Traffic Impact and Site Traffic Assessment Standards and Requirements Manual, Department of Transport's Manual for Traffic Impact Studies (Document RR 93/635), COTO TRH26 – South African Road Classification and Access Management Manual and Requirements Manual and the 2010 Highway Capacity Manual.

The development will generate **150** trips during both the weekday morning and afternoon peak hours, respectively.

The base year (2017) and horizon year (2022) are analysed as part of this study, respectively.

No information on latent rights was received from the local municipality. A 3% annual growth rate was used to escalate the traffic counts (PCUs) to account for any unknown

latent rights and account for general growth in traffic within the vicinity of the proposed development site.

Six (6) junctions were analysed in this study using the SIDRA 5.0 and Auto J Intersection software programs. The following junctions were analysed:

- Dorado Avenue / Alwen Road;
- Akker Avenue / Alwen Road / Shakespeare Avenue;
- Akker Avenue / Chamfuti Crescent North;
- Akker Avenue / Chamfuti Crescent South;
- Akker Avenue / Msasa Crescent; and
- Akker Avenue / Proposed Access.

Five (5) of the six (6) junctions analysed will operate satisfactorily during the 2017 and 2022 weekday morning and afternoon peak hour background with development traffic scenario with the proposed road upgrades in place as shown in **Section 9** of this report.

Akker Avenue / Alwen Road / Shakespeare Avenue junction will experience capacity problems during the 2022 weekday morning peak hour background with development traffic scenario with the proposed road upgrades in place. It will however operate better when compared to the 2022 weekday morning peak hour background traffic scenario.

The proposed road upgrades are for the developer's account.

No public transport facilities are proposed.

Pedestrian walkways have to be provided along the site frontage by the developer to the satisfaction of the Johannesburg Road Agency (JRA) and CoJ.

1. INTRODUCTION

1.1 Background

Civil Concepts (Pty) Ltd was appointed by Kale Developments (Pty) Ltd to prepare a Traffic Impact Assessment (TIA) in support of a proposed residential development on Erven 962 and 963, Ormonde Extension 22 in Johannesburg.

The proposed development will consist of **176** "Residential 3" dwelling units.

The developer has three (3) other development sites in the close proximity of Erven 962 and 963 and form part of the study area. The developer might construct any of the following development sites (three (3) sites) before Erven 962 and 963:

- A residential development on Erven 1010 and 1011;
- A residential development on Erf 982; and
- A residential development on Erven 1130 and 1131.

The Traffic Impact Assessment of Erven 962 and 963 was prepared first.

The site is located to the south of Akker Avenue and it is bordered by Msasa Crescent along the eastern boundary in Ormonde as shown in Figure 1.1.

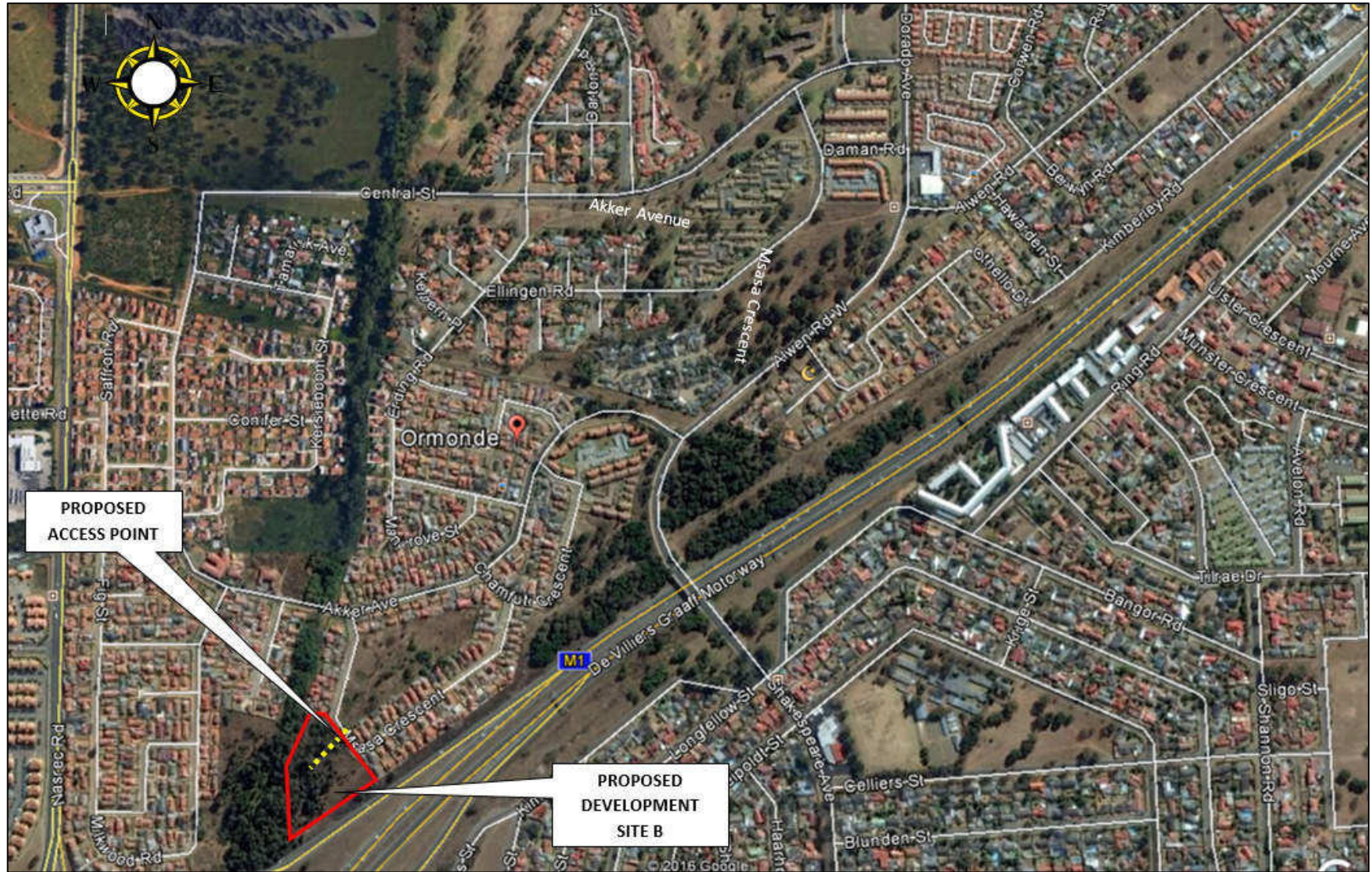


Figure 1.1: Locality Plan

The objective of this study is to determine the impact of the development trips on the adjacent road network. The land use rights and trip generation are described first. This is followed by a description of the existing and proposed traffic volumes and the road network. The traffic operations at the junctions are calculated and upgrading proposals are made. Conclusions and recommendations are made at the end of the report.

1.2 Definitions

The following definitions from the 2010 Highway Capacity Manual are applicable to this report:

Level of Service (LOS)

Level of Service is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. The levels of Service for junctions as defined in the 2010 Highway Capacity Manual are shown in Table 1.1.

TABLE 1.1: LEVEL OF SERVICE DEFINITIONS

Level of Service	Control delay per vehicle (s/veh)	
	Signalised junctions	Unsignalised junctions
A	< 10	< 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

Capacity

The maximum hourly rate at which vehicles can reasonably be expected to traverse a lane or roadway during a given period under prevailing roadway, traffic and control conditions.

Volume

The hourly rate (v/h), the actual flow rate for an approach or lane.

Volume to capacity ratio (V/C)

The ratio of flow to capacity.

1.3 Time Horizon

The base year (2017) and horizon year (2022) are analysed as part of this study.

The weekday morning and afternoon peak hours are analysed.

1.4 Determination of Road Upgrading

The Department of Transport's Manual for Traffic Impact Studies (Document RR 93/635) states:

"The recommended criteria that should be used to measure the level of upgrading/improvement required, is the LOS and the v/c ratio.

In urban areas it is recommended that either of the following two LOS be used to determine whether an intersection should be upgraded, on condition that the contribution of the proposed development is at least 2% of the sum of the critical volume on a lane basis of the intersection assessed:

All elements of an intersection should operate at LOS D or better and a v/c ratio less than 0.95 during the peak hour of the roadway system.

In areas where the baseline LOS is E or worse, or the v/c ratio is greater than 0.95, this baseline (i.e. prior to development) LOS must be maintained or improved for the situation with the development included. The baseline LOS includes all committed (funded) road improvements and all non-site traffic (including existing site traffic) but exclude the additional traffic that will be generated by the proposed development.

It should, however, be debated whether an application should be approved if the baseline LOS is E or worse and it is not practical to upgrade the intersection any further. Engineering judgement should further be used in the case of the LOS of specifically right turning movements across high opposing traffic volumes at signalised intersections, due to the number of vehicles that are turning during the intergreen period / typically between 1 to 4 vehicles per cycle, depending on the intersection layout. It is not realistic to upgrade an intersection if a small number of right turning vehicles experience a LOS E or F. The same is also true if a level of service E/F is experienced by a small number of vehicles entering a major road from a minor road.

The determination of the necessary upgrading and improvement to the road infrastructure needs to be determined for the "with" and "without-development" scenarios for the opening year and the horizon years(s). The following procedure should be followed to determine the necessary road upgrading:

Calculate the LOS, v/c ratios and the site traffic as a percentage of the critical flows at the intersection for every scenario.

If the LOS is worse than LOS D for the with-development scenario but not for the without-development scenario, the developer is responsible for all the required road upgrading.

If the LOS is worse than D for the with- and without-development scenarios, the developer is only responsible for the incremental upgrading to obtain the same LOS and v/c ratio as for the without-development scenario.”

2. TRIP GENERATION AND ASSIGNMENT

2.1 Introduction

The proposed land use rights of the site are described first. This is followed by the trip generation of the proposed rights. Trip distributions and assignments are then provided.

2.2 Proposed Rights

The proposed land use rights are shown in Table 2.1.

TABLE 2.1: PROPOSED LAND USE RIGHTS

Erven	Land Use	Extent (ha)	Unit/ha	No. Units
962	"Residential 3"	0.5942	110 unit /ha	64
963	"Residential 3"	1.0274		113
Total				176

A copy of the Township Layout Plan is included in **ANNEXURE A**.

The memorandum concerning the proposed Erven 962 and 963, Ormonde Extension 22 as per the CoJ Town-Planning Scheme are included in **ANNEXURE B**.

2.3 Trip Generation

2.3.1 Introduction

The trip rates prescribed in the Committee of Transport Officials' (COTO) TMH 17 - Trip Data Manual, Version 1.0 (dated September 2013) were used to calculate the development trips.

No trip reductions were considered in this study.

The weekday morning and afternoon peak hours were analysed.

2.3.2 Trip Generation

The weekday morning and afternoon peak hour trip generations are shown in Tables 2.2 and 2.3, respectively.

TABLE 2.2: WEEKDAY MORNING PEAK HOUR TRIP GENERATION

Land Use	Extent	Trip Rate / Unit	Directional Split		Trips		
			In	Out	In	Out	Total
"Residential 3"	176 Units	0.85	25%	75%	37	112	150
TOTAL					37	112	150

TABLE 2.3: WEEKDAY AFTERNOON PEAK HOUR TRIP GENERATION

Land Use	Extent	Trip Rate / Unit	Directional Split		Trips		
			In	Out	In	Out	Total
"Residential 3"	176 Units	0.85	70%	30%	105	45	150
TOTAL					105	45	150

2.4 Trip Distribution and Assignments

The road network, trip distribution, assignment and the development framework information of the study area are shown on schematic diagrams as required in TMH 16 South African Traffic Impact and Site Traffic Assessment Manual, Version 1.0, August 2012 (refer to [Figures 2.1 and 2.2 and 3.1 to 3.10](#) for the schematic diagrams).

The proposed development trips were distributed and assigned to the adjacent road network based on the expected origins and destinations to and from the subject site.

The weekday morning and afternoon peak hour residential development trip distributions and assignments are shown in [Figures 2.1 and 2.2](#), respectively.

3. TRAFFIC AND THE ROAD NETWORK

3.1 Traffic Counts

A weekday morning and afternoon peak hour classified traffic count survey was carried out on 19 October 2016 by Traftsol Data Specialists at the following junctions:

- Dorado Avenue / Alwen Road;
- Akker Avenue / Alwen Road / Shakespeare Avenue;
- Akker Avenue / Chamfuti Crescent North;
- Akker Avenue / Chamfuti Crescent South; and
- Akker Avenue / Msasa Crescent.

The classified traffic counts were converted to Passenger Car Units (PCUs) using the following factors:

- 1 for a car;
- 1.5 for a taxi; and
- 3 for heavies (buses and trucks).

The weekday morning and afternoon peak hour traffic counts (PCUs) are shown in [Figures 3.1 and 3.2](#), respectively.

3.2 Latent Rights

No information on latent rights was received from the local municipality. The traffic counts were therefore escalated at a 3% annual growth rate to account for any unknown latent rights within the vicinity of the proposed development site. The escalated traffic counts (PCUs) were therefore considered as the background traffic volumes.

3.3 Background Traffic

3.3.1 2017 Background Traffic Volumes

The 2016 weekday morning and afternoon peak hour traffic counts (PCUs) were escalated at a 3% annual growth rate over 1 year to obtain the 2017 peak hour background traffic volumes.

The 2017 weekday morning and afternoon peak hour background traffic volumes are shown in [Figures 3.3 and 3.4](#), respectively.

3.3.2 2022 background Traffic Volumes

The 2016 weekday morning and afternoon peak hour traffic counts (PCUs) were escalated at a 3% annual growth rate over 6 years to obtain the 2022 peak background hour traffic volumes.

