URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

**TRAFFIC IMPACT ASSESSMENT**

# PROPOSED REZONING AND SUBDIVISION OF LOT 21, RIVERSDALE

Report Number 22-019_TIA (Rev 1)

Date: April 2022 Revision (1)

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

# EXECUTIVE SUMMARY

It is the intention of the owners of erf RE/21 as well as erf 266 (collectively referred to as Lot 21) to rezone and subdivide the current agricultural land into various new residential opportunities in Riversdale, Hessequa.

The proposed development will consist of the following:

- Smallholdings / 1ha lifestyle erven. Proposed Zoning Agricultural Zone II – gated community with restricted agricultural land uses such as equestrian use.
- Low density residential erven – Proposed Zoning Res I
- Medium Density Residential erven – Proposed Zoning General Res II
- Retirement village / old age home/ medical care unit – Proposed Zoning General Res II

In order to access the site, it is the developer's proposal as follows:

- Extend Erica Street towards the development
- Provide alternative access via Lenoria - and Bauhinia Street

The site development plan further makes provision for the future extension / formalisation of Lobelia Street, in order to provide an additional third access point.

Four intersections were identified for 12 hour classified traffic counts. Those intersections were:

- Intersection of Erica Street and Protea Street
- Intersection of Bauhinia Street and Protea Street,
- Intersection of Lobelia Street and Erica Street
- Intersection of Protea Street and Langezicht access road.

This report evaluated the relevant intersections by means of SIDRA analysis and returned the following recommendations:

**Short Term (Immediate Implementation):**

Conversion of the current 4-way STOP at intersection of Bauhinia Street and Protea Street, to a new 2-way STOP controlled intersection with priority movement along the Bauhinia approaches to the intersection.

**Long Terms (5 to 15 year period):**

Formalisation of the gravel jeep track road currently situated within the Lobelia Street road reserve.

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# COVER LETTER

It is herewith certified that this Traffic Impact Investigation has been prepared according to the requirements of the TMH 16 (Committee Draft 2.0 – May 2018) South African Traffic Impact and Site Traffic Assessment Manual.

This Traffic Assessment was undertaken by:


| | |
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# QUALITY ASSURANCE DATA

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(on behalf of Urban Engineering (Pty) Ltd)

# TABLE OF CONTENTS

# LIST OF ANNEXURES

**ANNEXURE A – Site Photos**
**ANNEXURE B – SANRAL Letter**
**ANNEXURE C – Site Development Plan**
**ANNEXURE D- Traffic Count Data**
**ANNEXURE E – Excel Spreadsheets**
**ANNEXURE F - SIDRA Results**

# LIST OF FIGURES



# LIST OF TABLES

# LIST OF ABBREVIATIONS

| | |
|---|---|
| TIA | Traffic Impact Assessment |
| SANRAL | South African National Roads Agency SOC Limited |
| RNIS | Road Networks Information System |
| PGWC | Provincial Government of the Western Cape |
| AMP | Access Management Plan |
| AMG | Access Management Guidelines (2016) |
| RAG | Road Access Guidelines (2002) |
| RDE | Roadside Development Environment |
| GLA | Gross Leasable Area |
| SATGRM | South African Trip Generation Rates Manual |
| LOS | Level of Service |
| DoT | Department of Transport |
| RDE | Roadside Development Environment |
| MR | Main Road |
| DR | Divisional Road |
| RNIS | Road Network Information System |
| GRZ1 | General Residential Zone 1 |
| SRZ1 | Single Residential Zone 1 |
| BZIII | Business Zone 3 |

# 1 INTRODUCTION

Urban Engineering (Pty) Ltd was appointed by Belladonna (Pty) Ltd to undertake a Transportation Investigation in support of the proposed rezoning and subdivision of Lot 21, Riversdale, Hessequa.

## 1.1 PROJECT BENEFIT AND CONTEXT

The developer has identified the need for residential development within Riversdale and proposes to develop residential opportunities in line with this demand.

## 1.2 TERMS OF REFERENCE

Transportation investigations essentially need to be undertaken in accordance with the following guidelines:

- National Land Transport Act, 2009 (Government Gazette No. 32110)
- South African Traffic Impact & Site Traffic Assessment Manual (TMH 16 Volume 1, COTO)
- Access Management Guidelines (WCG Dept. Transport and Public Works, 2020)
- Manual for Traffic Impact Studies RR 93/635 (DoT, 1995)

To better align with the recommendations of the TMH16, the Access Management Guidelines recommends that when a development is likely to generate a minimum of 50 additional vehicular trips in a highest hour of its traffic generation, (including passer-by trips) a TIA is required

## 1.3 PRIMARY OBJECTIVES OF THIS REPORT

This study will look at the effect of the additional traffic generated by the proposed operation, on the surrounding road network. Where necessary, the report will aim to introduce mitigation measures to reduce this impact at the site, as well as on the surrounding transportation network.

## 1.4 STUDY OBJECTIVES

The study objectives are:

i. Assess the traffic conditions on the existing road network
ii. Assess the traffic generation effects of the proposal (if any)
iii. Assess the interface conditions between the road network and the proposed development
iv. Highlight any traffic concerns resulting from the proposed development (including parking and non-motorised transport)
v. Make recommendations

## 1.5 SITE INVESTIGATION

The site was visited by Frans van Aardt from Urban Engineering (Pty) Ltd on Thursday 27 January 2022. Relevant measurements and inspections were taken during the site visit. A record of some of the photos taken during the site visit has been attached as **ANNEXURE A** to this report.

# 2 LOCALITY

The site is situated west of Riversdale and is made up of RE/21 as well as erf 266. The site centre has WGS 84 coordinates of approximately 34° 5'11.31"S and 21°13'56.27"E. A basic locality plan has been included as Figure 2-1.

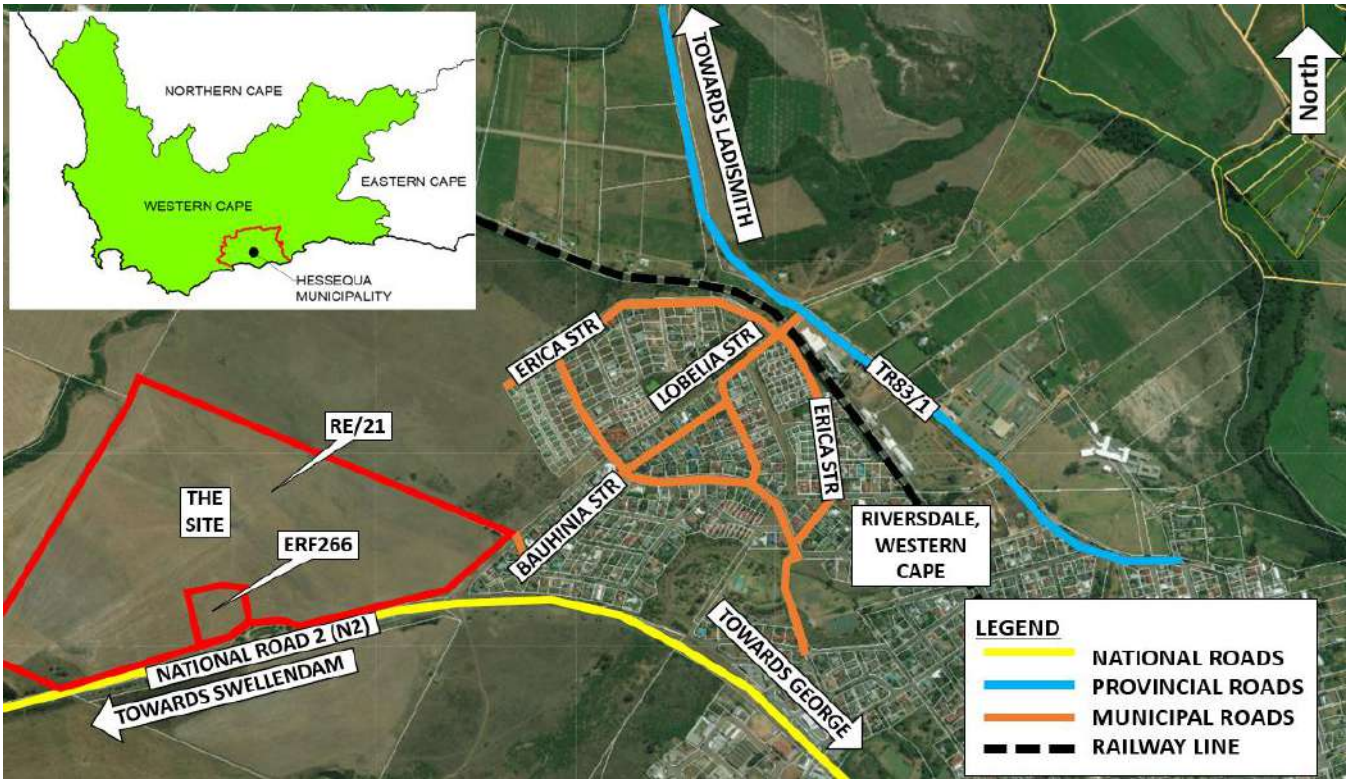



Figure 2-1 - Basic Locality Plan

# 3 STATUS QUO

## 3.1 LAND USE

According to Elsenburg's Cape Farm Mapper website, Erf 266 is approximately 20,005m$^2$ in size and erf RE/21 is approximately 544,014m$^2$ in size. Both erven are currently undeveloped and mainly used for agricultural purposes, as is evident from Figure 3-1.

Figure 3-1 - Status Quo Photograph

Erf 266 is currently included in the Riversdale Urban Edge and has been zoned for Business purposes (refer to Figure 3-2). This erf was initially earmarked for development of a filling station with direct access from National Road 2 (N2). Due to difficulty with access approvals from SANRAL (refer to **ANNEXURE B**), this proposal has since been withdrawn and erf 266 has been included in the proposed Lot 21 development addressed as part of this investigation.