The 2022 weekday morning and afternoon peak hour background traffic volumes are shown in [Figures 3.5 and 3.6](#), respectively.

3.4 Background and Development Traffic

3.4.1 2017 Background and Development Traffic Volumes

The weekday morning and afternoon peak hour development trips were added to the 2017 background peak hour volumes to obtain the 2017 background and development peak hour traffic volumes.

The 2017 weekday morning and afternoon peak hour background and development traffic volumes are shown in [Figures 3.7 and 3.8](#), respectively.

3.4.2 2022 Background and Development Traffic Volumes

The weekday morning and afternoon peak hour development trips were added to the 2022 background peak hour volumes to obtain the 2022 background and development peak hour traffic volumes.

The 2022 weekday morning and afternoon peak hour background and development volumes are shown in [Figures 3.9 and 3.10](#), respectively.

3.5 Road Network

3.5.1 Existing Road Network – *According to the Gauteng Strategic Major Road Network Master plan and the CoJ Regional Road Master Plan*

- **Shakespeare Avenue** can be assumed to be a class 5b (residential) local street that lies to the north and east of the development site. It runs in a north-south and east-west direction.
- **Alwen Road** can be assumed to be a class 5b (residential) local street that lies to the north of the development site and runs in a north-south direction. It intersects with Shakespeare Avenue and Dorado Avenue to the north-east.

- **Dorado Avenue** can be assumed to be a class 5b (residential) local street that lies to the north of the development site and runs in a north-south direction. This road starts at its intersection with Alwen Road.
- **Akker Avenue** can be assumed to be a class 5b (residential) local street that lies to the north of the development site and runs in an east-west and north-south direction.
- **Chamfuti Crescent** can be assumed to be a class 5b (residential) local street that lies to the north-east of the development.
- **Msasa Crescent** can be assumed to be a class 5b (residential) local street that borders the development site to the east.

3.5.2 Future Road Network

There are no proposed roads within the vicinity of the development site.

3.5.3 Proposed Upgrading of the Road Network

Refer to **Section 9** of this report for the existing and proposed upgraded junction configurations.

4. SITE INVESTIGATION

A site visit was done on 19 October 2016 to determine the existing lane configurations of the junctions analysed in this study and to observe the existing traffic operations. Refer to [Figures 4.1 to 4.4](#) below.

- **Dorado Avenue / Alwen Road**



Figure 4.2: Dorado Avenue / Alwen Road junction configuration

The junction is priority controlled. There are no pedestrian crossings or walkways at this junction which creates an unsafe hazard for pedestrians. The road surface is in good condition and road markings are visible at all approaches to the junction.

- **Akker Avenue / Alwen Road / Shakespeare Avenue**



Figure 4.1: Akker Avenue / Alwen Road / Shakespeare Avenue configuration

The junction is signalised. There are no pedestrian crossings on all approaches. There are existing pedestrian walkways along the western side of Alwen Road at this junction.

The road surface is in good condition and road markings are visible at all approaches to the junction.

- **Akker Avenue / Chamfuti Crescent North and South**



Figure 4.3: Akker Avenue / Chamfuti Crescent North and South configurations

The junctions are priority controlled. There are no pedestrian walkways at both junctions but there is a visible pedestrian crossing sign at the Chamfuti Crescent South junction. The road surface is in good condition and road markings are visible at all approaches to the junction.

- **Akker Avenue / Msasa Crescent**



Figure 4.4: Akker Avenue / Msasa Crescent junction configuration

The junction is priority controlled. There are no pedestrian walkways at the junction which creates an unsafe hazard for pedestrians. The road surface is in good condition and road markings are visible at all approaches to the junction.

5. TRAFFIC OPERATIONS

5.1 Introduction

The SIDRA Intersection 5.0 software program was used for the capacity analysis of the following junctions:

- Akker Avenue / Alwen Road / Shakespeare Avenue;
- Akker Avenue / Chamfuti Crescent North;
- Akker Avenue / Chamfuti Crescent South;
- Akker Avenue / Msasa Crescent; and
- Msasa Crescent / Proposed Access.

The Auto J software program was used for the Dorado Avenue / Alwen Road junction to improve its level of operation.

The average capacity results per junction are given in this section, however in accordance with Section 3.3.2 of the TMH16 Volume 2 – South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (Version 1.0, August 2012) as published by the Committee of Transport Officials (COTO), detailed capacity analysis results for all individual movements of the junctions are provided in ANNEXURE C of this report.

The pedestrian clearance times were checked at the signalised junction.

5.2 Background Traffic

5.2.1 2017 Background Traffic

The existing traffic signal timing plans of the Akker Avenue / Alwen Road / Shakespeare Avenue junction were obtained from Johan Wilken of the JRA on 31 October 2016 (refer to **ANNEXURE D** for the existing timing plans).

The existing signal timings are shown in Table 5.1.

Detailed phasings and timings of the traffic signals are included in **ANNEXURE E**.

TABLE 5.1 2017 BACKGROUND TRAFFIC PEAK HOUR EXISTING SIGNAL TIMINGS

SIGNALISED JUNCTION	PEAK HOUR	SIGNAL TIMINGS (SEC)												CYCLE LENGTH
		PHASE A			PHASE B			PHASE C			PHASE D			
		G	A	R	G	G	G	G	A	R	G	A	R	
Akker Avenue / Alwen Road / Shakespeare Avenue	AM	53	3	2	17	32	-	-	-	-	-	-	-	80 sec
	PM	38	3	2	10	3	2	7	3	2	-	-	-	70 sec

Legend: G = Green,
 A= Amber,
 R = Red

The average capacity calculation results are shown in Table 5.2.

Detailed capacity calculation results are included in **ANNEXURE C**.

TABLE 5.2: 2017 BACKGROUND TRAFFIC CAPACITY CALCULATION RESULTS

JUNCTION			WEEKDAY AM PEAK HOUR	WEEKDAY PM PEAK HOUR
SIGNALISED	Akker Avenue / Alwen Road / Shakespeare Avenue	V/C ratio	1.225	0.603
		LOS	F	B
		Delay (sec/veh)	123.5	11.8
PRIORITY CONTROLLED	Dorado Avenue / Alwen Road	V/C ratio	0.510	0.460
		LOS	A	A
		Delay (sec/veh)	4.0	7.0
	Akker Avenue / Chamfuti Crescent North	V/C ratio	0.212	0.150
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Chamfuti Crescent South	V/C ratio	0.175	0.111
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Msasa Crescent	V/C ratio	0.164	0.091
		LOS	N/A	N/A
		Delay (sec/veh)	-	-

Legend: V/C ratio = Volume to capacity ratio
LOS = Level of Service

N/A = The average junction delay is not a good LOS measure for a priority control junction due to zero delays associated with major road movements.

Only Akker Avenue / Alwen Road / Shakespeare Avenue junction does not operate satisfactorily for the analysed weekday morning peak hour.

5.2.2 2022 Background Traffic

The existing signal timings are shown in Table 5.3.

Detailed phasings and timings of the traffic signals are included in **ANNEXURE E**.

TABLE 5.3: 2022 BACKGROUND TRAFFIC PEAK HOUR EXISTING SIGNAL TIMINGS

SIGNALISED JUNCTION	PEAK HOUR	SIGNAL TIMINGS (SEC)												CYCLE LENGTH
		PHASE A			PHASE B			PHASE C			PHASE D			
		G	A	R	G	G	G	G	A	R	G	A	R	
Akker Avenue / Alwen Road / Shakespeare Avenue	AM	53	3	2	17	32	-	-	-	-	-	-	-	80 sec
	PM	38	3	2	10	3	2	7	3	2	-	-	-	70 sec

Legend: G = Green,
A= Amber,
R = Red

The average capacity calculation results are shown in Table 5.4.

Detailed capacity calculation results are included in **ANNEXURE C**.

TABLE 5.4: 2022 BACKGROUND TRAFFIC CAPACITY CALCULATION RESULTS

JUNCTION			WEEKDAY AM PEAK HOUR	WEEKDAY PM PEAK HOUR
SIGNALISED	Akker Avenue / Alwen Road / Shakespeare Avenue	V/C ratio	1.421	0.698
		LOS	F	B
		Delay (sec/veh)	220.4	12.5
PRIORITY CONTROLLED	Dorado Avenue / Alwen Road	V/C ratio	0.610	0.570
		LOS	A	F
		Delay (sec/veh)	5.0	79.0
	Akker Avenue / Chamfuti Crescent North	V/C ratio	0.246	0.246
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Chamfuti Crescent South	V/C ratio	0.2110	0.129
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Msasa Crescent	V/C ratio	0.191	0.106
		LOS	N/A	N/A
		Delay (sec/veh)	-	-

Legend: V/C ratio = Volume to capacity ratio

LOS = Level of Service

N/A = The average junction delay is not a good LOS measure for a priority control junction due to zero delays associated with major road movements.

The following junctions will experience capacity problems:

- Akker Avenue / Alwen Road / Shakespeare Avenue junction during the weekday morning peak hour; and
- Dorado Avenue / Alwen Road during the weekday afternoon peak hour.

5.3 Background and Development Traffic

5.3.1 2017 Background and Development Traffic

The signal timings used for the Akker Avenue / Alwen Road / Shakespeare Avenue junction analysis are optimised signal timings to accommodate the background and development traffic.

The proposed signal timings are shown in Table 5.5.

Detailed phasings and timings of the traffic signals are included in **ANNEXURE E**.

TABLE 5.5: 2017 BACKGROUND AND DEVELOPMENT TRAFFIC PEAK HOUR PROPOSED SIGNAL TIMINGS

SIGNALISED JUNCTION	PEAK HOUR	SIGNAL TIMINGS (SEC)											CYCLE LENGTH	
		PHASE A						PHASE C			PHASE D			
		G		R	G	A	R	G	A	R	G	A		R
Akker Avenue / Alwen Road / Shakespeare Avenue	AM	50	3	2	40	3	2	-	-	-	-	-	-	100 sec
	PM	45	3	2	43	3	2	17	3	2	-	-	-	120 sec

Legend: G = Green,
A= Amber,
R = Red

The average capacity calculation results are shown in Table 5.6.

Detailed capacity calculation results are included in **ANNEXURE C**.

TABLE 5.6: 2017 BACKGROUND AND DEVELOPMENT TRAFFIC CAPACITY CALCULATION RESULTS

JUNCTION			WEEKDAY AM PEAK HOUR	WEEKDAY PM PEAK HOUR
SIGNALISED	Akker Avenue / Alwen Road / Shakespeare Avenue	V/C ratio	0.870	0.858
		LOS	C	C
		Delay (sec/veh)	31.5	23.3
PRIORITY CONTROLLED	Dorado Avenue / Alwen Road	V/C ratio	0.570	0.430
		LOS	A	A
		Delay (sec/veh)	5.0	4.0
	Akker Avenue / Chamfuti Crescent North	V/C ratio	0.270	0.165
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Chamfuti Crescent South	V/C ratio	0.225	0.165
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Msasa Crescent	V/C ratio	0.329	0.148
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Msasa Crescent / Proposed Access	V/C ratio	0.100	0.077
		LOS	N/A	N/A
		Delay (sec/veh)	-	-

Legend: V/C ratio = Volume to capacity ratio

LOS = Level of Service

N/A = The average junction delay is not a good LOS measure for a priority control junction due to zero delays associated with major road movements.

All six (6) junctions analysed will operate satisfactorily during the 2017 weekday morning and afternoon peak hour background with development traffic scenario with the proposed road upgrades in place (refer to **Section 9** of this report).

5.3.2 2022 Background and Development Traffic

The proposed signal timings are shown in Table 5.7.

Detailed phasings and timings of the traffic signals are included in **ANNEXURE E**.

TABLE 5.7: 2022 BACKGROUND AND DEVELOPMENT TRAFFIC PEAK HOUR PROPOSED SIGNAL TIMINGS

SIGNALISED JUNCTION	PEAK HOUR	SIGNAL TIMINGS (SEC)												CYCLE LENGTH
		PHASE A			PHASE B			PHASE C			PHASE D			
		G	A	R	G	A	R	G	A	R	G	A	R	
Akker Avenue / Alwen Road / Shakespeare Avenue	AM	66	3	2	44	3	2	-	-	-	-	-	-	120 sec
	PM	7	3	2	25	3	2	13	3	2	-	-	-	60 sec

Legend: G = Green,
A= Amber,
R = Red

The average capacity calculation results are shown in Table 5.8.

Detailed capacity calculation results are included in **ANNEXURE C**.

TABLE 5.8: 2022 BACKGROUND AND DEVELOPMENT TRAFFIC CAPACITY CALCULATION RESULTS

JUNCTION			WEEKDAY AM PEAK HOUR	WEEKDAY PM PEAK HOUR
SIGNALISED	Akker Avenue / Alwen Road / Shakespeare Avenue	V/C ratio	1.001	0.720
		LOS	D	B
		Delay (sec/veh)	51.9	15.0
PRIORITY CONTROLLED	Dorado Avenue / Alwen Road	V/C ratio	0.670	0.540
		LOS	C	D
		Delay (sec/veh)	21.0	33.0
	Akker Avenue / Chamfuti Crescent North	V/C ratio	0.263	0.182
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Chamfuti Crescent South	V/C ratio	0.263	0.183
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Akker Avenue / Msasa Crescent	V/C ratio	0.381	0.162
		LOS	N/A	N/A
		Delay (sec/veh)	-	-
	Msasa Crescent / Proposed Access	V/C ratio	0.100	0.077
		LOS	N/A	N/A
		Delay (sec/veh)	-	-

Legend: V/C ratio = Volume to capacity ratio

LOS = Level of Service

N/A = Not Applicable

N/A = The average junction delay is not a good LOS measure for a priority control junction due to zero delays associated with major road movements.

Akker Avenue / Alwen Road / Shakespeare Avenue junction will experience capacity problems during the 2022 weekday morning peak hour background with development traffic scenario with the proposed road upgrades in place (refer to **Section 9** of this report). However, it will operate better when compared to the 2022 weekday morning peak hour background traffic scenario.

5.4 Capacity analysis comparison

5.4.1 V/C ratio comparison

The V/C ratio comparisons are shown in Table 5.9.

TABLE 5.9: BACKGROUND AND BACKGROUND WITH DEVELOPMENT V/C RATIO COMPARISON

JUNCTION	2017				2022			
	AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
	BG	BG+DEV	BG	BG+DEV	BG	BG+DEV	BG	BG+DEV
Akker Avenue / Alwen Road / Shakespeare Avenue	1.225	0.870	0.603	0.858	1.421	1.001	0.698	0.720
Dorado Avenue / Alwen Road	0.510	0.570	0.460	0.430	0.610	0.670	0.570	0.540
Akker Avenue / Chamfuti Crescent North	0.212	0.270	0.150	0.165	0.246	0.263	0.246	0.182
Akker Avenue / Chamfuti Crescent South	0.175	0.225	0.111	0.165	0.211	0.263	0.129	0.183
Akker Avenue / Msasa Crescent	0.164	0.329	0.091	0.148	0.191	0.381	0.106	0.162
Msasa Crescent / Proposed Access	-	0.100	-	0.077	-	0.100	-	0.077

BG - Background Traffic Scenario

BG+DEV - Background with Development Traffic Scenario

Akker Avenue / Alwen Road / Shakespeare Avenue junction will experience capacity problems (v/c ratio > 0.95) during the 2022 weekday morning peak hour background with development traffic scenario with the proposed road upgrades (refer to **Section 9** of this report). It will however operate better when compared to the 2022 weekday morning peak hour background traffic scenario

5.4.2 Level of service (LOS) comparison

The level of service (LOS) comparison is shown in Table 5.10.

TABLE 5.10: BACKGROUND AND BACKGROUND WITH DEVELOPMENT LEVEL OF SERVICE (LOS) COMPARISON

JUNCTION	2017				2022			
	AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
	BG	BG+DE V	BG	BG+DE V	BG	BG+DE V	BG	BG+DE V
Akker Avenue / Alwen Road / Shakespeare Avenue	F	C	B	C	F	D	B	B
Dorado Avenue / Alwen Road	A	A	A	A	A	C	F	D
Akker Avenue / Chamfuti Crescent North	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Akker Avenue / Chamfuti Crescent South	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Akker Avenue / Msasa Crescent	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Msasa Crescent / Proposed Access	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BG - Background Traffic Scenario

BG+DEV - Background with Development Traffic Scenario

N/A - Not applicable

All six (6) junctions analysed will operate satisfactorily (LOS not worse than D) during the 2017 and 2022 weekday morning and afternoon peak hour background with development traffic scenario with the proposed road upgrades in place (refer to **Section 9** of this report).

5.4.3 Delay comparison

The delay comparison is shown in Table 5.11.

TABLE 5.11: BACKGROUND AND BACKGROUND WITH DEVELOPMENT DELAY COMPARISON

JUNCTION	2017				2022			
	AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
	BG	BG+DE V	BG	BG+DE V	BG	BG+DE V	BG	BG+DE V
Akker Avenue / Alwen Road / Shakespeare Avenue	123.6	31.5	11.8	23.3	220.4	51.9	12.5	15.0
Dorado Avenue / Alwen Road	4.0	5.0	7.0	4.0	5.0	21.0	79.0	33.0
Akker Avenue / Chamfuti Crescent North	-	-	-	-	-	-	-	-
Akker Avenue / Chamfuti Crescent South	-	-	-	-	-	-	-	-
Akker Avenue / Msasa Crescent	-	-	-	-	-	-	-	-
Msasa Crescent / Proposed Access	-	-	-	-	-	-	-	-

BG - Background Traffic Scenario

BG+DEV - Background with Development Traffic Scenario

All six (6) junctions analysed will operate satisfactorily (delay not longer than 55 seconds) during the 2017 and 2022 weekday morning and afternoon peak hour background with development traffic scenario with the proposed road upgrades in place (refer to **Section 9** of this report).

6. ACCESS

6.1 Introduction

Access to the proposed development site will be provided off Msasa Crescent. The proposed access configuration is described below.

6.2 Access off Msasa Crescent

The access to the proposed development site will be provided off Msasa Crescent as a three-legged priority controlled junction approximately 180 m south of the Akker Avenue / Msasa Crescent junction as shown in Figure 6.1 below.

The access arrangement complies with TRH 26 South African Road Classification and Access Management Manual requirements, dated August 2012, Version 1.0.

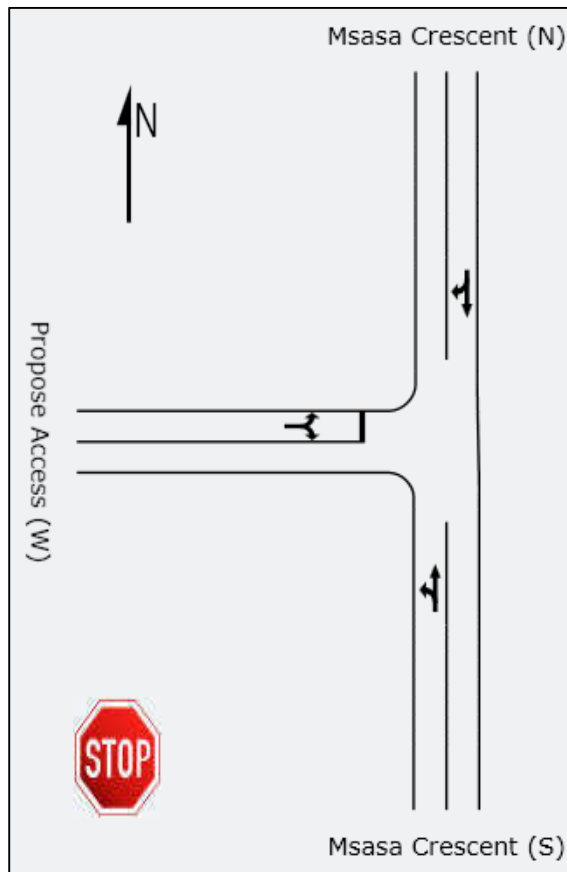


Figure 6.1: Msasa Crescent / Proposed Access Configuration

6.3 Access Control

Storage lane length analysis was done at the proposed access point off Msasa Crescent.

The proposed access to the residential development will be controlled by a coded card reader with a service rate of approximately 350 vehicles/hour.

The queue storage lane length calculations have been done using the anticipated development traffic and coded card reader service rate. The results show that there will be a queue of one (1) vehicle at the Msasa Crescent access control point during the weekday morning or afternoon peak hour, 95% of the time. There is a 5% probability that the queue will exceed one (1) vehicle (refer to **ANNEXURE F** for calculations).

The results show that the number of lanes at the Msasa Crescent access control point have to be provided as one (1) lane entering and one (1) lane exiting the development.

It is recommended that one (1) of the lanes be at least 4.5 m wide to accommodate emergency vehicles.

A summary of the queue storage lane length calculations is shown in Table 6.12 below.

TABLE 6.1: QUEUE STORAGE LANE LENGTH CALCULATION RESULTS

ACCESS	SERVICE RATE	NUMBER OF LANES ENTERING	STORAGE LANE REQUIRED	STORAGE LANE TO BE PROVIDED
Off Msasa Crescent	350 veh/h	1	6 m	Min 10 m

7. PEDESTRIAN AND PUBLIC TRANSPORT ASSESSMENT

7.1 Pedestrian

There are paved pedestrian walkways at the Akker Avenue / Alwen Road / Shakespeare Avenue junction, along the western side of Alwen Road to the north and along the eastern side of Shakespeare Avenue to the south.

There are no other pedestrian crossing facilities that exist at the junctions that form part of this study.

It is recommended that pedestrian walkways be provided along the site frontage in consultation with the CoJ.

7.2 Public Transport

Taxis operate along Alwen Road.

There are no public transport facilities proposed.

8. PARKING PROVISION

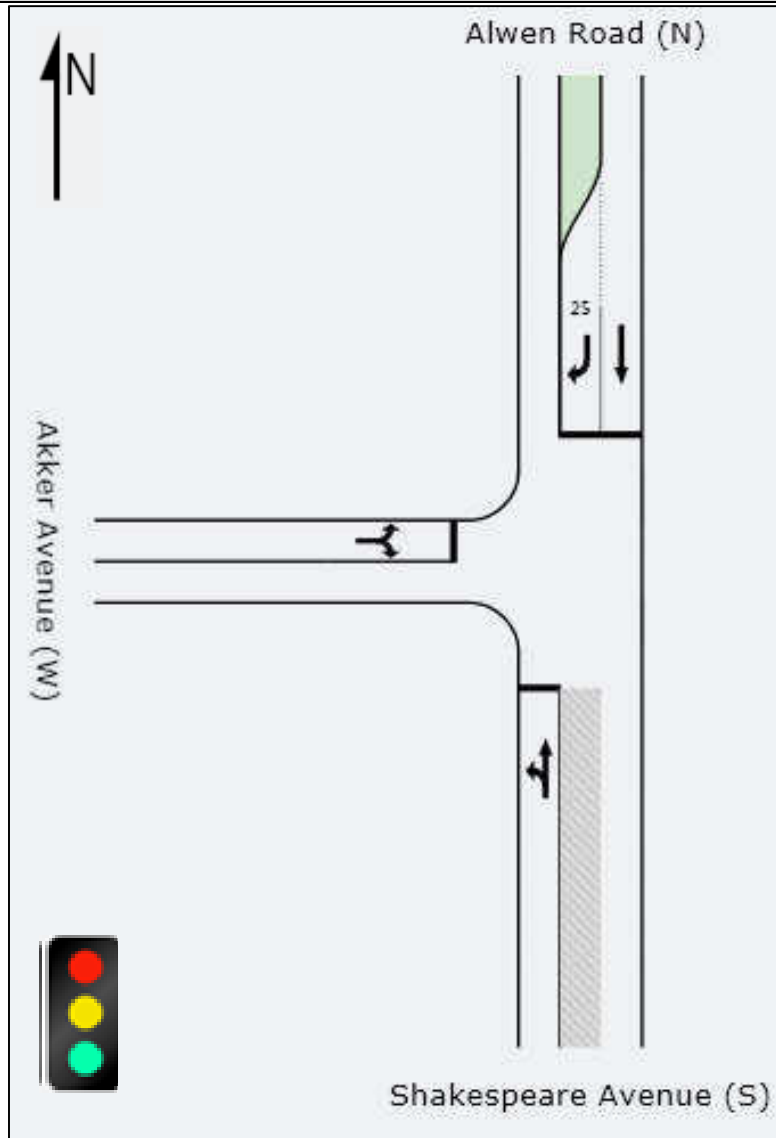
Parking will be provided within the site as required by the City of Johannesburg and in accordance with the Johannesburg Draft Consolidated Town Planning Scheme, 2010.

9. EXISTING AND PROPOSED JUNCTION CONFIGURATIONS

ORMONDE X22 PROPOSED RESIDENTIAL DEVELOPMENT (EXISTING AND PROPOSED CONFIGURATIONS)

1. Akker Avenue / Alwen Road / Shakespeare Avenue

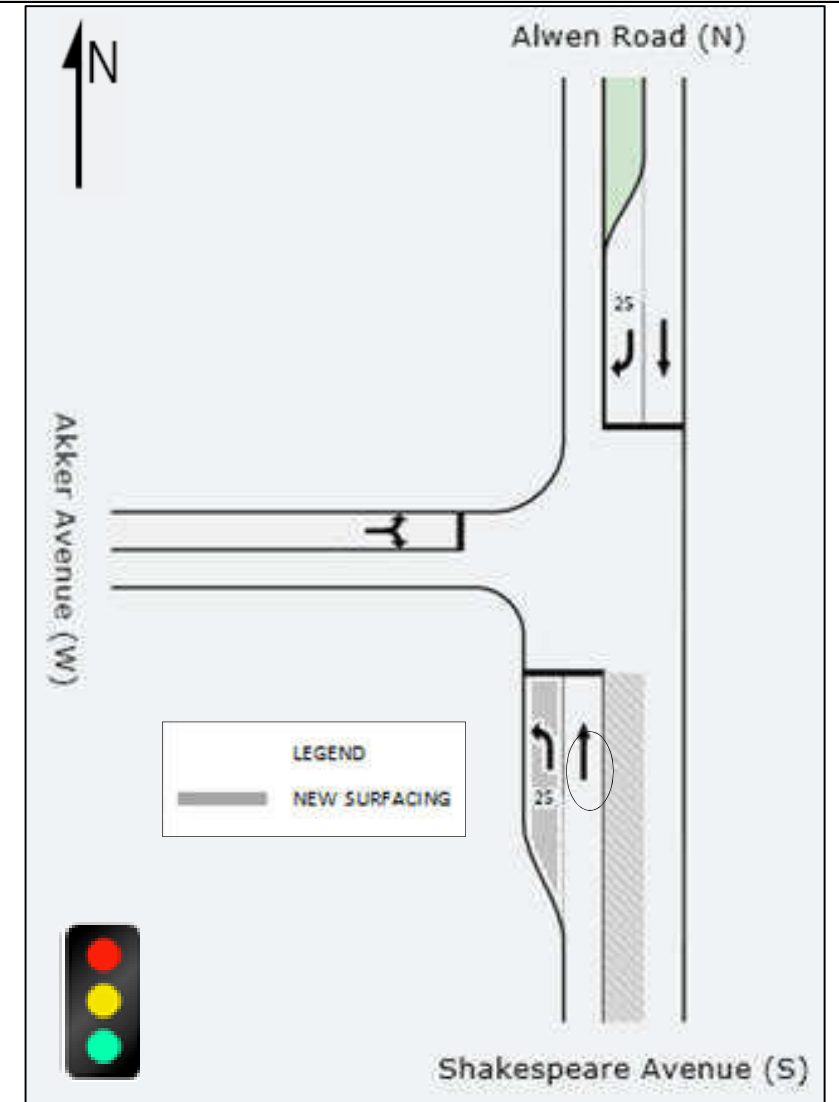
EXISTING



BACKGROUND

NO UPGRADES ARE PROPOSED

BACKGROUND AND DEVELOPMENT



The signal timings must be altered at this junction.