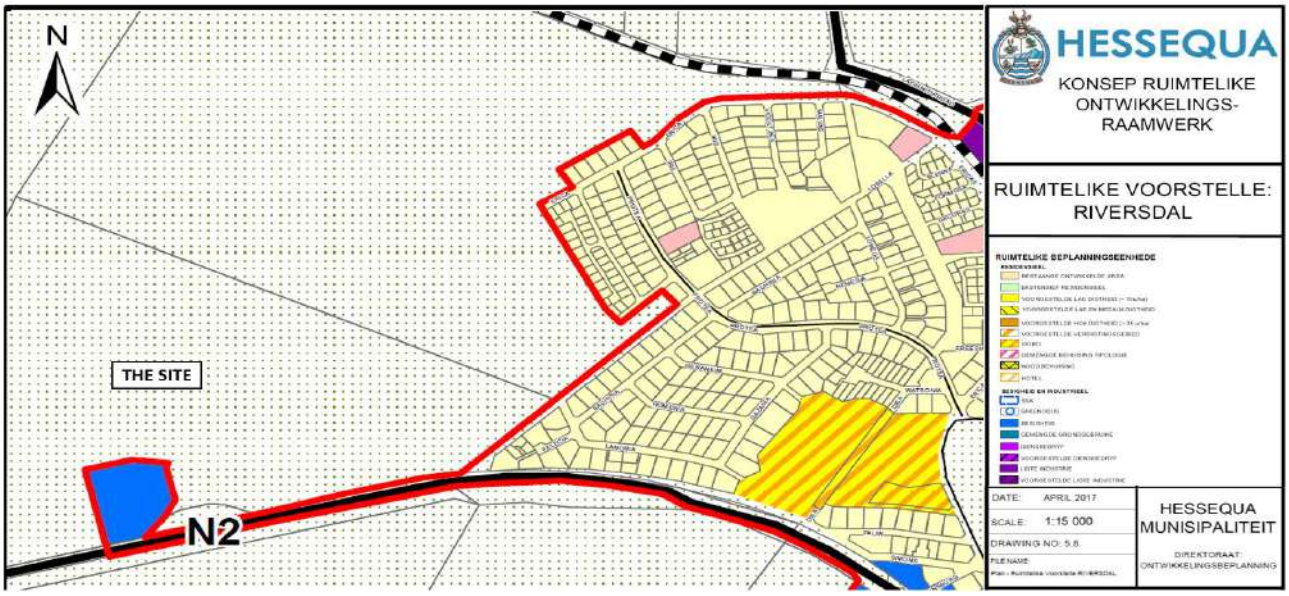



**Figure 3-2 - Extract from Hessequa Spatial Development Framework**

## 4 PROPOSED DEVELOPMENT PARTICULARS

It is the intention of the owner to develop the land as follows:

- Smallholdings / 1ha lifestyle erven. Proposed Zoning Agricultural Zone II – gated community with restricted agricultural land uses such as equestrian use.
- Low density residential erven – Proposed Zoning Res I.
- Medium Density Residential erven – Proposed Zoning General Res II.
- Retirement village / old age home/ medical care unit – Proposed Zoning General Res II.

The proposed Site Development Plan has been attached as **ANNEXURE C** to this report.


**Figure 4-1 - Extract from SDP**

# 5 SURROUNDING ROAD NETWORK

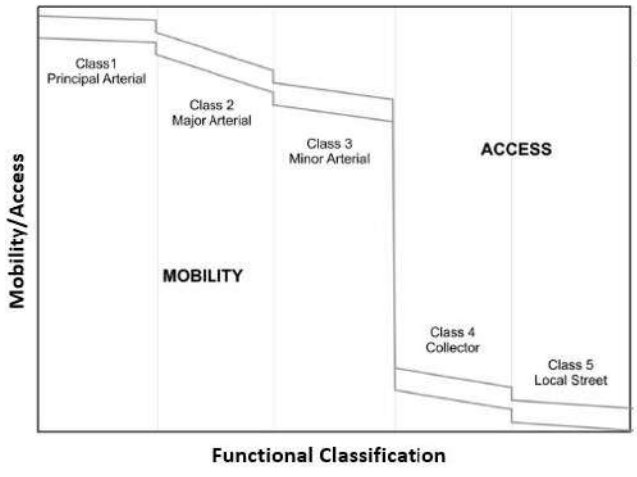
Depending on which guidelines are being used, the nomenclature used in road classification varies slightly. The difference between the terms used in the 2006 Department of Transport (DoT) Guidelines and those specified in the South African Road Classification and Access Management Manual (COTO TRH 26, May 2018), are listed below:

| Road Class | Function | DoT 2006 Guidelines | COTO 2012 (TRH 26 Manual) |
|---|---|---|---|
| Class 1 | Mobility | Primary Distributor | Principal Arterial |
| Class 2 | | Regional Distributor | Major Arterial |
| Class 3 | | District Distributor | Minor Arterial |
| Class 4 | Access | District Collector | Collector |
| Class 5 | | Access Road | Local Street |
| Class 6 | | Non-motorised access way | Walkway |

**Table 5-1 - Road Classification Nomenclature**

Roadways are classified by function on the basis of the priority given to land access versus through-traffic movement. Class 1 and 2 arterial roads provide a predominantly "mobility" function and Classes 4 and 5 roads perform a collector and local "access" function. The functions of "mobility" and "access" overlap on minor arterials (Class 3 roads). This relationship between "access" and "mobility" has been indicated schematically in Figure 5-1.

Access Management is particularly important along Principal, Major and Minor Arterials and other primary roads that are expected to provide safe and efficient movement of traffic as well as limited access to property. However, Access Management is also necessary on lower-order roadways, such as Collector Streets and Local Streets, to address safety considerations, such as sight distance and corner clearance.




| Class | Function | Description |
|---|---|---|
| Class 1 | Mobility | Principal Arterial |
| Class 2 | | Major Arterial |
| Class 3 | Mobility/Access | Minor Arterial |
| Class 4 | | Collector |
| Class 5 | Access | Local |

**Figure 5-1 - Relationship Between Access and Mobility**

## 5.1 LOBELIA STREET

Lobelia Street provides a direct and very important link between the North-western residential area of Heideland and TR83/1. Lobelia Street is a two-lane single carriageway within a 14m wide road reserve.


**Figure 5-2 - Lobelia Street**

In spite of its obvious role as collector road, a fairly large section of the road reserve has not yet been formally converted into road (as can be seen in Figure 5-3). A large section of the Lobelia Street, road reserve currently consists of unofficial gravel road.

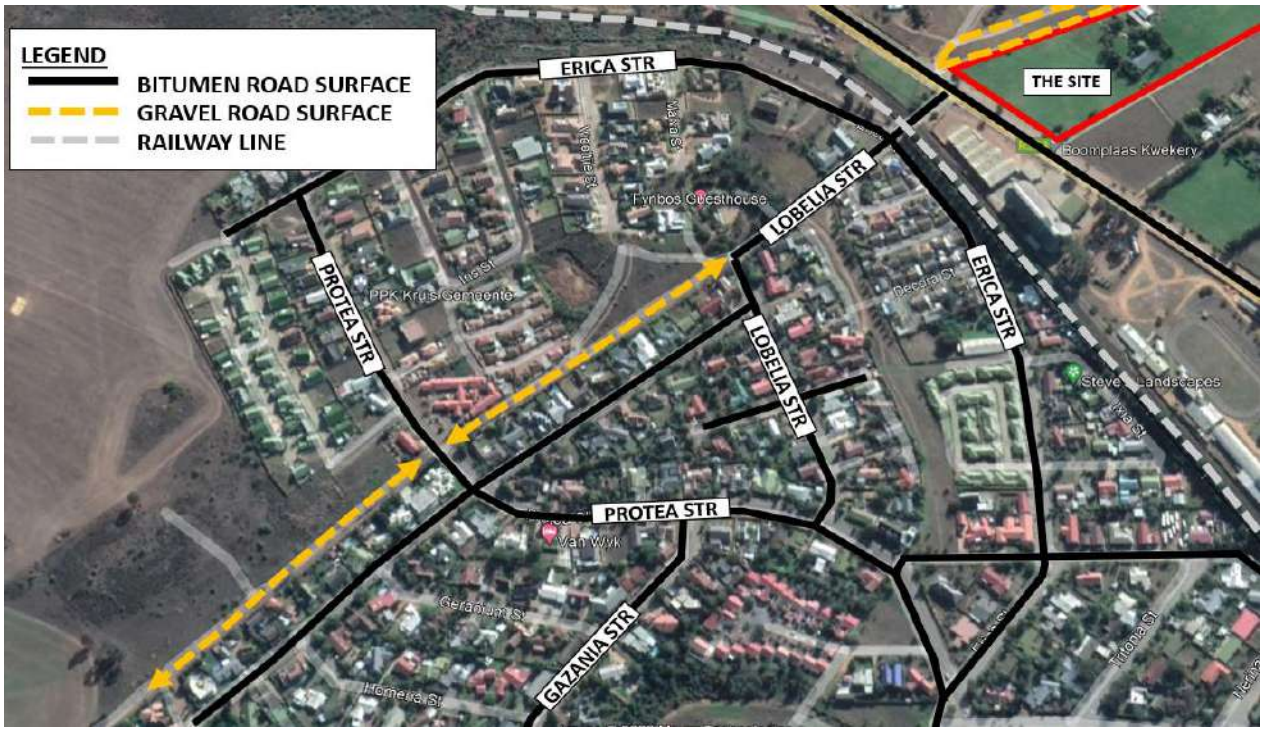



**Figure 5-3 - Lobelia Street Road Reserve**

A recent (25 January 2022) weekday traffic count at the Lobelia/TR83/1 intersection revealed in the region of 951 vehicles (of which 14 or 1.4% were heavy vehicles) approaching the intersection from the Heideland Area.

A follow up traffic count was conducted at the Lobelia/Erica Street intersection on 03 February 2022. This count revealed 1,847 vehicles moving through the intersection during the same 12-hour period.

Based on size of trip generator, reach of connectivity, travel stage and traffic volumes, Lobelia Street can be classified as a **Class 4 Collector Street.**

According to the TRH 26, collector streets are used to penetrate local neighbourhoods with the purpose of collecting (and distributing) traffic between local streets and the arterial system. The streets are mainly intended to serve an access function with limited mobility and traffic volumes; trip lengths and continuity must be limited.

They should ideally not carry any through traffic but only traffic with an origin or destination along or near to the street. The majority of the traffic using the collector street will have a destination in the street itself or in a local street leading off the collector. A collector street must not be quicker to use to pass through an area than a mobility road although it is recognized that in the absence of a mobility route, collectors must allow for some through traffic, albeit at low speeds.