SOUTHERN APPROACH

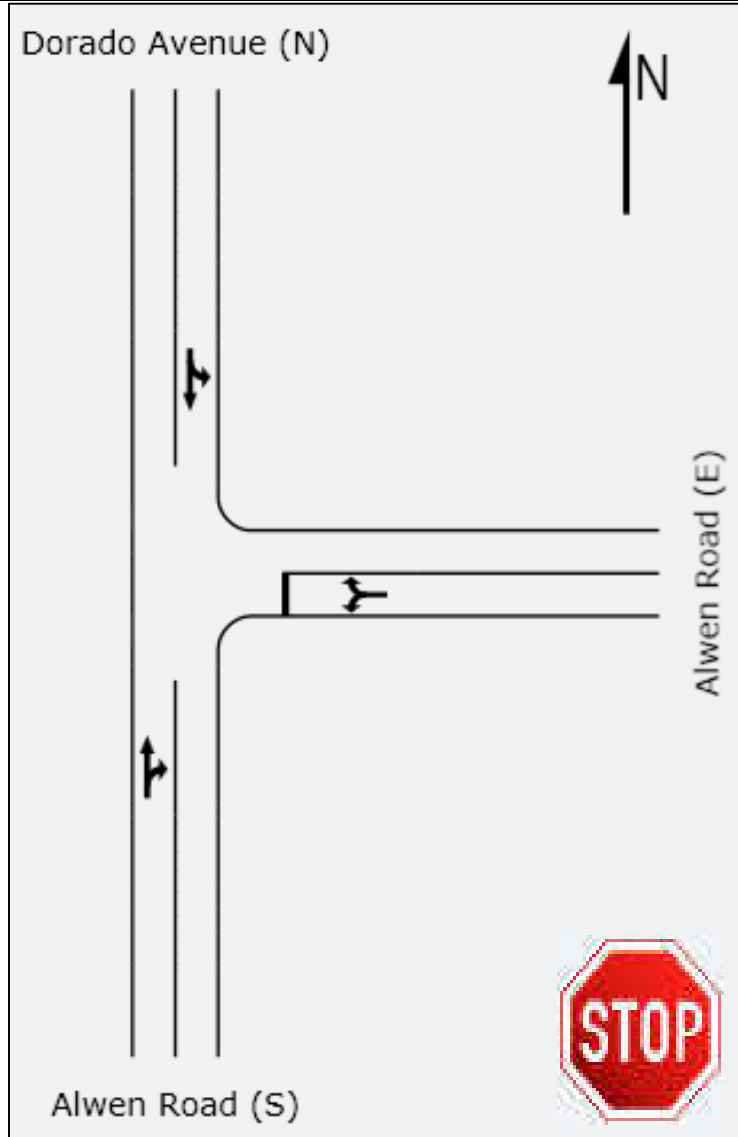
The road markings must be changed as follows:

The shared through-and-left turn lane must be changed to a through lane.

An exclusive left turn lane must be provided.

2. Dorado Avenue / Alwen Road

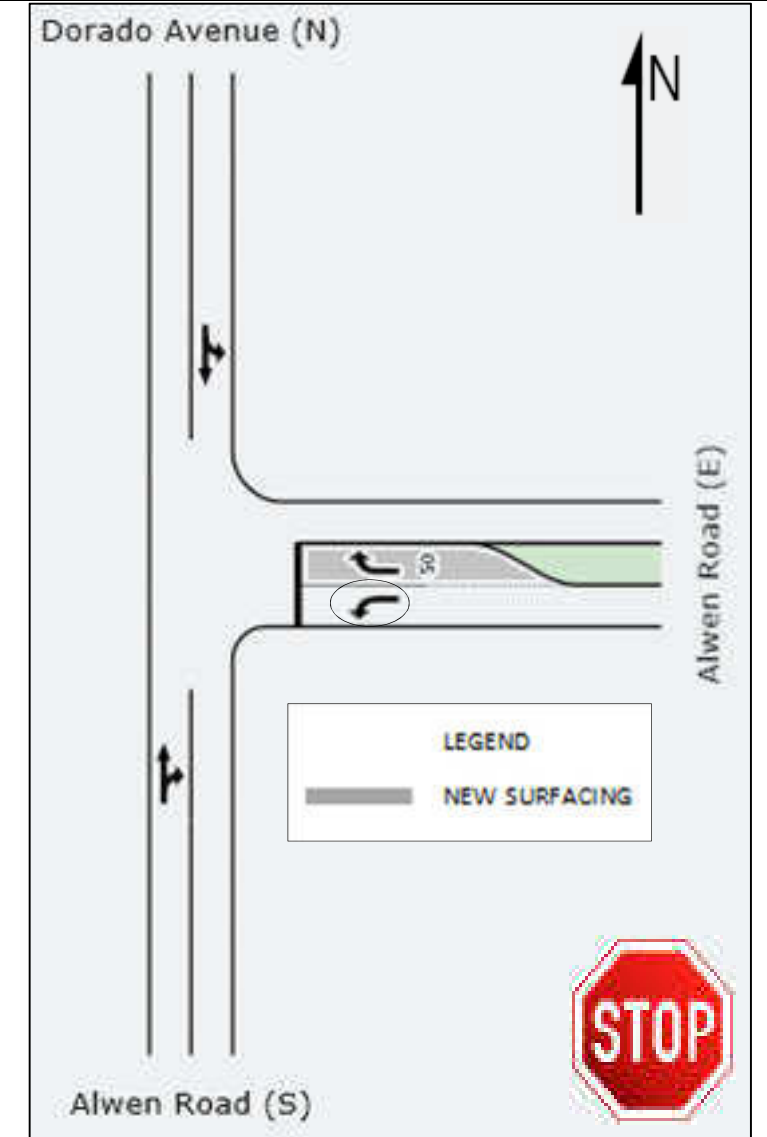
EXISTING



BACKGROUND

NO UPGRADES ARE PROPOSED

BACKGROUND AND DEVELOPMENT

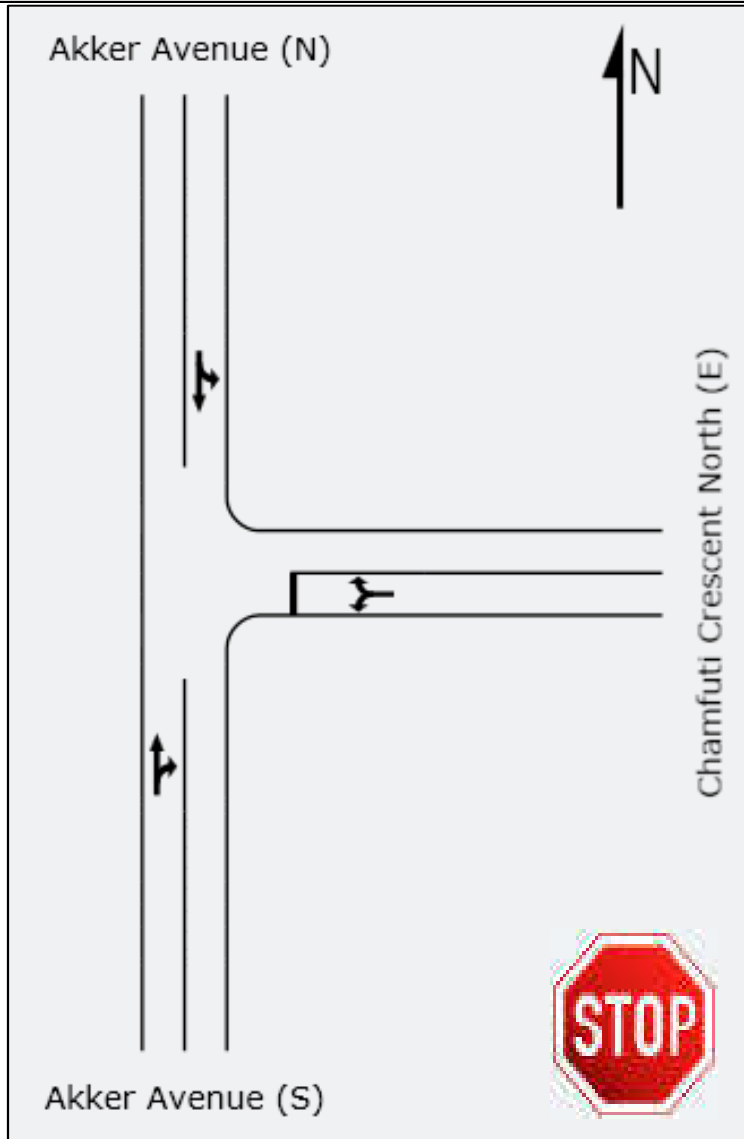


EASTERN APPROACH

The road markings must be changed as follows:
The existing shared right-and-left turn lane must be changed to a left turn lane.
An exclusive right turn lane must be provided.