Class 4a major collectors may also be used in preference to arterials when “mixed” through and local traffic is unavoidable, such as when arterials pass commercial centres with no alternative access. In this case, the local access traffic must be favoured at the expense of the mobility function. In terms of the TRH 26 Manual, collectors must be classified as either 4a or 4b as follows:

**i) Class 4a Commercial (Major) Collector Street**

These collectors are found in areas with commercial, business, industrial, shopping and mixed-use residential developments. The streets carry a high percentage of heavy vehicle traffic and public transport. Typical commercial collectors are CBD streets (whether two-way or one-way), shopping centre streets, activity spines and industrial distributors. Traffic volumes on the collectors vary greatly depending on their location. In busy shopping areas, the collectors can carry up to 25 000 vehicles or even more per day. The lengths of the roads should be limited to a maximum of about 2 km or 3 km if no through traffic is present.

**Class 4b Residential (Minor) Collector Street**

These collectors are found in residential areas and almost exclusively serve residential traffic and public transport. Residential collectors should not carry more than about 10 000 vehicles per day or 1 000 vehicles during peak hours (although lower volumes are preferred). These volumes are the maximum that can safely be accommodated on this class of streets. If Class 4b residential collector street volumes exceed 10 000 per day, it would indicate that reclassification of the road may be required. The lengths of the roads should be limited to a maximum of about 2 km.

Taking the above guidelines into consideration, Lobelia Street can be classified as a Class 4b Residential (Minor) Collector Street.

## 5.2 BAUHINIA STREET

Bauhinia Street has a surfaced road width of 6.5m and is situated within a 13m wide road reserve. It provides direct access to various residential properties situated directly next to the road.


**Figure 5-4 - Bauhinia Street**

## 5.3 ERICA (HEIDE) STREET

Erica Street is also referred to as Heide Street. Site Measurements revealed that Erica Street has a surfaced road width of 7.5m and is situated within a 16m wide road reserve. Just like Bauhinia Street, Erica Street provides direct access to various residential properties situated directly next to Erica Street.


**Figure 5-5 - Erica Street**

Based on the TRH 26 Guidelines, both Erica (Heide) Street and Bauhinia Street can be classified as Class 5 Local Street.

Class 5 streets provide access to individual properties. As they must provide exclusively an access or activity function, both traffic volumes and trip lengths must be significantly limited. They must not be continuous between roads of an order higher than Class 4.

Local streets should not carry any through traffic but only traffic with an origin or destination along the street, i.e. all the traffic using the local street will have a destination in the street itself. In terms of the TRH 26 Manual, local streets must be classified as either 5a or 5b as follows:

**i) Class 5a Commercial local street**

These local streets are found in areas with commercial, business, industrial, shopping and mixed-use residential developments. The streets often carry a high percentage of heavy vehicle traffic which use the streets to access loading areas or bus stops.

Commercial local streets should not carry volumes of more than about 5 000 vehicles per day. The length of the street should be limited to a maximum of about 1 km.

**ii) Class 5b Residential local street**

These local streets are found in residential areas and almost exclusively serve residential traffic and possibly some public transport as well as refuse and small delivery trucks.

Residential local streets should not carry more than about 1 000 vehicles per day or 100 vehicles during peak hours. If Class 5b residential local street volumes exceed 5 000 per day, it would be a criterion to classify the road as a Class 4b residential collector.

Local residential streets should be short blocks of less than 0.5 km, with one kilometre being the maximum for safety reasons.

From the above it follows that both Erica Street and Bauhinia Street should be classified as **Class 5b Residential Local Streets.**

# 6 TRAFFIC VOLUMES

In order to determine the existing (background) traffic volumes in the vicinity of the site, traffic counts were recorded over a 12-hour (06:00 to 18:00) period, at four critical points on Thursday 03 February 2022. Because traffic was mainly of a residential nature, the counts were not classified (the count did not differentiate between light and heavy vehicles).

The position of the traffic counting stations have been indicated in Figure 6-1 below:


Figure 6-1 - Position of Traffic Count Stations

The raw traffic count data has been attached as **ANNEXURE D** to this report. The data was analysed in order to determine the respective peak hour volumes. For ease of reference, the respective intersection flow profiles have been included in the figures below.