3. Akker Avenue / Chamfuti Crescent North

EXISTING



BACKGROUND

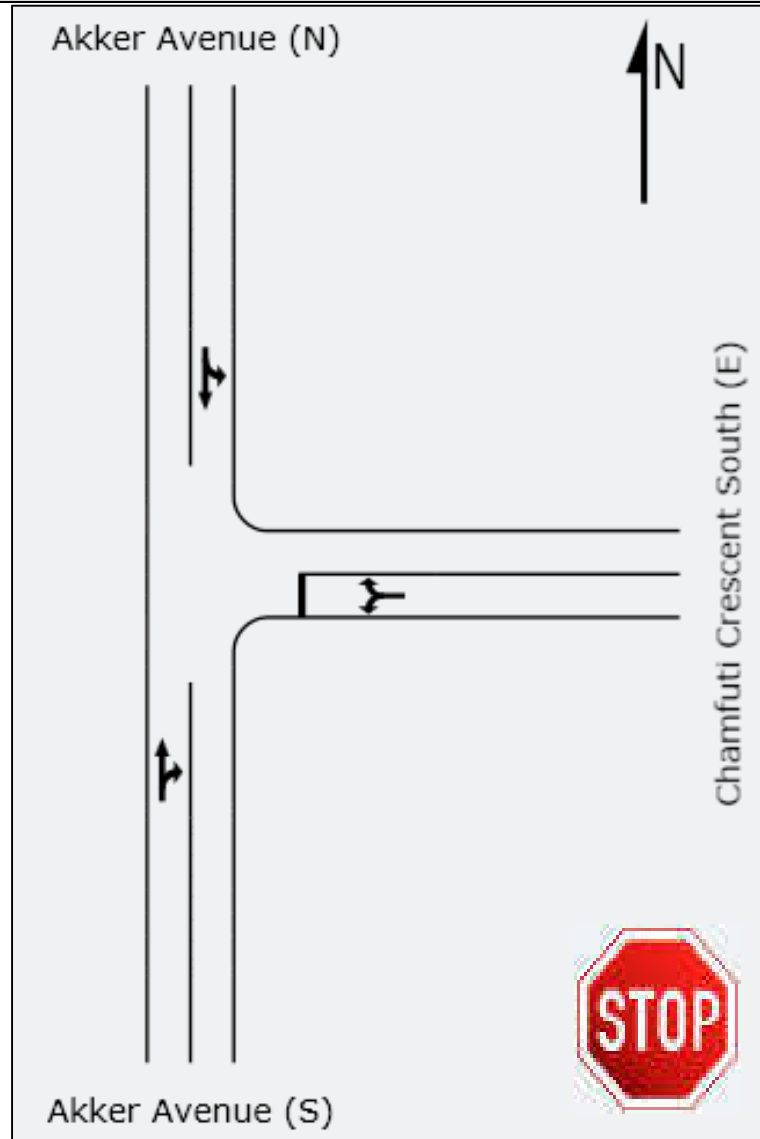
NO UPGRADES ARE REQUIRED

BACKGROUND AND DEVELOPMENT

NO UPGRADES ARE REQUIRED

4. Akker Avenue / Chamfuti Crescent South

EXISTING



BACKGROUND

NO UPGRADES ARE REQUIRED

BACKGROUND AND DEVELOPMENT

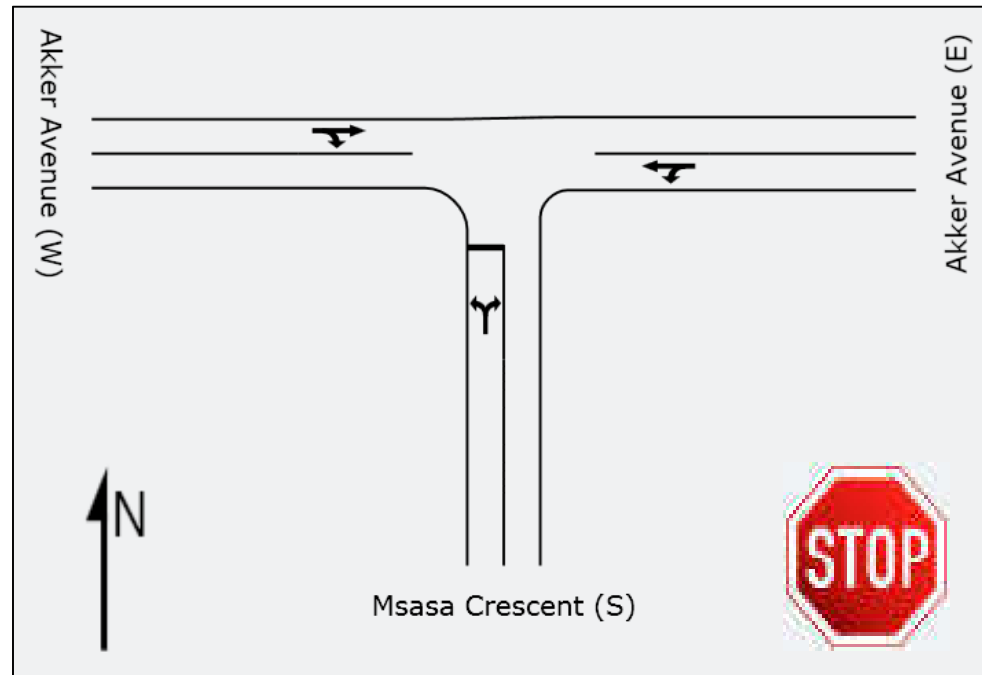
NO UPGRADES ARE REQUIRED

5. Akker Avenue / Msasa Crescent

EXISTING

BACKGROUND

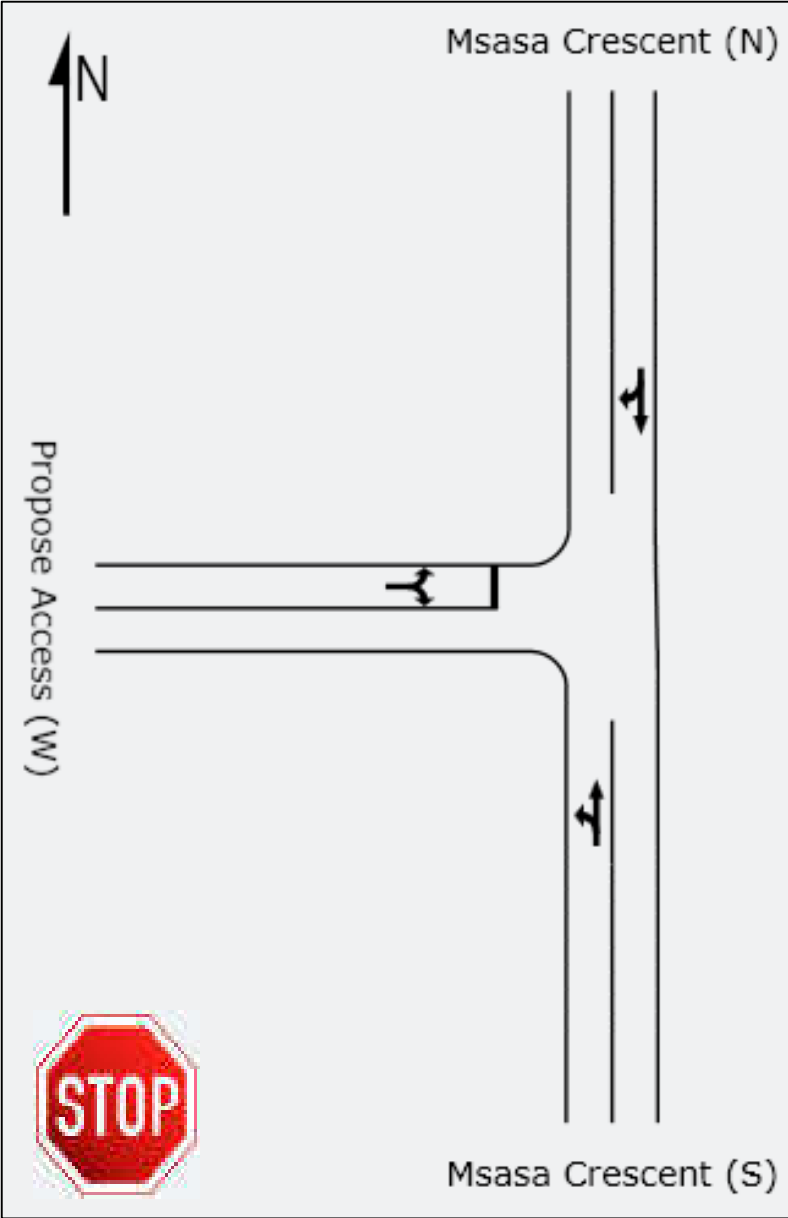
BACKGROUND AND DEVELOPMENT



NO UPGRADES ARE REQUIRED

NO UPGRADES ARE REQUIRED

6. Msasa Crescent / Proposed Access

EXISTING	BACKGROUND	BACKGROUND AND DEVELOPMENT
<p>N/A</p>	<p>N/A</p>	 <p>The diagram illustrates a proposed access road (Propose Access (W)) connecting Msasa Crescent (N) at the top to Msasa Crescent (S) at the bottom. A north arrow is located in the upper left corner. A red octagonal stop sign is positioned in the lower left corner. Arrows on the roads indicate traffic flow directions.</p>

Refer to **ANNEXURE G** for the proposed road upgrades layout plans for Erven 962 and 963.

10. FINANCE AND COST ESTIMATES

The proposed road upgrades are for the developer's account.

The cost estimate for the proposed physical road upgrades at the following junctions (excluding VAT and professional fees):

- Akker Avenue / Alwen Road / Shakespeare Avenue is ±R764 150.00; and
- Dorado Avenue / Alwen Road is ±R407 720.00.

Refer to **ANNEXURE I** for the cost estimates.

Erven 962 and 963 development site will contribute towards the ultimate road upgrades proposed. The ultimate proposed road upgrades layout plans of all four (4) sites is included in **ANNEXURE H**.

11. CONCLUSIONS AND RECOMMENDATIONS

11.1 Conclusions

The proposed residential development site is located on Erven 962 and 963, Ormonde Extension 22 in Johannesburg.

The developer has three (3) other development sites in the close proximity of Erven 962 and 963 and form part of the study area. The developer might construct any of the development sites before Erven 962 and 963. Civil Concepts (Pty) Ltd prepared separate traffic studies for each site (three (3) other development sites):

- A residential development on Erven 1010 and 1011;
- A residential development on Erf 982; and
- A residential development on Erven 1130 and 1131.

The Traffic Impact Assessment of Erven 962 and 963 was prepared first.

The proposed development will consist of **176** "Residential 3" dwelling units.

The development will generate **150** trips during both the weekday morning and afternoon peak hours, respectively.

The base year (2017) and the horizon year (2022) were considered in this study.

Access to the proposed development site will be off Msasa Crescent.

Five (5) of the six (6) junctions analysed will operate satisfactorily for the 2017 and 2022 weekday morning and afternoon peak hour background with development traffic scenario with the proposed road upgrades in place as shown in **Section 9** of this report.

Akker Avenue / Alwen Road / Shakespeare Avenue junction will experience capacity problems for the 2022 weekday morning peak hour background with development traffic scenario with the proposed road upgrades in place as shown in **Section 9** of this report. However, it will operate better when compared to the 2022 weekday morning peak hour background traffic scenario.

The proposed road upgrades are for the developer's account. Erven 962 and 963 development site will contribute towards the ultimate road upgrades proposed.

No public transport facilities are proposed.

Pedestrian walkways have to be provided along the site frontage by the developer to the satisfaction of the CoJ.

11.2 Recommendations

It is recommended that:

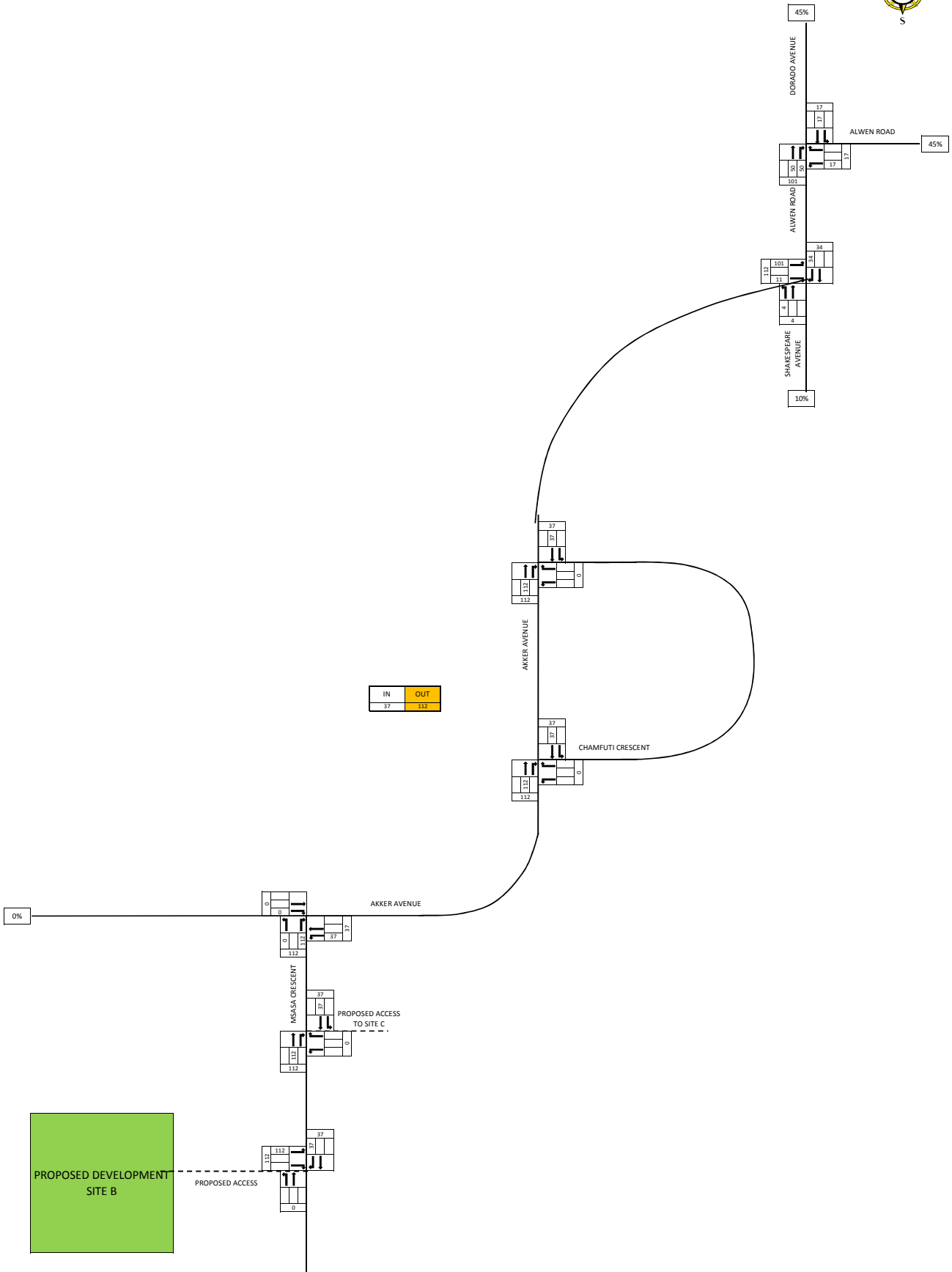
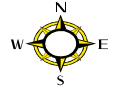
- the developer carry out the proposed road upgrades to mitigate the effect of the development traffic;
- the developer construct pedestrian walkways in consultation with the relevant departments of CoJ; and
- this traffic study be approved.