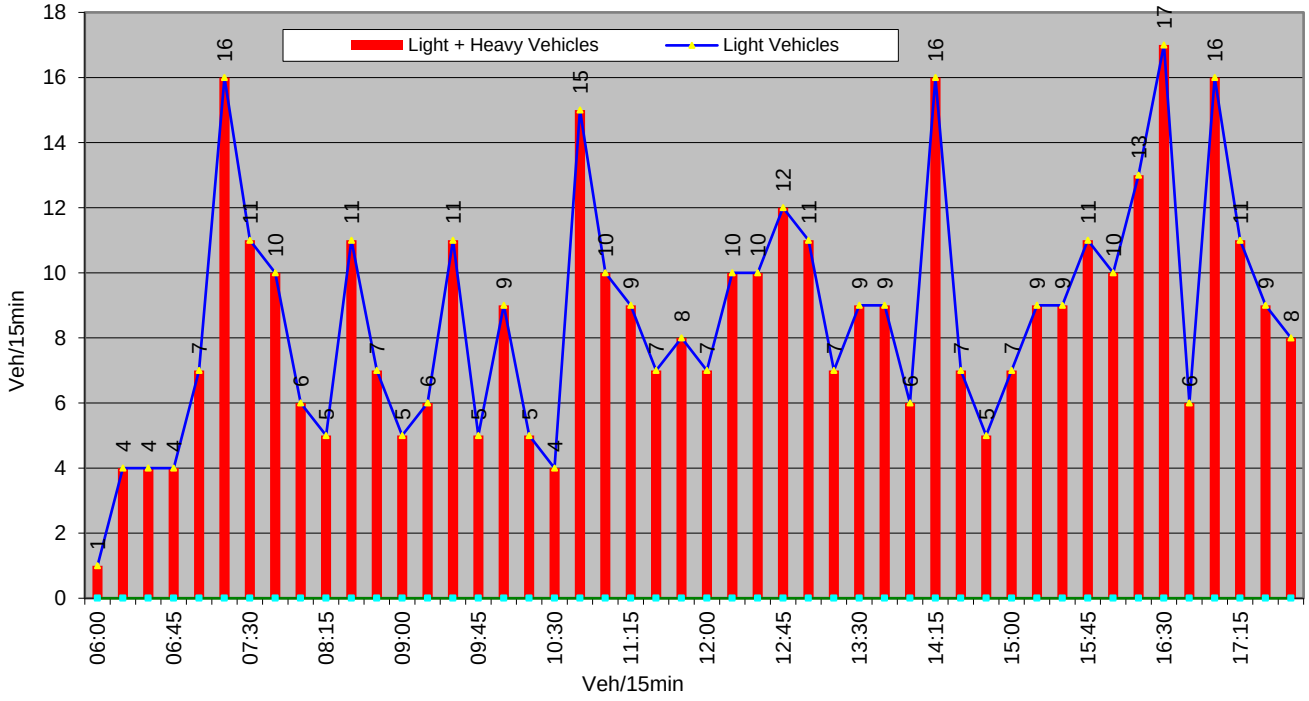



Figure 6-2 - Erica/Protea Intersection Weekday Flow Profile

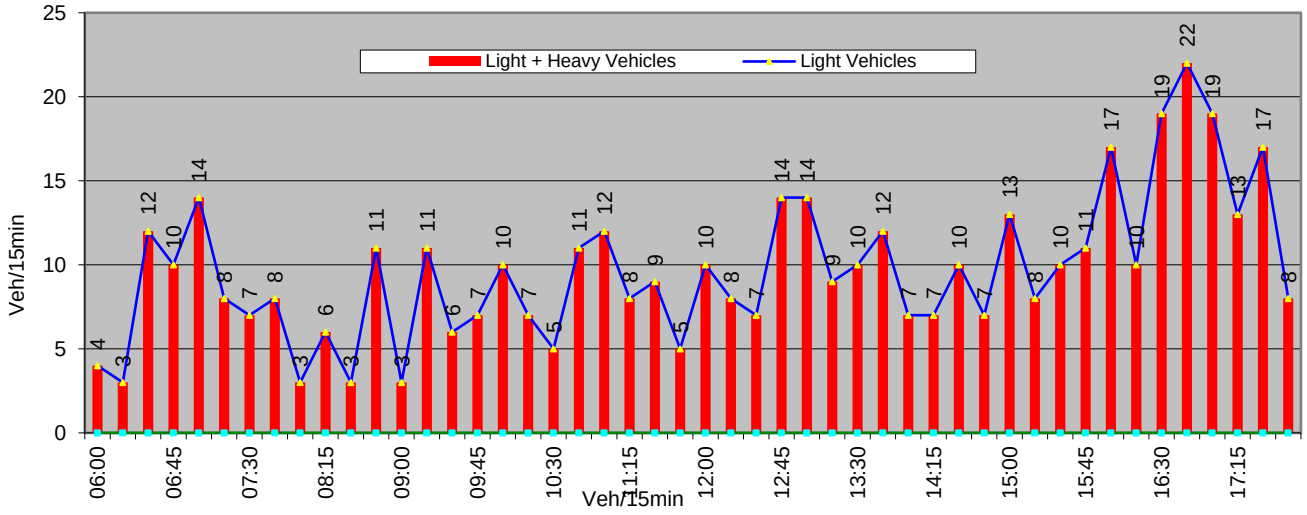



**Figure 6-3 - Langezicht/Protea Intersection Weekday Flow Profile**

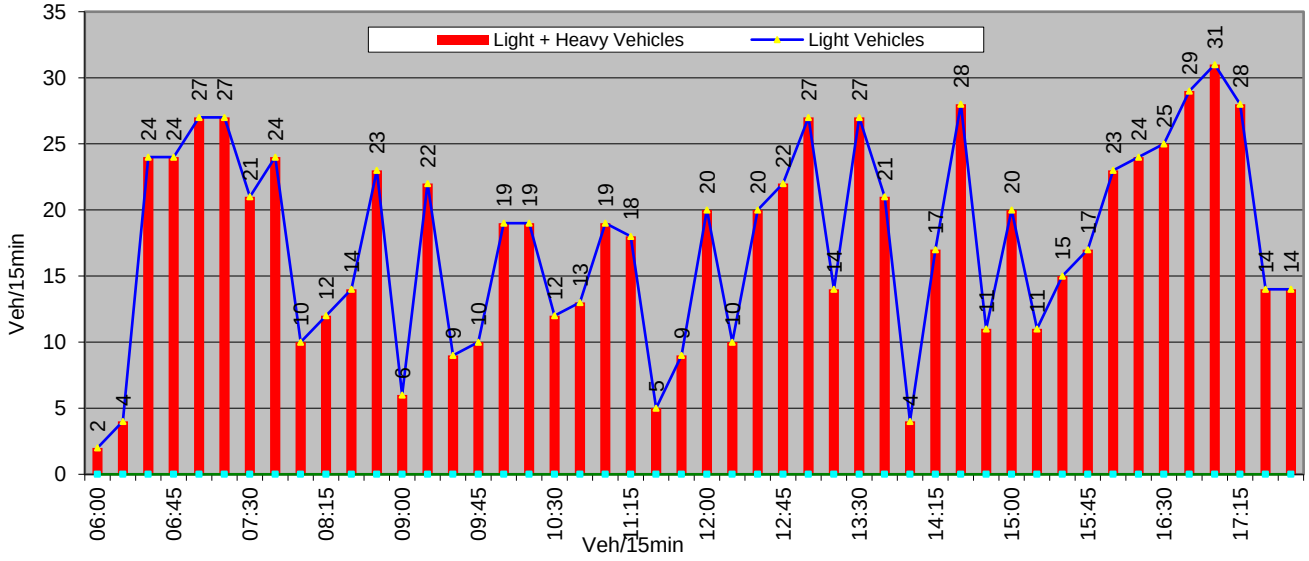



**Figure 6-4 - Bauhinia/Protea Intersection Weekday Flow Profile**

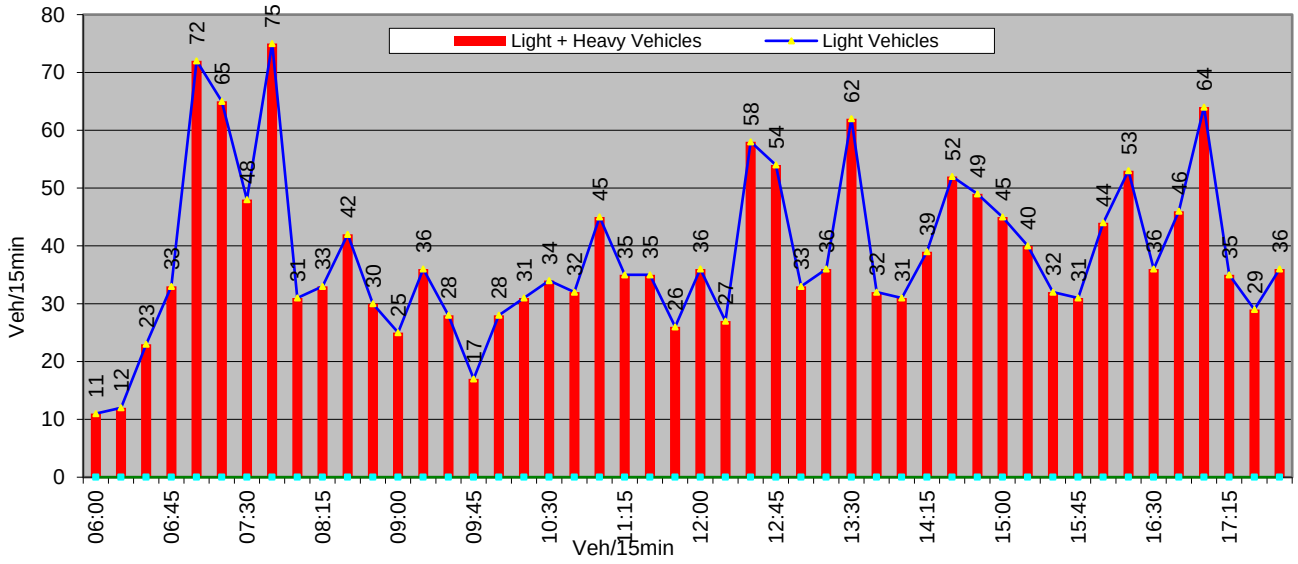



**Figure 6-5 - Erica/Lobelia Intersection Weekday Flow Profile**

Of the four intersections counted, the Erica/Lobelia Intersection returned the most distinctive AM, NM and PM Peak Hour spikes in traffic volumes. The rest of the intersections showed fairly consistent volumes with isolated increases at various times of the day. Clearly defined AM, NM and PM Peak Hour periods are typical of Class 5 road networks that primarily serve residential areas. The AM, NM and PM peak periods are typically created as a result of commuting to and from schools and work/offices. However, due to the relatively low number of vehicles counted at some of these intersections, the peak volumes were not sufficient to create a substantial impact on the flow profile graph.

The traffic distribution and respective peak hour volumes are best seen in Figures A, B and C attached in **ANNEXURE E** to this report.

# 7 TRIP GENERATION POTENTIAL

## 7.1 TRIP GENERATION

The trip generation potential of the site has been calculated based on the guidelines published in TMH 17 (South African Trip Data Manual, COTO May 2018).

The following assumptions were made in order to estimate the trip generation potential:

**Agricultural Zone II Erven**

27 Erven in total. No commercial farming activities to take place on these stands. Trip Generation potential of one stand is equal to that of a TMH 17 Code 210 (Single Dwelling Unit).

**Single Residential Zone II Erven**

155 Erven in total. Trip Generation potential of one stand is equal to that of a TMH 17 Code 210 (Single Dwelling Unit).

**General Residential Zone II**

**Erf 29** – 7.2ha. Assume future development density of 35 units per ha. Number of units therefore equals 252. Trip Generation potential of one stand is equal to that of a TMH 17 Code 251 (Retirement Village).

**Erf 30** – 2.0 ha. Assume future development density of 35 units per ha. Number of units therefore equals 70. Trip Generation potential of one stand is equal to that of a TMH 17 Code 231 (Townhouses).

**Erf 31** – 1.9 ha. Assume future development density of 35 units per ha. Number of units therefore equals 67. Trip Generation potential of one stand is equal to that of a TMH 17 Code 231 (Townhouses).

**Business Zone III**

**Erf 188** - 5,210m$^2$. Assume future development is for a shopping centre. Assume GLA of shopping centre is 45% of erf size, therefore future GLA equals 2,345m$^2$. Trip Generation potential of erf is equal to that of a TMH 17 Code 820 (Shopping Centre, with mixed use reduction factor due to inclusion in residential suburb).

The relevant TMH 17 definition of the various land uses are described below:

**210 Single Dwelling Unit — Dwelling Unit**

Single dwelling units are detached houses on individual erven. The units usually have individual accesses to streets.

**251 Retirement Village — Dwelling Unit**

Dwelling units are intended for senior adults. Dwelling units could either be detached or provided in one building structure.

**231 Townhouses (Simplexes and Duplexes) — Dwelling Unit**

Dwelling units typically provided in clusters or in complexes. Units could be detached or provided within one building structure. Parking is often provided within a communal area.

**820 Shopping Centre — 100sqm GLA**

A shopping centre is an integrated (mixed-use) group of commercial establishments that operate as a unit. May include small components of other land uses, such as restaurants, hardware and paint shops, etc

The Gross Leasable Area (GLA) of a development is the total floor area designed for tenant occupancy and exclusive use. It is the area for which tenants pay rent and which produces income for the owner of the development. The GLA is normally measured in $m^2$ (square metres) and is typically measured between the centrelines of inner and outside walls. Generally, the following areas are excluded from the definition of GLA:

- Open roof areas, verandas or balconies. Canopies erected on the street frontage of a shop.
- Parking areas.
- Malls, entrance halls and foyers at shopping centres.
- Accommodation for the lift room and other mechanical or electrical equipment required for the functioning of the building.
- Areas reasonably used in connection with the cleaning, maintenance and care of the building.
- Accommodation of the supervisor.

The resultant trip generation calculation has been attached as Table 7-1 below.

| Description | Size | | AM Peak | | | PM Peak | | | Saturday Peak | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Trip Gen | In | Out | Trip Gen | In | Out | In | Out |
| 210 Single Dwelling Unit | 182 | DU | 1 | 46 | 137 | 1 | 127 | 54,6 | 46 | 46 |
| 251 Retirement Village | 252 | DU | 0,35 | 35 | 53 | 0,35 | 44 | 44,1 | 25 | 25 |
| 231 Townhouses | 137 | DU | 0,85 | 29 | 87 | 0,85 | 82 | 34,9 | 31 | 31 |
| 820 Shopping Centre | 2345 | $m^2$ | | 38 | 20 | | 165 | 165 | 218 | 218 |
| | | | | 148 | 297 | | 418 | 299 | 320 | 320 |

**Table 7-1 - Trip Generation**

From Table 7-1 it follows that the worst-case scenario from a trip generation point of view takes place during the weekday PM peak hour period when the proposed development has the potential to generate up to a total of 718 trips (418 IN and 299 OUT). The expected traffic distribution has been indicated schematically in Figure D and Figure E, attached as **ANNEXURE E** to this report.

## 7.2 TRAFFIC DISTRIBUTION

The following traffic distribution scenario was assumed:

**SHORT TO MEDIUM TERM**

Lobelia extension will not take place during the Short to Medium term and hence only Erica Street and Bauhinia Street will be used to access the site.

**IN TRAFFIC**

- 70% will approach the development via Erica Street
- 30% will approach the development via Bauhinia Street

**OUT TRAFFIC**

- 70% will exit the development via Erica Street
- 30% will exit the development via Bauhinia Street

**LONG TERM**

Lobelia Street will be extended through the current gravel road reserve and will provide an alternative access road to reach the proposed development.

**IN TRAFFIC**

- 50% will approach the development via the future Lobelia Street Extension
- 35% will approach the development via Erica Street
- 15% will approach the development via Bauhinia Street

**OUT TRAFFIC**

- 50% will exit the development via the future Lobelia Street Extension
- 35% will exit the development via Erica Street
- 15% will exit the development via Bauhinia Street

The envisaged traffic distribution has been indicated schematically in Figure F and Figure G, attached as **ANNEXURE E** to this report.

# 8 INTERSECTION OPERATIONAL ANALYSES

The operational analysis was done with the "SIDRA INTERSECTION 8" (version 8.0.5) computer aided software that is developed specifically for traffic engineering capacity analysis. When elements of a road network such as intersections are analysed, their operating conditions are described in terms of Level of Service (LOS). The six letters from A to F are used to indicate different LOS. LOS A indicates very low traffic flows with correspondingly low delays. LOS E reflects capacity conditions, with high delays and unstable flow. LOS F reflects conditions where traffic demand exceeds capacity and traffic experiences congestion and delays. Generally, LOS A to D is considered acceptable in accordance with international standards. LOS E and F on the other hand are considered to be unacceptable.

The Average Delay is the delay in seconds that a motorist is likely to experience on an approach to the junction, while waiting for the junction to clear or other vehicles to maneuver. A further measure of the operating conditions at any point in a road network is the volume to capacity ratio (v/c). As the name implies it is the traffic demand volume divided by the available capacity of the road element. Generally, ratios of up to approximately 0.9 are internationally considered acceptable. Values exceeding 1.0 implies saturation of the facility.

The SIDRA analysis was performed for the following scenarios:

- **Status Quo:** The background traffic volumes were determined by manual traffic counting. These represent the actual volumes that are present on the road network.
- **No-Go Scenario:** A growth factor was applied to account for regional growth and the volumes were escalated up to the year 2027. This analysis indicates the traffic situation 5 years from now, but without the inclusion of the proposed development.
- **Operational Traffic** were estimated for the proposed development. The operational traffic volumes were added to the 2027 future traffic volumes to form the basis of the analysis, should the development be allowed to continue.

## 8.1 STATUS QUO

The current Weekday AM and PM Peak hour traffic volumes were used to calculate the Status Quo operational scenario. The results of the SIDRA Analysis have been attached as **ANNEXURE F**, but a summary of the critical parameters have been included in tabular format below.

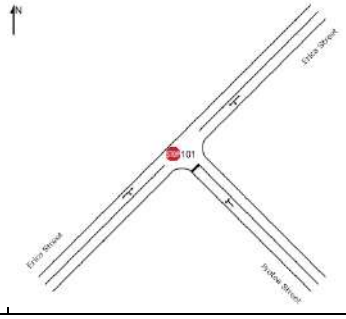
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2022 AM | | | 2022 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| PROTEA / ERICA |  | Protea St (South East) | Left | A | 8.0 | 0.010 | A | 8.0 | 0.021 |
| | | | Right | A | 7.5 | | A | 7.5 | |
| | | Erica St (North East) | Left | A | 5.5 | 0.009 | A | 5.5 | 0.012 |
| | | | Through | A | 0.0 | | A | 0.0 | |
| | | Protea St (South West) | Through | A | 0.0 | 0.008 | A | 0.0 | 0.003 |
| | | | Right | A | 5.5 | | A | 5.5 | |

Table 8-1 - Status Quo - Protea and Erica Street

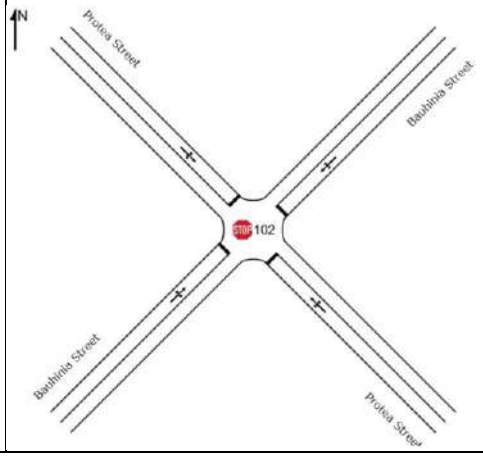
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2022 AM | | | 2022 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| BAUHINIA / PROTEA |   | Protea St (South East) | Left | B | 12.3 | 0.059 | B | 12.0 | 0.089 |
| | | | Through | B | 11.9 | | B | 11.7 | |
| | | | Right | B | 11.7 | | B | 11.4 | |
| | | Bauhinia St (North East) | Left | C | 24.4 | 0.053 | C | 21.6 | 0.065 |
| | | | Through | C | 24.0 | | C | 21.2 | |
| | | | Right | C | 23.8 | | C | 21.0 | |
| | | Protea St (North West) | Left | B | 11.7 | 0.054 | B | 12.0 | 0.034 |
| | | | Through | B | 11.4 | | B | 11.7 | |
| | | | Right | B | 11.2 | | B | 11.5 | |
| | | Bauhinia St (South West) | Left | B | 14.5 | 0.045 | C | 16.3 | 0.046 |
| | | | Through | B | 14.1 | | C | 16.0 | |
| | | | Right | B | 13.9 | | C | 15.7 | |

Table 8-2 - Status Quo - Bauhinia and Protea Street

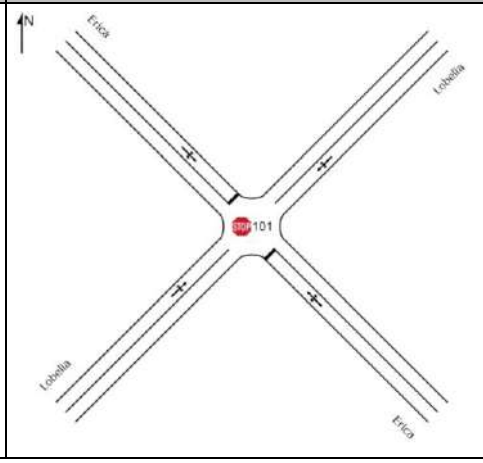
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2022 AM | | | 2022 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| LOBELIA / ERICA |   | Erica St (South East) | Left | A | 8.1 | 0.079 | A | 8.2 | 0.031 |
| | | | Through | A | 8.2 | | A | 8.2 | |
| | | | Right | A | 8.4 | | A | 8.3 | |
| | | Lobelia St (North East) | Left | A | 5.6 | 0.047 | A | 5.6 | 0.058 |
| | | | Through | A | 0.1 | | A | 0.0 | |
| | | | Right | A | 5.6 | | A | 5.5 | |
| | | Erica St (North West) | Left | A | 8.2 | 0.040 | A | 8.1 | 0.021 |
| | | | Through | A | 8.3 | | A | 8.3 | |
| | | | Right | A | 8.0 | | A | 8.1 | |
| | | Lobelia St (South West) | Left | A | 5.7 | 0.026 | A | 5.7 | 0.019 |
| | | | Through | A | 0.0 | | A | 0.1 | |
| | | | Right | A | 5.6 | | A | 5.7 | |

Table 8-3 - Status Quo - Lobelia and Erica Street

Analysis of the traffic count data indicates that all three intersections are currently operating at acceptable Levels of Service (LOS). This is mainly attributed to the relatively low traffic volumes that make use of these intersections.

## 8.2 NO GO SCENARIO (ESCALATED 2027 TRAFFIC VOLUMES)

In order to estimate the future (2027) traffic volumes for the No-Go Scenario, the 2022 Status-Quo Peak Hour traffic volumes were further increased with an annual growth factor. Reference is made to the South African Department of Transport's Manual for Traffic Impact Studies (DoT, October 1995) which provides a table with typical growth rates. This document recognises that the method for determining traffic growth is important, but also states that there are a number of factors which influence the traffic growth rate. The approach is therefore to classify the study area with a low, average, high or extremely high growth rate. The typical growth rates are indicated in Table 8-4.

| Category | Yearly Growth Rate (%) |
|---|---|
| Low | 0-2.5 |
| Average | 2.5-3.5 |
| High | 3.5-6 |
| Exceptionally high | >6 |

**Table 8-4 - Typical Traffic Growth Rates**

Based on the growth within the Western Cape region, it was decided to apply a fairly conservative 3% annual growth rate to the Status Quo traffic volumes.

The estimated 2027 traffic volumes (for the No-Go Scenario) were calculated according to the equation below:

$$F = P \times (1 + i)^n$$

Where: F = Future Trips
P = Present Trips
n = 5 years
i = 3% Growth

The increased traffic volumes can be seen in Figure H and Figure I attached as **ANNEXURE E** to this report. The results of the SIDRA Analysis have been attached as **ANNEXURE F**, but a summary of the critical parameters have been included in tabular format below.

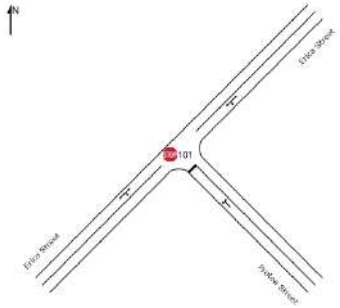
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 AM | | | 2027 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| PROTEA / ERICA |  | **Protea St** (South East) | **Left** | A | 8.0 | 0.011 | A | 8.0 | 0.023 |
| | | | **Right** | A | 7.5 | | A | 7.5 | |
| | | **Erica St** (North East) | **Left** | A | 5.5 | 0.011 | A | 5.5 | 0.014 |
| | | | **Through** | A | 0.0 | | A | 0.0 | |
| | | **Protea St** (South West) | **Through** | A | 0.0 | 0.009 | A | 0.0 | 0.003 |
| | | | **Right** | A | 5.5 | | A | 5.5 | |

**Table 8-5 - Future 2027 - Protea and Erica Street**

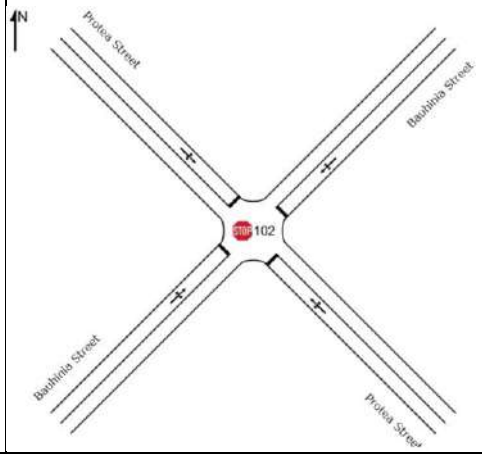
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 AM | | | 2027 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| BAUHINIA / PROTEA |   | Protea St (South East) | Left | B | 12.4 | 0.067 | B | 12.2 | 0.106 |
| | | | Through | B | 12.0 | | B | 11.8 | |
| | | | Right | B | 11.8 | | B | 11.6 | |
| | | Bauhinia St (North East) | Left | D | 25.8 | 0.062 | C | 22.0 | 0.078 |
| | | | Through | D | 25.5 | | C | 21.7 | |
| | | | Right | D | 25.2 | | C | 21.4 | |
| | | Protea St (North West) | Left | B | 11.8 | 0.063 | B | 12.0 | 0.039 |
| | | | Through | B | 11.4 | | B | 11.7 | |
| | | | Right | B | 11.2 | | B | 11.5 | |
| | | Bauhinia St (South West) | Left | B | 14.4 | 0.051 | C | 16.6 | 0.053 |
| | | | Through | B | 14.0 | | C | 16.2 | |
| | | | Right | B | 13.8 | | C | 16.0 | |