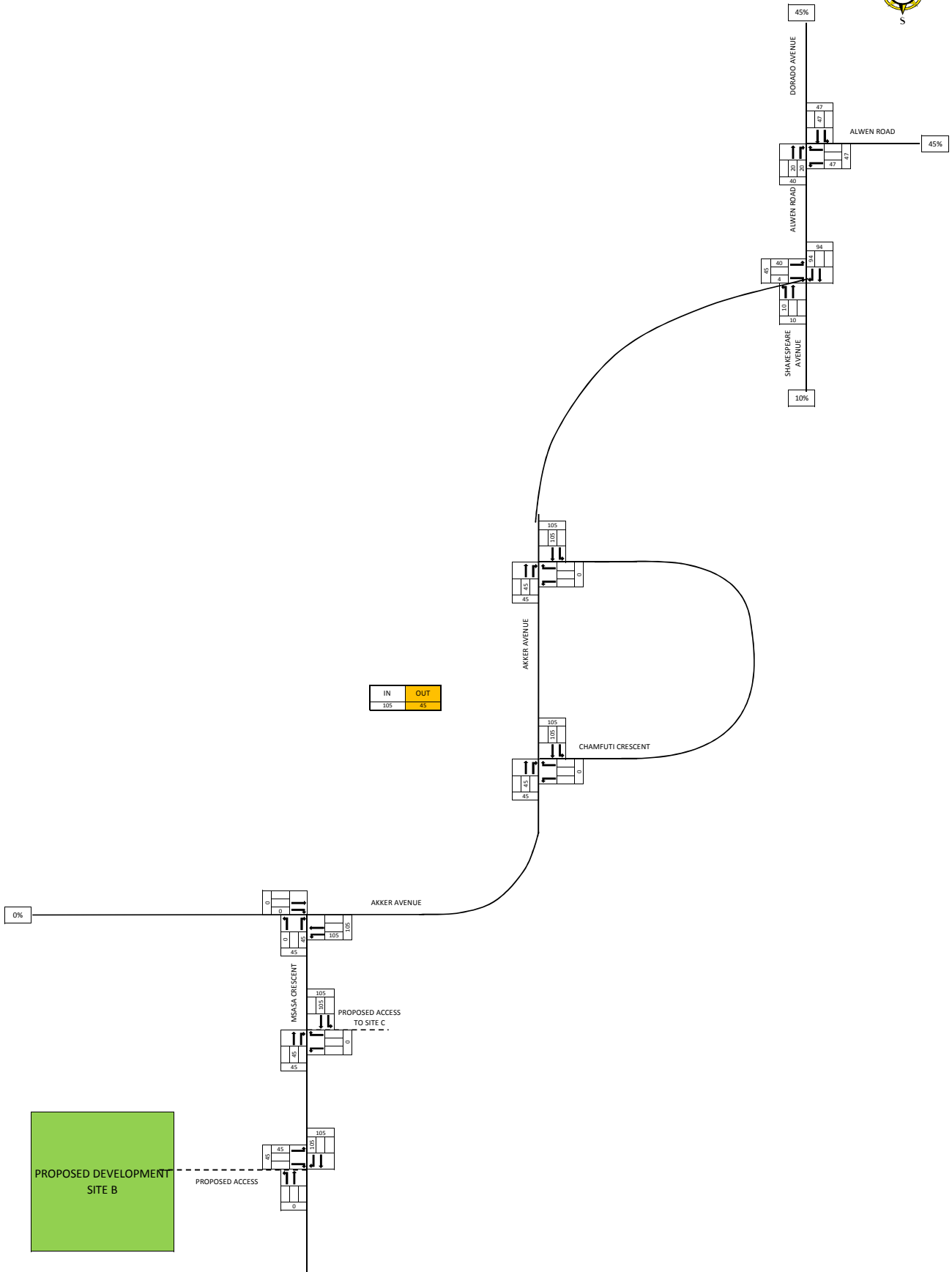
REFERENCES

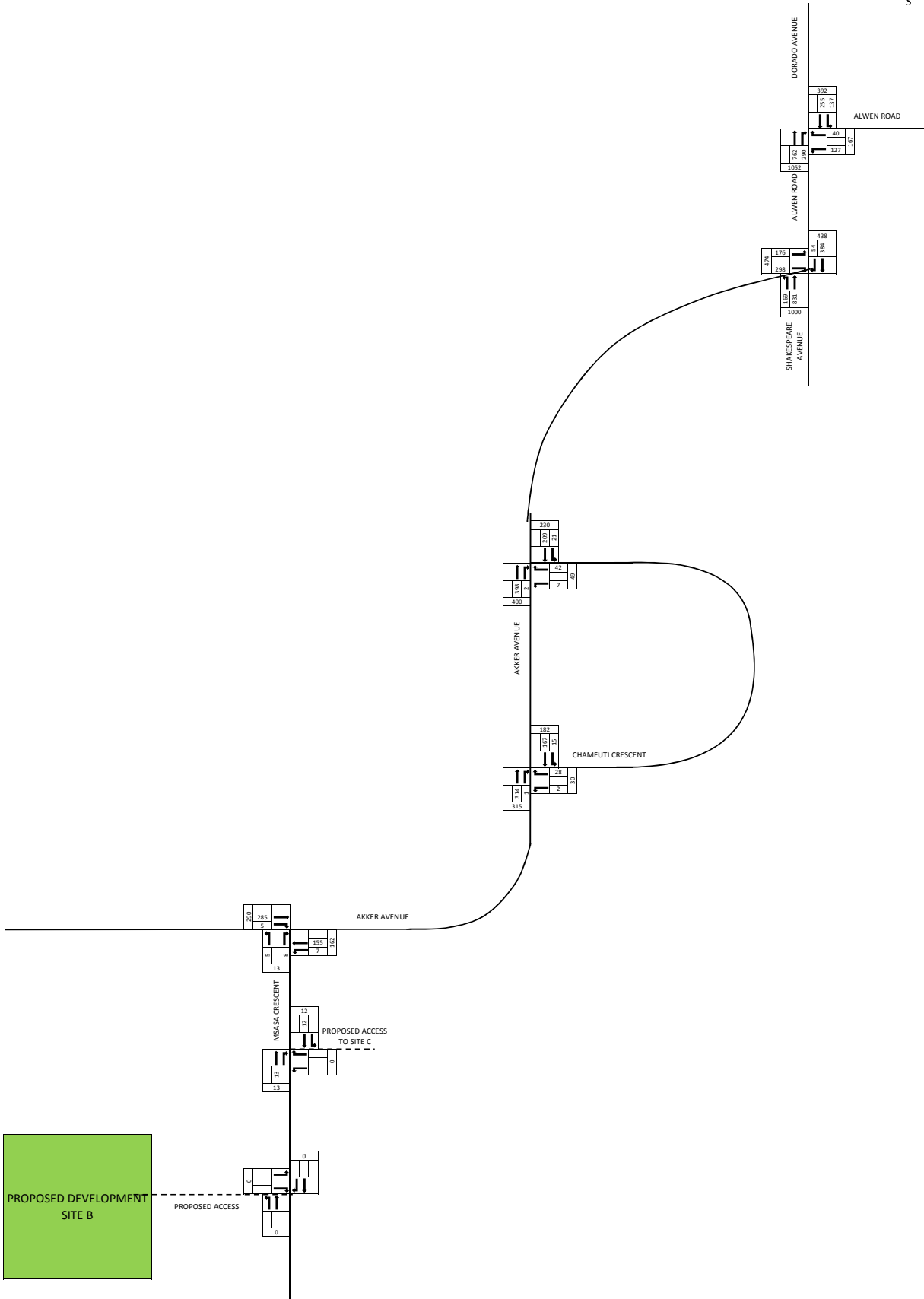
1. Akcelik & Associates Pty Ltd, (July 2010) **aaSIDRA 5.0**, Victoria, Australia.
 2. Transportation & Traffic Technology Africa (Pty) Ltd, (2013) **AUTO J**, Johannesburg, South Africa.
 3. Committee of Transport Officials, (September 2013) **TMH17 - South African Trip Data Manual**, Version 1.01, Pretoria, South Africa.
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 8. Committee of Transport Officials (COTO), (August 2012) **TRH26 – South African Road Classification and Access Management Manual**, Version 1.0, SANRAL, South Africa.
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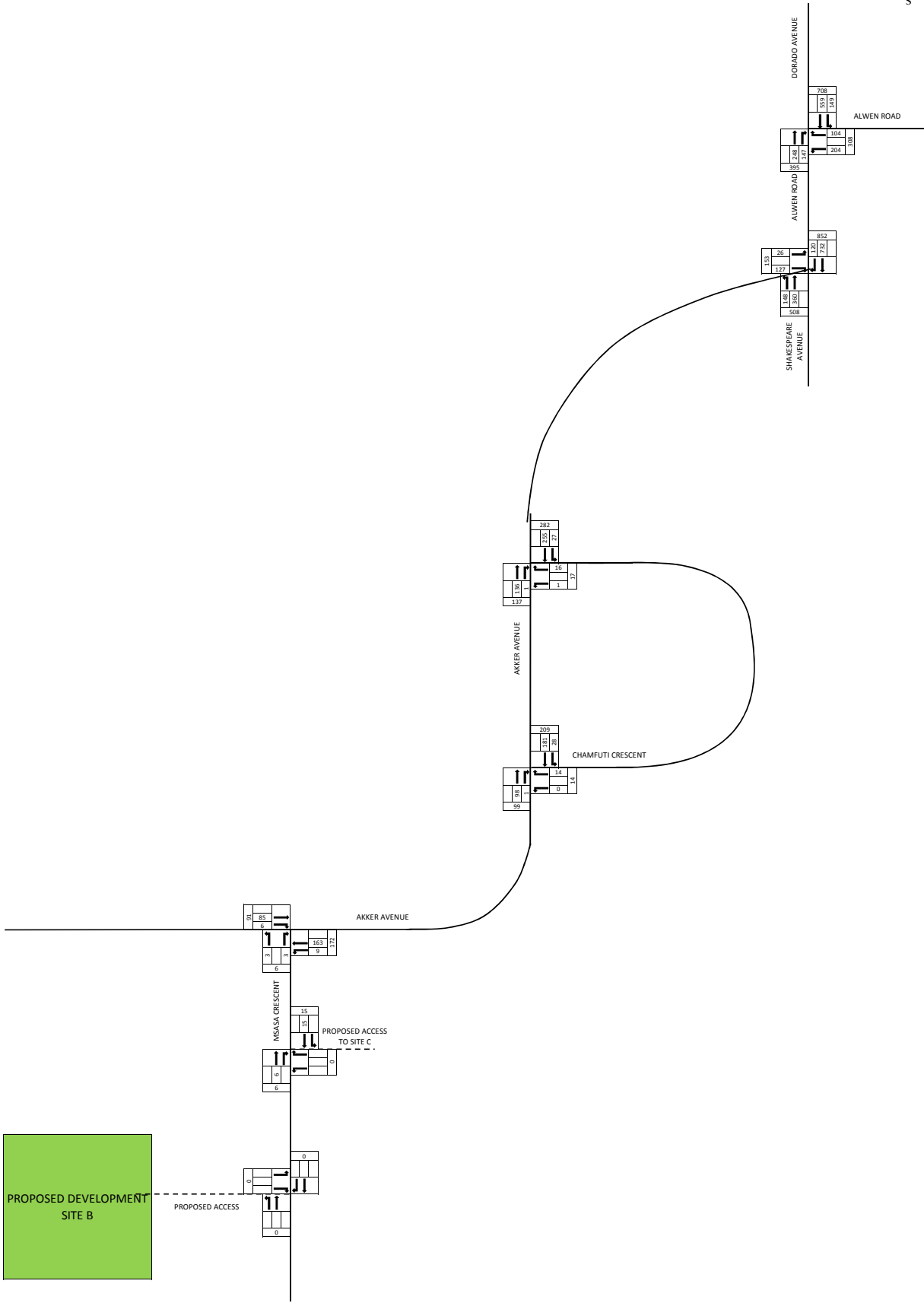
FIGURES

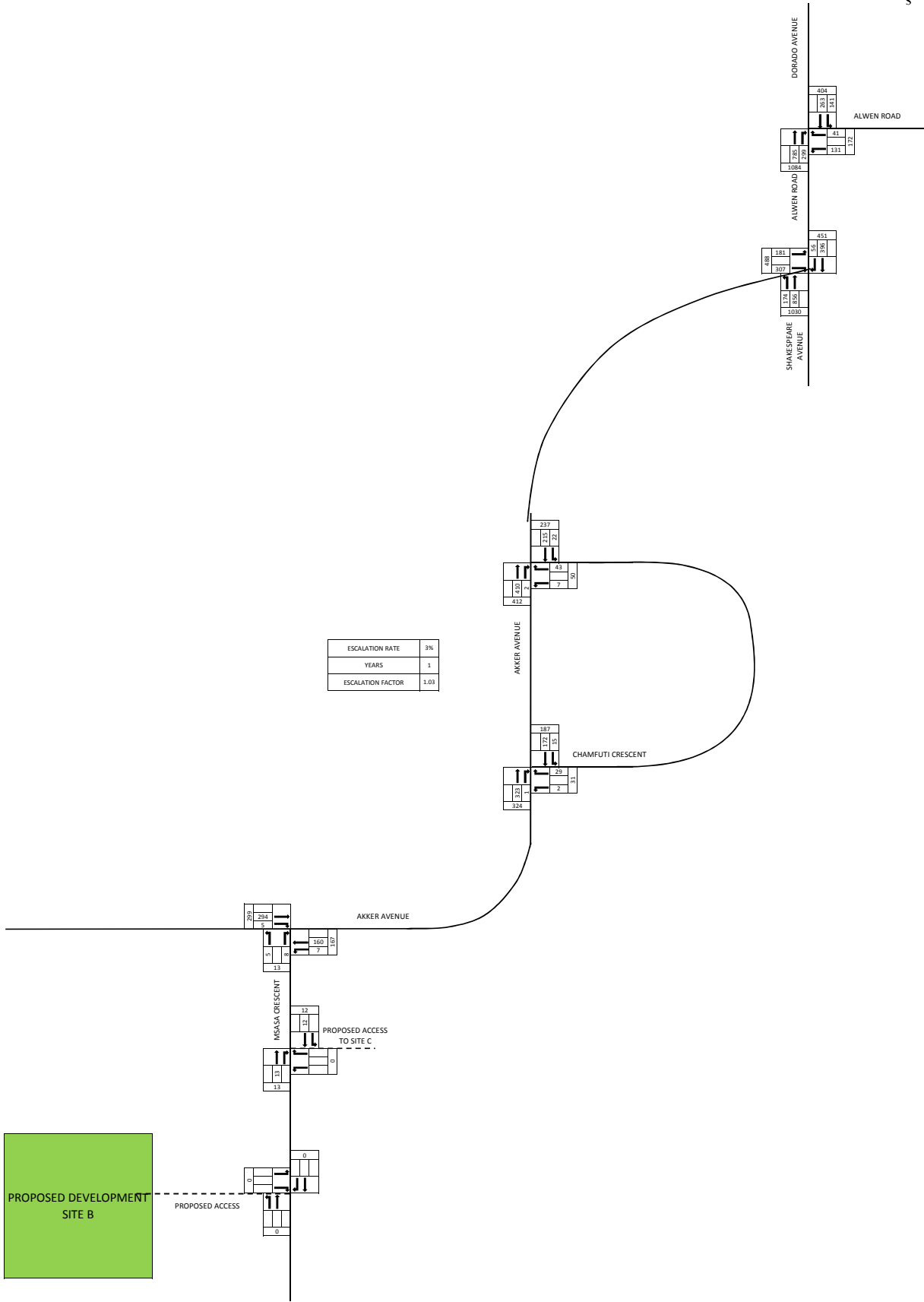
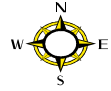