**Table 8-6 - Future 2027 - Bauhinia and Protea Street**

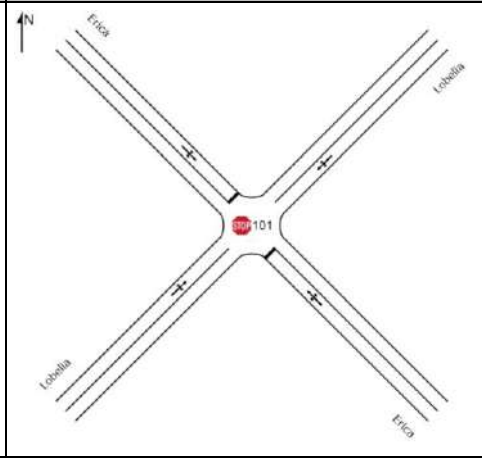
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 AM | | | 2027 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| LOBELIA / ERICA |   | Erica St (South East) | Left | A | 8.1 | 0.093 | A | 8.2 | 0.037 |
| | | | Through | A | 8.3 | | A | 8.3 | |
| | | | Right | A | 8.6 | | A | 8.4 | |
| | | Lobelia St (North East) | Left | A | 5.6 | 0.055 | A | 5.6 | 0.067 |
| | | | Through | A | 0.1 | | A | 0.1 | |
| | | | Right | A | 5.6 | | A | 5.5 | |
| | | Erica St (North West) | Left | A | 8.2 | 0.046 | A | 8.1 | 0.025 |
| | | | Through | A | 8.4 | | A | 8.4 | |
| | | | Right | A | 8.1 | | A | 8.2 | |
| | | Lobelia St (South West) | Left | A | 5.7 | 0.031 | A | 5.7 | 0.022 |
| | | | Through | A | 0.0 | | A | 0.1 | |
| | | | Right | A | 5.7 | | A | 5.7 | |

**Table 8-7 - Future 2027 - Lobelia and Erica Street**

The SIDRA analysis indicated that the future (5 years from 2022) Level of Service of all three intersections remain fairly unchanged, except for the Bauhunia/Protea intersection where the LOS of the North-eastern Bauhinia Approach deteriorated from a LOS C to a LOS D (refer to Table 8-6).

## 8.3 OPERATIONAL PHASE TRAFFIC

In order to assess the impact that the development is expected to have on the surrounding road network, the additional traffic generated by the development was added to the future (2027) background traffic volumes. The traffic was distributed as indicated in Section 7.2 and **ANNEXURE E** of this report.

The results of the SIDRA analysis have been attached as **ANNEXURE F**, but a summary of the critical parameters have been included in tabular format below.

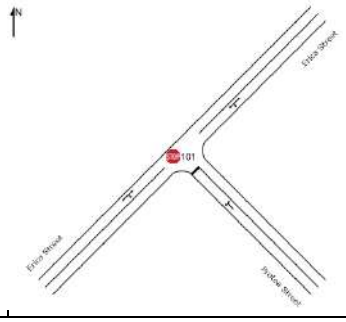
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 + DEV (AM) | | | 2027 + DEV (PM) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| PROTEA / ERICA |  | **Protea St** (South East) | **Left** | A | 8.3 | 0.027 | A | 9.1 | 0.076 |
| | | | **Right** | A | 9.0 | | B | 10.1 | |
| | | **Erica St** (North East) | **Left** | A | 5.5 | 0.056 | A | 5.6 | 0.142 |
| | | | **Through** | A | 0.0 | | A | 0.0 | |
| | | **Protea St** (South West) | **Through** | A | 0.1 | 0.122 | A | 0.3 | 0.120 |
| | | | **Right** | A | 5.8 | | A | 6.4 | |



**Table 8-8 - Future 2027 + Development Traffic - Protea and Erica Street**

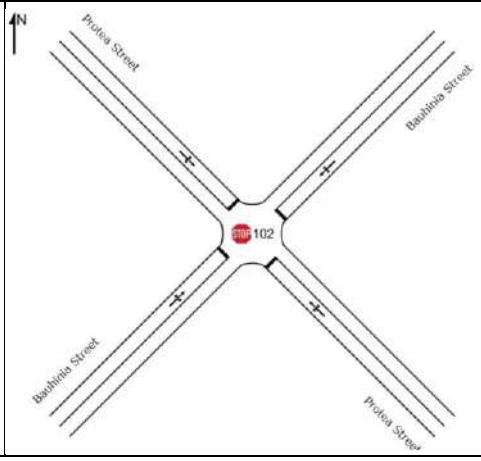
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 + DEV (AM) | | | 2027 + DEV (PM) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| BAUHINIA / PROTEA |  | **Protea St** (South East) | **Left** | C | 19.6 | 0.187 | C | 22.8 | 0.368 |
| | | | **Through** | C | 19.2 | | C | 22.4 | |
| | | | **Right** | C | 19.0 | | C | 22.2 | |
| | | **Bauhinia St** (North East) | **Left** | C | 14.3 | 0.069 | B | 14.1 | 0.146 |
| | | | **Through** | B | 14.0 | | B | 13.7 | |
| | | | **Right** | B | 13.8 | | B | 13.5 | |
| | | **Protea St** (North West) | **Left** | B | 15.0 | 0.103 | B | 13.8 | 0.073 |
| | | | **Through** | B | 14.6 | | B | 13.5 | |
| | | | **Right** | B | 14.4 | | B | 13.3 | |
| | | **Bauhinia St** (South West) | **Left** | B | 12.0 | 0.157 | B | 12.5 | 0.165 |
| | | | **Through** | B | 11.6 | | B | 12.2 | |
| | | | **Right** | B | 11.4 | | B | 11.9 | |



**Table 8-9 - Future 2027 + Development Traffic - Bauhinia and Protea Street**

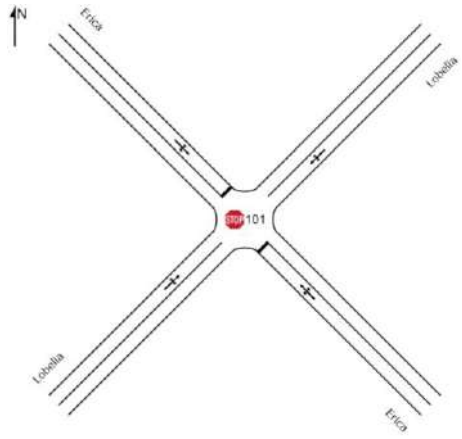
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | 2027 + DEV AM | | | 2027 + DEV PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| LOBELIA / ERICA |   | **Erica St** (South East) | **Left** | A | 8.2 | 0.130 | A | 8.4 | 0.067 |
| | | | **Through** | A | 9.2 | | B | 10.7 | |
| | | | **Right** | B | 11.3 | | B | 13.4 | |
| | | **Lobelia St** (North East) | **Left** | A | 5.8 | 0.119 | A | 5.8 | 0.245 |
| | | | **Through** | A | 0.3 | | A | 0.3 | |
| | | | **Right** | A | 5.7 | | A | 5.7 | |
| | | **Erica St** (North West) | **Left** | A | 8.4 | 0.188 | A | 8.3 | 0.180 |
| | | | **Through** | A | 9.6 | | B | 11.5 | |
| | | | **Right** | A | 9.5 | | B | 11.7 | |
| | | **Lobelia St** (South West) | **Left** | A | 5.8 | 0.051 | A | 5.9 | 0.043 |
| | | | **Through** | A | 0.0 | | A | 0.1 | |
| | | | **Right** | A | 5.7 | | A | 5.9 | |

**Table 8-10 - Future 2027 + Development Traffic - Lobelia and Erica Street**

Analysis of the above tables, reveals that the inclusion of the additional traffic generated by the proposed development of Lot 21, will be accommodated within the current public road network without adversely affecting the Level of Service of the affected intersections. It should also be noted that the average 3% yearly growth factor applied to the background traffic volumes can be seen a slightly conservative, especially since the affected roads are not through roads and most of the erven in the surrounding residential suburbs have already been developed.

However, in order to further improve the LOS of the affected intersections, the following mitigation measures were identified and analyzed in SIDRA:

1. Conversion of Bauhinia/Protea junction to a 2-way intersection with STOP control on the Protea Street approaches to the intersection only.
2. Future link road between Lot 21 and TR83/1, to be constructed within the 14m wide section (made up of erven: RE/4515, RE/4501, RE/4477, Erf 4177, RE4485) that looks like the road reserve for the future extension of Lobelia Street.

# 9 MITIGATION MEASURES

As discussed in Section 8.3, certain mitigation measures were analyzed in order to determine whether they would help improve the level of service of the affected intersections. The mitigation measures were classified as short term improvement (to be implemented with immediate effect) and long term improvements (to be implemented over a 5-15 year period).

## 9.1 SHORT TERM INTERSECTION IMPROVEMENTS

The short-term improvements were in the form of upgrades to the Bauhinia/Protea Street intersection. The upgrade entailed converting the current 4-way stop controlled intersection to a 2-way stop controlled intersection with priority movement along the Bauhinia approaches to the intersection. The intersection was once again analysed using the Future 2027 + Development traffic volumes and the results of the SIDRA analysis summarised in the table below:

| INTERSECTION | APPROACH | MOVEMENT | 4-WAY STOP (AM) | | | 4-WAY STOP (PM) | | | 2-WAY STOP (AM) | | | 2-WAY STOP (PM) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| BAUHINIA / PROTEA | Protea St (South East) | Left | C | 19.6 | 0.187 | C | 22.8 | 0.368 | A | 8.1 | 0.051 | A | 8.3 | 0.107 |
| | | Throug | C | 19.2 | | C | 22.4 | | A | 8.3 | | A | 8.6 | |
| | | Right | C | 19.0 | | C | 22.2 | | A | 8.4 | | A | 8.7 | |
| | Bauhinia St (North East) | Left | C | 14.3 | 0.069 | B | 14.1 | 0.146 | A | 5.6 | 0.017 | A | 5.6 | 0.040 |
| | | Throu | B | 14.0 | | B | 13.7 | | A | 0.0 | | A | 0.0 | |
| | | Right | B | 13.8 | | B | 13.5 | | A | 5.6 | | A | 5.6 | |
| | Protea St (North West) | Left | B | 15.0 | 0.103 | B | 13.8 | 0.073 | A | 8.2 | 0.046 | A | 8.2 | 0.041 |
| | | Throug | B | 14.6 | | B | 13.5 | | A | 8.3 | | A | 8.5 | |
| | | Right | B | 14.4 | | B | 13.3 | | A | 8.5 | | A | 9.2 | |
| | Bauhinia St (South West) | Left | B | 12.0 | 0.157 | B | 12.5 | 0.165 | A | 5.6 | 0.061 | A | 5.7 | 0.061 |
| | | Throug | B | 11.6 | | B | 12.2 | | A | 0.1 | | A | 0.1 | |
| | | Right | B | 11.4 | | B | 11.9 | | A | 5.5 | | A | 5.7 | |

**Table 9-1 - Conversion of Bauhinia/Protea to 2-Way Stop**

From Table 9-1 it follows that the overall Level of Service of the Bauhinia/Protea intersection is expected to improve drastically by simply converting the intersection from a 4-way STOP controlled intersection to a 2-way STOP controlled intersection with priority movement along the Bauhinia approaches. This will also help to channel traffic towards TR83/1 which is a fairly high order collector road.

## 9.2 LONG TERM ROAD NETWORK IMPROVEMENTS

The proposed long term improvement entails extending Lobelia Street through the current unused land portions made up of erven RE/4515, RE/4501, RE/4477, Erf 4177, RE4485. This road network upgrade will provide motorist with a more direct route between the proposed Lot 21 development and TR83/1. The fact that the residential dwellings currently abutting this open corridor are all serviced from other surfaced streets, further helps to improve mobility along this corridor as direct property accesses along the future road will be limited.

The proposed extension will also change the current distribution of traffic through the residential neighborhood by attracting trips that are currently distributed throughout the neighborhood. An estimation of the revised distribution has been attached as Figure L and Figure M in **ANNEXURE E** to this report.

This proposed road network upgrade should be seen as a long term plan (between 5 and 15 years) and it would also help to unlock development on the other land parcels (currently zoned for agricultural use) situated between the N2 and the current Riversdale residential suburbs. The results of the SIDRA analysis for the revised distribution have been attached as **ANNEXURE F**, but a summary of the critical parameters have been included in Table 9-2.

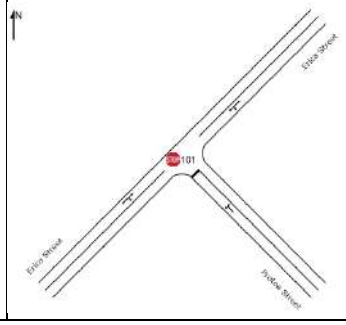
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | LONG TERM (AM) | | | LONG TERM (PM) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| PROTEA / ERICA AFTER LOBELIA EXTENSION |  | Protea St (South East) | Left | A | 8.2 | 0.019 | A | 8.5 | 0.046 |
| | | | Right | A | 8.2 | | A | 8.6 | |
| | | Erica St (North East) | Left | A | 5.5 | 0.033 | A | 5.5 | 0.077 |
| | | | Through | A | 0.0 | | A | 0.0 | |
| | | Protea St (South West) | Through | A | 0.1 | 0.065 | A | 0.1 | 0.061 |
| | | | Right | A | 5.6 | | A | 5.9 | |

Table 9-2 – Protea/Erica Intersection after Lobelia Extension

The long-term Lobelia Extension was also analysis based on the conversion of the Bauhinia/Lobelia intersection from a 4-way intersection to a 2-way intersection with priority movement along the Bauhinia Approaches.

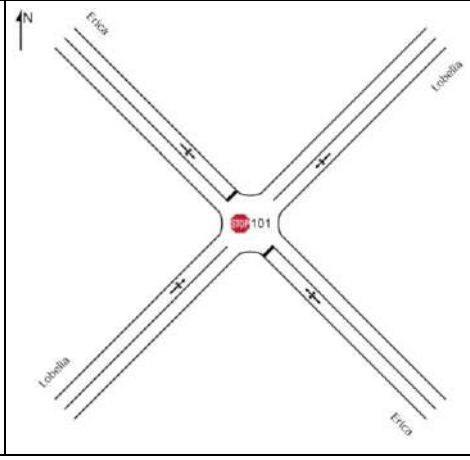
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | LONG TERM (AM) | | | LONG TERM (PM) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| BAUHINIA / PROTEA INTERSECTION AFTER LOBELIA EXTENSION |  | Protea St (South East) | Left | A | 8.1 | 0.043 | A | 8.1 | 0.081 |
| | | | Through | A | 8.0 | | A | 8.2 | |
| | | | Right | A | 8.1 | | A | 8.1 | |
| | | Bauhinia St (North East) | Left | A | 5.6 | 0.012 | A | 5.6 | 0.025 |
| | | | Through | A | 0.0 | | A | 0.0 | |
| | | | Right | A | 5.5 | | A | 5.5 | |
| | | Protea St (North West) | Left | A | 8.1 | 0.042 | A | 8.1 | 0.030 |
| | | | Through | A | 8.0 | | A | 8.1 | |
| | | | Right | A | 8.1 | | A | 8.5 | |
| | | Bauhinia St (South West) | Left | A | 5.6 | 0.036 | A | 5.6 | 0.035 |
| | | | Through | A | 0.0 | | A | 0.1 | |
| | | | Right | A | 5.5 | | A | 5.6 | |

Table 9-3 – Bauhinia/Protea Intersection after Lobelia Extension

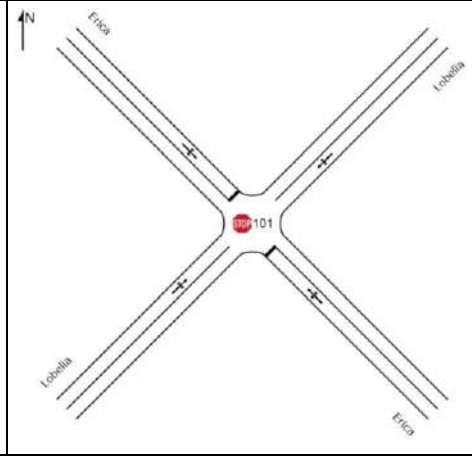
| INTERSECTION | LAYOUT | APPROACH | MOVEMENT | LONG TERM AM | | | LONG TERM PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO | LEVEL OF SERVICE | AVE DELAY (sec) | V / C RATIO |
| LOBELIA / ERICA INTERSECTION AFTER LOBELIA EXTENSION |  | Erica St (South East) | Left | A | 8.1 | 0.208 | A | 8.8 | 0.064 |
| | | | Through | A | 8.6 | | B | 11.0 | |
| | | | Right | A | 9.9 | | B | 12.7 | |
| | | Lobelia St (North East) | Left | A | 5.5 | 0.075 | A | 6.1 | 0.224 |
| | | | Through | A | 0.0 | | A | 0.4 | |
| | | | Right | A | 5.5 | | A | 6.0 | |
| | | Erica St (North West) | Left | A | 8.0 | 0.178 | A | 8.6 | 0.113 |
| | | | Through | A | 8.9 | | B | 11.5 | |
| | | | Right | A | 9.1 | | B | 11.8 | |
| | | Lobelia St (South West) | Left | A | 5.9 | 0.052 | A | 6.2 | 0.080 |
| | | | Through | A | 0.4 | | A | 0.1 | |
| | | | Right | A | 5.9 | | A | 6.2 | |



Table 9-4 - Lobelia/Erica Intersection after Lobelia Extension

## 10 SITE TRAFFIC ASSESSMENT

A Site Traffic Assessment did not form part of this project assignment. As and when this TIA is approved and various Site Development Plans are prepared for the proposed shopping centre and gated developments, individual Site Traffic Assessments will be required to address on-site operations including internal road layouts, parking requirements and throat length calculations.

## 11 GEOMETRIC CONSTRAINTS

For reference purposes, a typical road cross section has been indicated in Figure 11-1

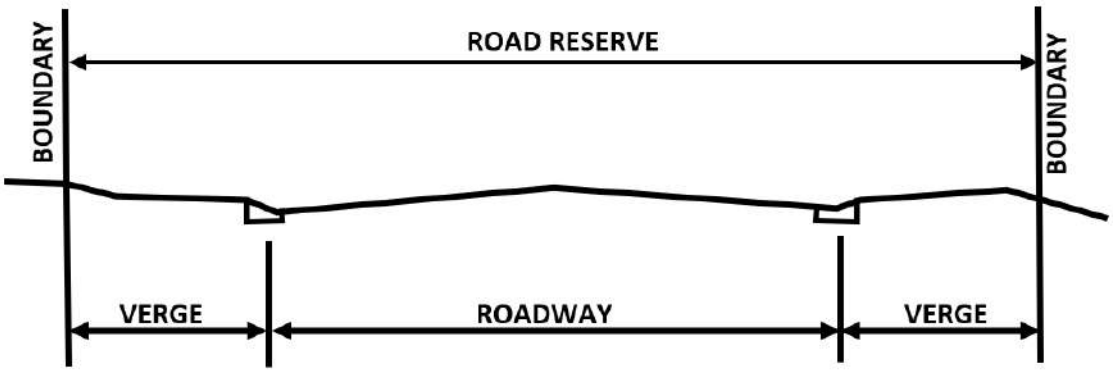



Figure 11-1 - Recommended Cross Section for Class 4 Collector Streets

The following recommendations are made:

**Collector Roads (Lobelia Extension and Protea Street)**

- Road Reserve widths should ideally be 30m, however due to existing constraints the current 16m road reserves measured on site (Lobelia and Protea Street) are deemed acceptable.
- Lane Widths should be a minimum of 3,4m