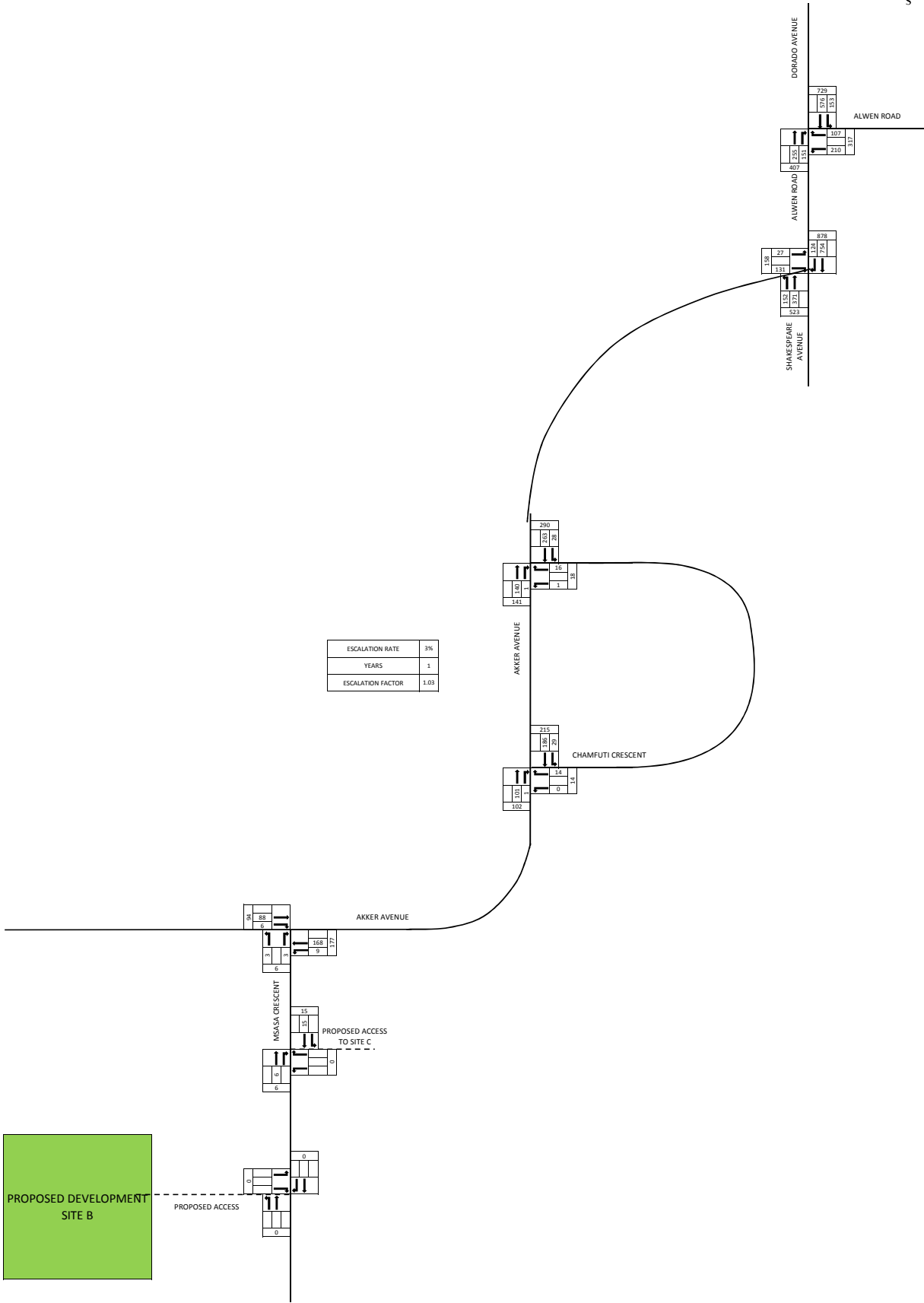


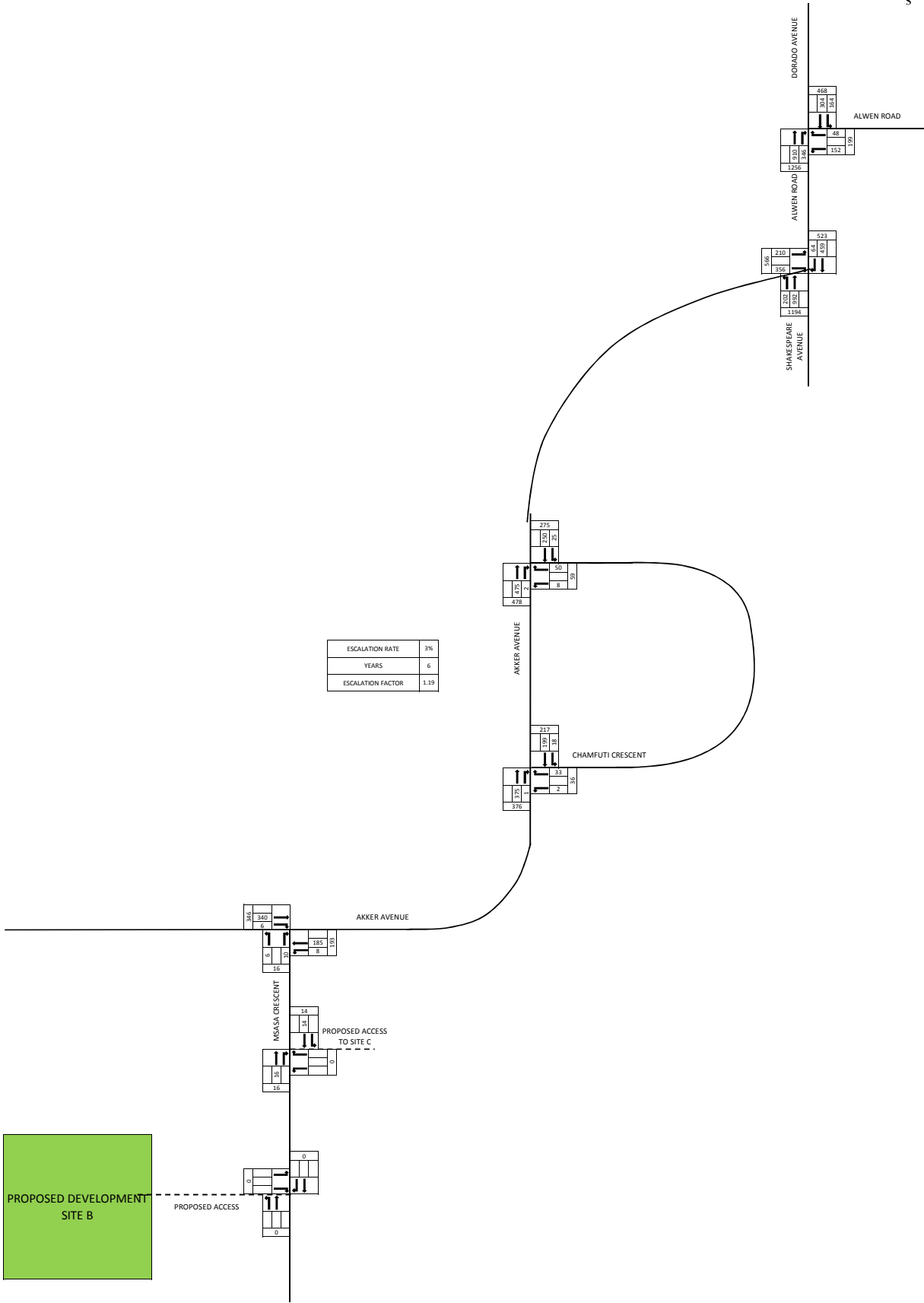
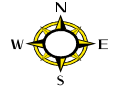




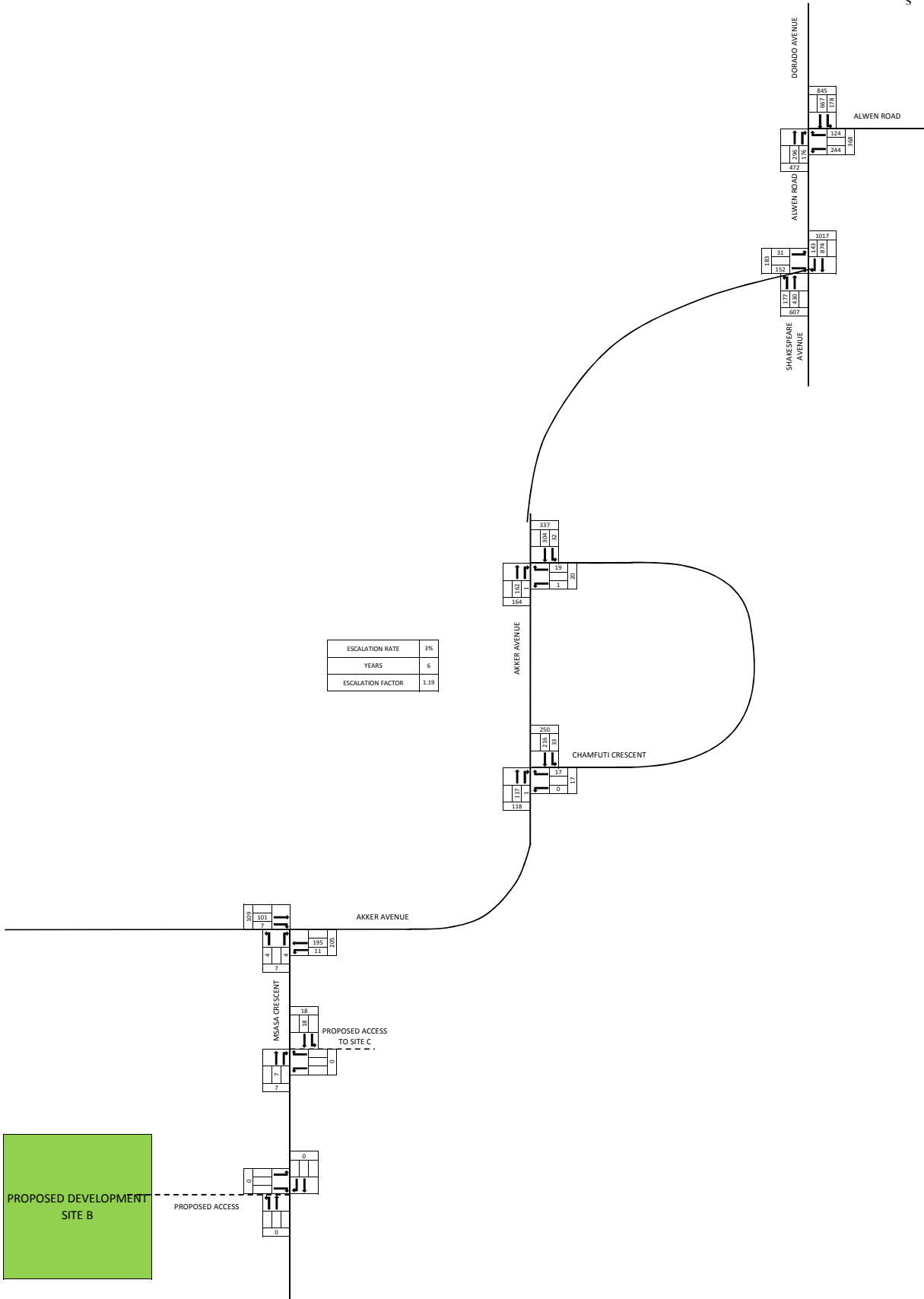


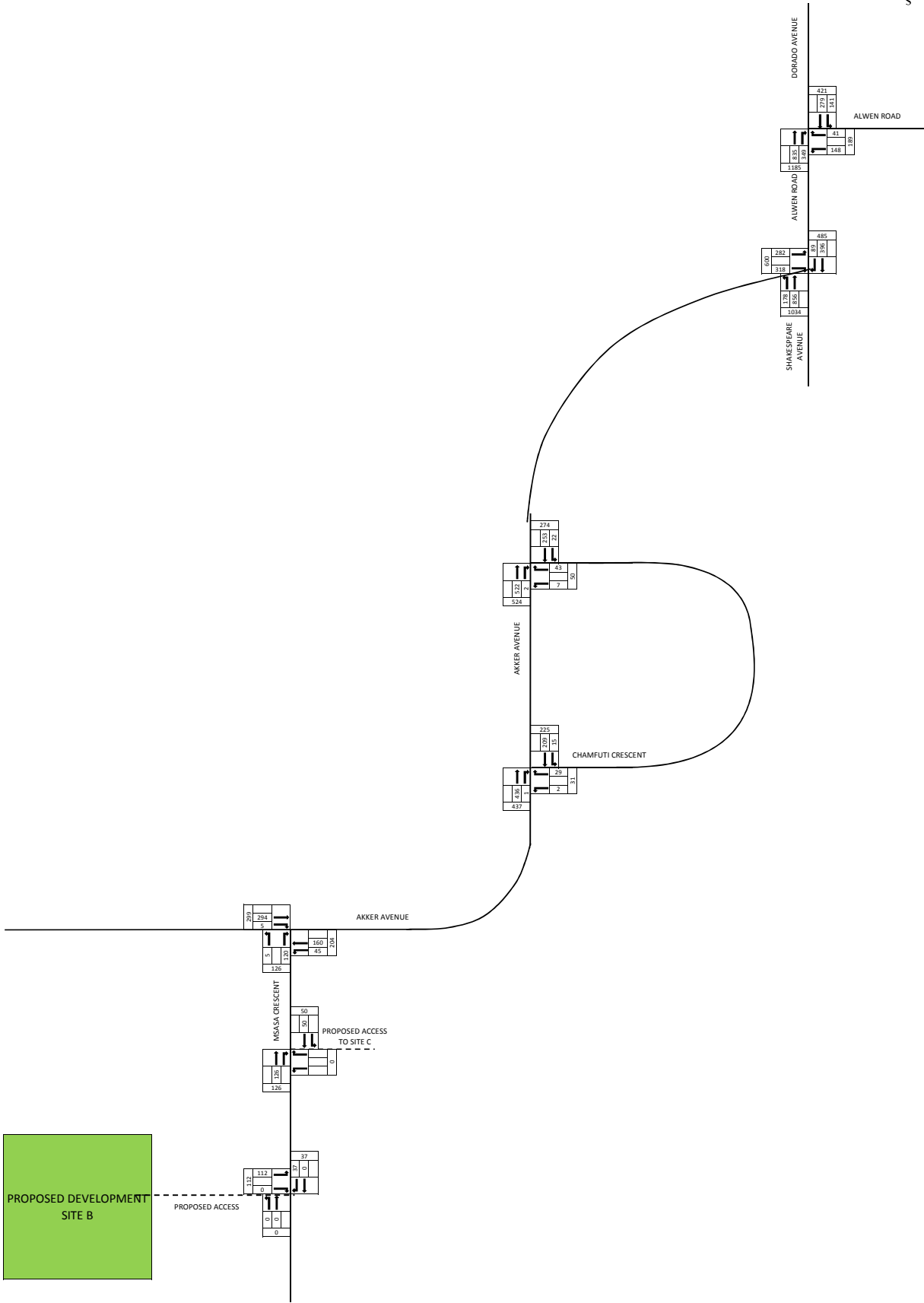


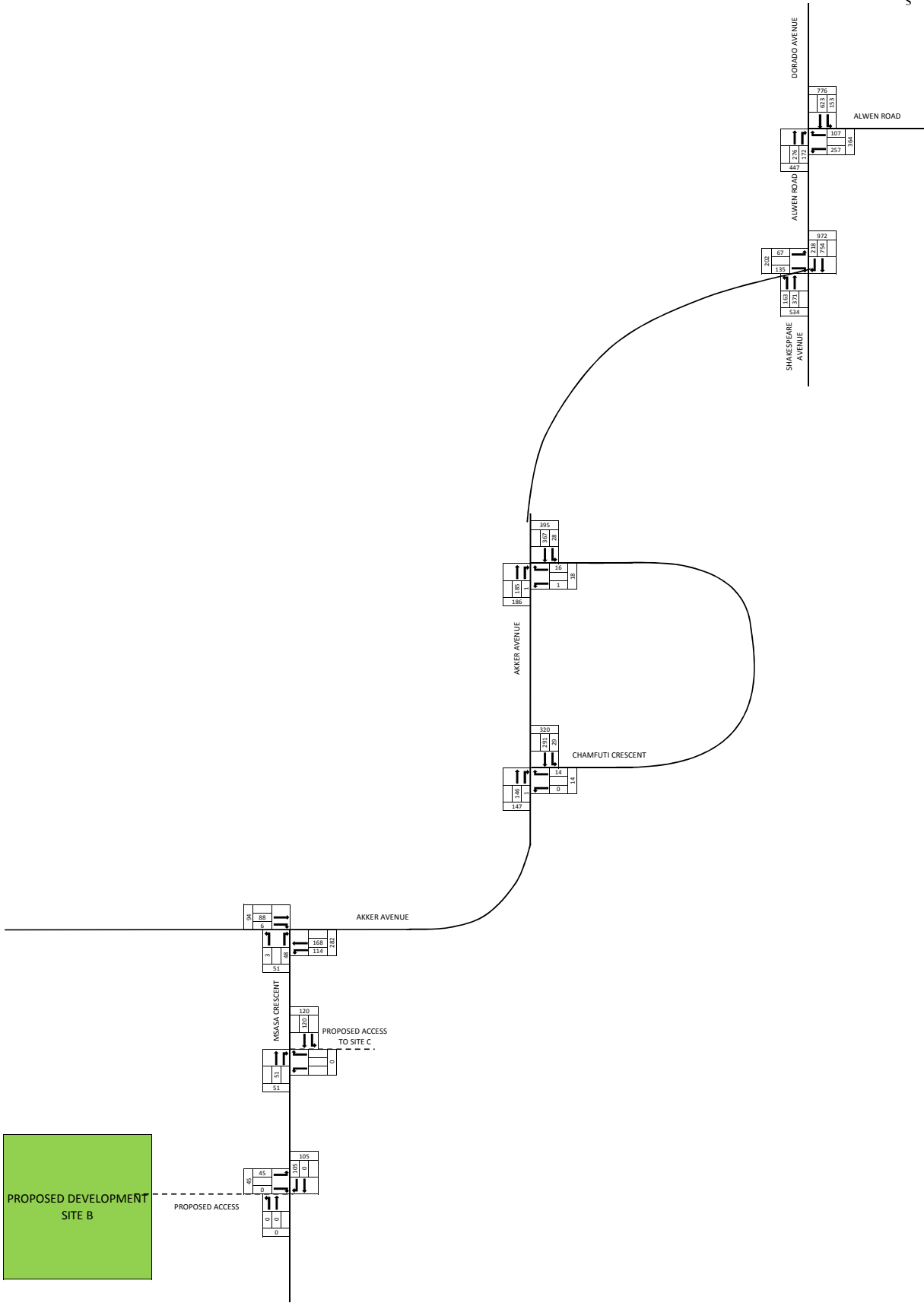


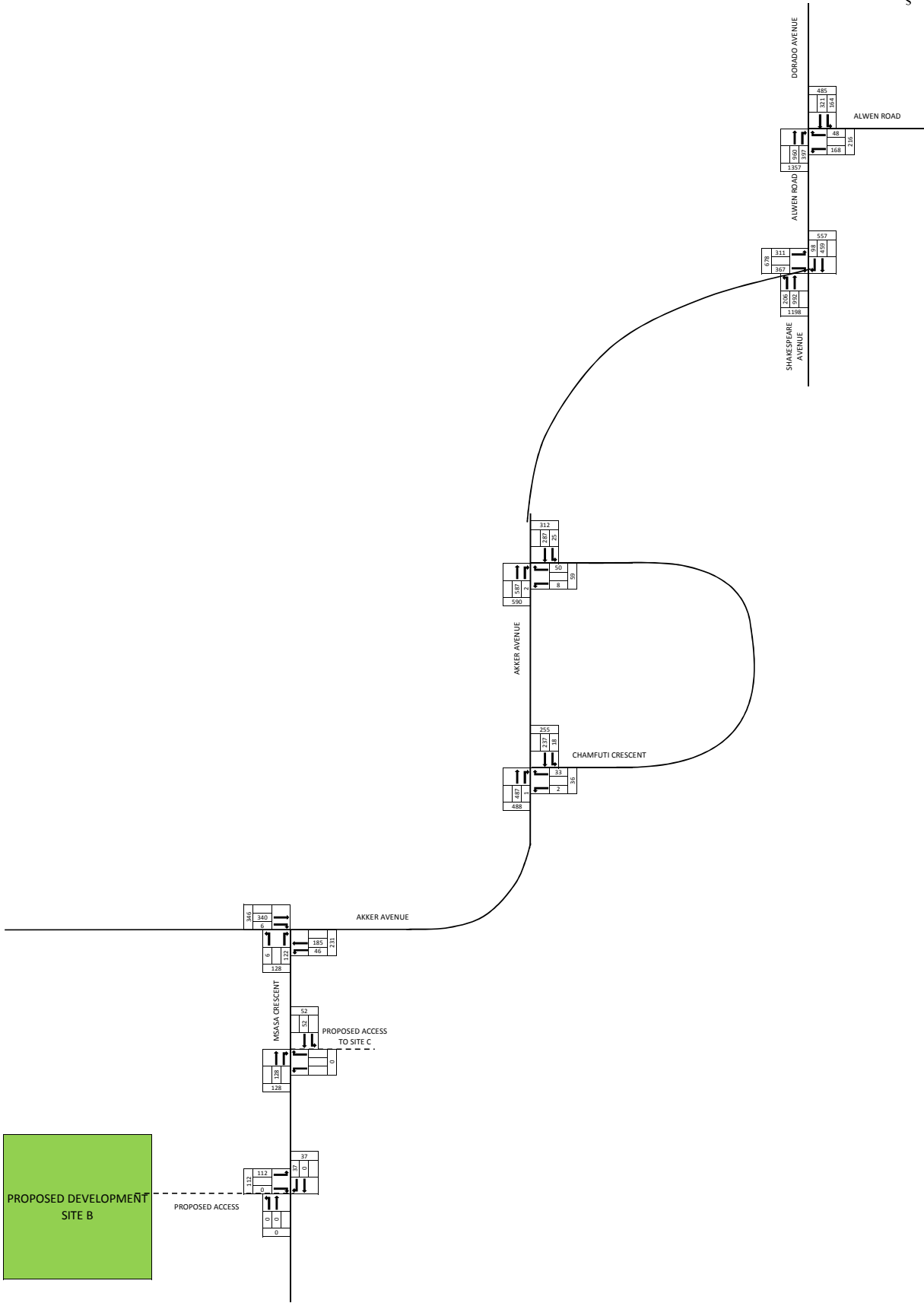


PROPOSED DEVELOPMENT
 SITE B









ANNEXURE A
TOWNSHIP LAYOUT PLAN





DATE	NO	REVISION
OCT 2016	-	ISSUED FOR APPROVAL

CLIENT



LOCAL AUTHORITY



PROJECT

ORMONDE SOUTH
SITE B ON ERF 962 & 963

DRAWING TITLE

SITE LAYOUT PLAN

DRAWING NO **C2284-B-201**

REV. NO.	-							
SCALE	1:500	DESIGNED	A.OOSTHUIZEN					
		DRAWN	A.OOSTHUIZEN					
DATE	OCTOBER 2016	CHECKED	L.ZIETSMAN					

ANNEXURE B
MEMORANDUM APPLICATION

1. EXECUTIVE SUMMARY

- 1.1 This memorandum is submitted in support of an application in terms of the provisions of Section 21 of The City of Johannesburg Municipal Planning By-Law, 2016 for the amendment of the Johannesburg Town-Planning Scheme, 1979, by the rezoning of Erven 962 & Erf 963, Ormonde Extension 22, subject to certain conditions.
- 1.2 Application is made for the amendment of the Johannesburg Town-Planning Scheme, 1979, by way of the rezoning of the subject property from *“Residential 3” with a density of “25 dwelling units per hectare; FAR of 0.4; Height of 3 storeys; and coverage of 30%”* to *“Residential 3” with a density of “110 dwelling units per hectare”*, and subject to the following conditions:
- Floor Area Ratio : 0.7
- Coverage : 30%
- Height : Four (4) storeys
- Parking requirements : 1.3 parking bays per unit
- Building lines : In accordance with an approved site development plan
- Number of Units : 176 units
- 1.3 The purpose of this application is to obtain the appropriate land use rights to enable the registered property owner to develop a higher residential development on the erf.
- 1.4 Note that a separate application for the consolidation of the two properties, in terms of the provisions of Section 33 of the City of Johannesburg Municipal Planning By-Law, 2016, was also submitted to the Municipality. Even though the rezoning and consolidation applications are submitted separately, approval of both applications will be required before submission of any building plans to Council and before construction can commence.
- 1.5 This memorandum provides the relevant property information, and motivates the merits of the development proposal from a development planning perspective.
- 1.6 The consolidation application is submitted separately and will be handled as a separate application, but will form part of the rezoning of the erven.

2. PROPERTY INFORMATION

2.1 Locality

The subject property is situated along Msasa Crescent in Ormonde, towards the north of the M1 Freeway and towards the south of Akker Street. A Locality Plan is attached hereto as **Annexure A**. The site is situated in close proximity to Rand Show Road, Nasrec Road and the M1-Highway.

The figure below gives the context of the application site.





Figure 1: Aerial view of the property

2.2 Property description, ownership and size

Details pertaining to property description, ownership and extent of the subject properties are provided in the table below:

PROPERTY DESCRIPTION	REGISTERED OWNER	DEED OF TRANSFER NUMBER	SIZE
Ormonde X22: Erf 962	Matla Projects (Pty) Ltd	T27309/2009	5 942m ²
Ormonde X22: Erf 963	Matla Projects (Pty) Ltd	T27310/2009	10 274m ²

Deeds of Transfer T27309/2009 and T27310/2009 are attached as **Annexures B** to form part of the application documentation.

The signed and completed Company Resolution, Power of Attorney and Proof of Directors are attached as **Annexure C** respectively.

2.3 Zoning

The subject properties are currently zoned "Residential 3", in terms of the Johannesburg Town-Planning Scheme, 1979, subject to the following conditions:

Floor Area Ratio	:	0.4
Density	:	25 Dwelling units per ha
Coverage	:	30%
Height	:	Three storeys

The relevant Zoning Certificate is attached hereto as **Annexure D**.