**Local Residential Streets**

- Road Reserve widths should be a minimum of 15m
- Lane Widths should be a minimum of 3,4m

## 11.1 HORIZONTAL CURVATURE

Based on both the UTG 1 (Geometric Design of Urban Arterial Roads) and UTG 5 (Geometric Design of Urban Collector Roads) guidelines, the recommended design practice is to use large radius curves without superelevation as far as possible. However, where large radius curves are not possible, superelevation can be introduced to offset the side friction forces of smaller radius curves. The following table should be used as a guideline:

| Minimum Radius for Horizontal Curves (m) | | | | | | |
|---|---|---|---|---|---|---|
| Design Speed (Km/h) | Side Friction Factor (f) | Minimum radius for maximum superelevation rates (e) | | | | |
| | | -0.02 | 0 | +0.02 | +0.04 | +0.06 |
| 60 | 0.15 | 220 | 190 | 170 | 150 | 135 |
| 80 | 0.14 | 425 | 365 | 315 | 280 | 255 |
| 100 | 0.13 | - | 610 | 530 | 465 | 420 |

**Table 11-1 - Minimum Radius for Horizontal Curves**

## 11.2 VERTICAL CURVES

The minimum rate of vertical curvature is determined by sight distance as well as by considerations of comfort of operation and aesthetics. The sight distance most frequently employed is the stopping sight distance measured from an eye height of 1.05m to an object height of 0.15m. In the case of sag curves, the sight distance is replaced by headlight illumination distance of the same magnitude, assuming headlight height of 0.6m and a divergence angle equal to 1 degree above the longitudinal axis of the headlights.

Based on both the UTG 1 (Geometric Design of Urban Arterial Roads) and UTG 5 (Geometric Design of Urban Collector Roads) guidelines, values of K (based on stopping sight distance in the case of crest curves and headlight illumination distance in the case of sag curves) are given in Table 11-2

| Minimum Values of K for Vertical Curves | | | | |
|---|---|---|---|---|
| Design Speed (Km/h) | Stopping sight Distance (m) | Crest | K | |
| | | | Sag | |
| | | | Headlight | Comfort |
| 50 | 65 | 11 | 11 | 6 |
| 60 | 80 | 16 | 17 | 8 |
| 70 | 95 | 23 | 24 | 12 |
| 80 | 115 | 33 | 31 | 16 |
| 90 | 135 | 46 | 49 | 20 |
| 100 | 155 | 60 | 52 | 25 |
| 110 | 180 | 81 | 55 | 25 |
| 120 | 210 | 110 | 60 | 30 |

**Table 11-2 - Minimum Values of K for Vertical Curves**

The minimum lengths of vertical curves are indicated in Table 11-3 below

| Minimum lengths of vertical curves | |
|---|---|
| Design Speed (km/h) | Length of Curve (m) |
| 40 | 60 |
| 60 | 100 |
| 80 | 140 |
| 100 | 180 |
| 120 | 220 |

**Table 11-3 - Minimum Lengths of Vertical Curves**

## 11.3 MAXIMUM AND MINIMUM GRADIENTS

The speed of passenger cars are relatively unaffected by gradient and the horizontal alignment will tend to govern the selection of speed. Truck speeds are however markedly affected by gradient. Based on both the UTG 1 (Geometric Design of Urban Arterial Roads) and UTG 5 (Geometric Design of Urban Collector Roads) guidelines, maximum gradients for different speeds and types of topography are suggested in Table 11-4. It must be stressed that these are guidelines only and factors such as provision of auxiliary lanes and whole life economy of the road may suggest some other gradient.

Where two roads intersect, the numerical sum of the gradients should not exceed 8% with a maximum gradient of 6% on either roadway.

| Maximum Gradients in % | | | |
|---|---|---|---|
| Design Speed (Km/h) | Topography | | |
| | Flat | Rolling | Mountainous |
| 50 | 8 | 9 | 11 |
| 60 | 7 | 8 | 10 |
| 80 | 6 | 7 | 9 |
| 100 | 4 | 5 | 6 |

**Table 11-4 - Maximum Gradients in %**

In order to ensure effective stormwater flow, a minimum gradient of 1:200 (0.5%) should be adhered to as far as possible.

## 11.4 PEDESTRIAN WALKWAYS AND FURNITURE ZONES

Where practically possible, the walkway should not be placed directly up against the road edge, but a furniture zone should be created between the road edge and the sidewalk, increasing the safety of those making use of the walkways. This notion is further advocated in The Neighborhood Planning and Design Guide (Department of Human Settlements, July 2019) also known as "*The Red Book*" in which the cross section included as Figure 11-2 is proposed.

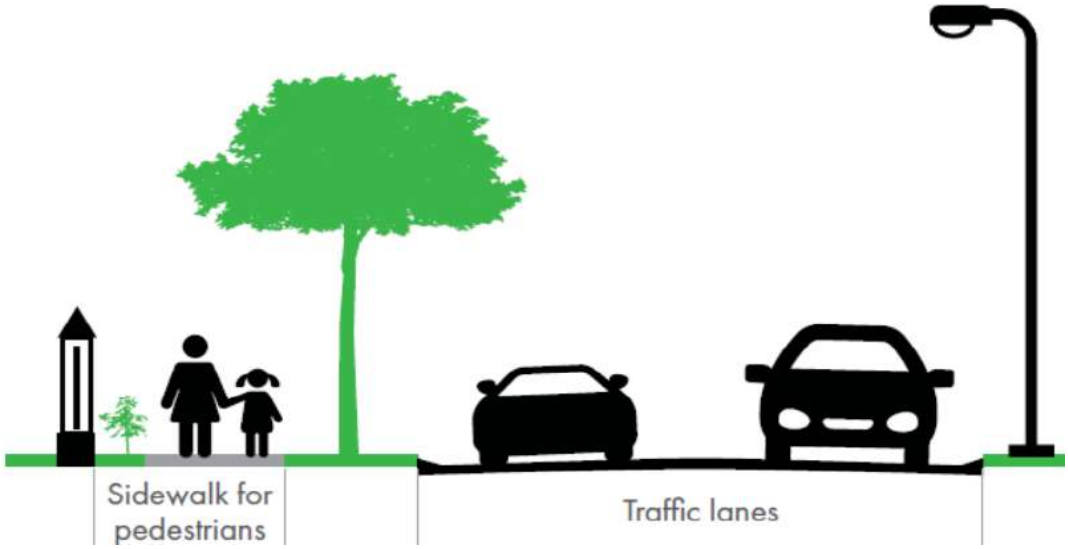



**Figure 11-2 - Proposed Roadside Environment Cross Section**

## 12 SUMMARY

In short, the various components of this Transportation Investigation can be summarised as follows:

1. Urban Engineering (Pty) Ltd has been appointed by Belladonna (Pty) Ltd to undertake a Transportation Investigation in support of the proposed rezoning and subdivision of Lot 21, Riversdale, Hessequa.
2. The site is currently undeveloped and zoned for agricultural purposes.
3. The proposed development will consist of the following:
    - Smallholdings / 1ha lifestyle erven. Proposed Zoning Agricultural Zone II – gated community with restricted agricultural land uses such as equestrian use.
    - Low density Residential erven – Proposed Zoning Res I
    - Medium Density Residential erven – Proposed Zoning General Res II
    - Retirement village / old age home/ medical care unit – Proposed Zoning General Res II
4. Based on both the COTO guidelines, the development has the potential to generate up to 328 trips (IN and OUT) during the weekday AM Peak Hour Period and 600 trips (IN and OUT) during the weekday PM peak hour period.
5. The current SDP makes provision for site access via Protea Street and Lenoria/Bauhnia Street. However, the layout is as such that it would be possible to formalise the Lobelia Road reserve in the future in order to upgrade the entire road network. The various SIDRA analysis were performed with and without the proposed future Lobelia Extension.

## 13 RECOMMENDATIONS

Based on the findings of this report, the proposed rezoning and development of erven RE/21 as well as erf 266 (Lot 21) in Riversdale is supported, subject to the following recommendations:

1. Short Term (immediate) Improvements
    a. The current 4-way STOP controlled intersection of Bauhinia Street and Protea Street should be converted into a 2-way STOP controlled intersection with priority movement along the Bauhinia Street approaches to the intersection.
2. Long Term (5 to 15 years) improvements
    a. The Lobelia Street extension should be completed in order to provide a more direct, mobility orientated route from the Lot 21 development towards TR83/1. In order to increase safety and mobility, direct property access onto the extension road should not be allowed.
3. All new road infrastructure should be designed by Professional Engineers with adequate experience and should comply to the standards and requirements of the local road authority.
4. The cost for all new road infrastructure (Both Short Term and Long Term) required as a result of the proposed Lot 21 development, should be borne as per the services agreement between the developer and the Hessequa Municipality.

# ANNEXURE A

# SITE PHOTOGRAPHS


GRIP
10 000 m


GRIP
10 000 m


GRIP
10 000 m


GRIP


GRIP
10 000 m


GRIP

# ANNEXURE B

# SANRAL LETTER

| | | | |
|---|---|---|---|
| Reference: | W11/4/3-2/5-4 | Fax Number: | +27 (0) 21 910 1699 |
| Date: | 9 March 2020 | Direct Line: | +27 (0) 21 957 4600 |
| Email: | runkelc@nra.co.za | Website: | www.nra.co.za |

SANRAL
BUILDING SOUTH AFRICA THROUGH BETTER ROADS


e-mail: rb@mebce.co.za

Mr R Bence
MEB Consulting Engineers & Project Managers
210 Amarand Ave
Waterkloof Ext 2
**PRETORIA**
0181

Dear Mr Bence

**NATIONAL ROUTE 2 SECTION 5: PROPOSED SUNRISE FILLING STATION ON ERF 266 (PORTION OF PORTION 21), RIVERSDALE**

The South African National Roads Agency SOC Limited (SANRAL) refers to a meeting with the Hessequa Municipality on 24 July 2019, at which you were in attendance, regarding the access to Erf 266 (portion of Portion 21), Riversdale.

In light of the above and the decision of the Hessequa Municipality, (see their correspondence attached) SANRAL has decided that it is not prepared to allow an additional direct access from the N2. Allowing an additional access will result in SANRAL's future planning of the N2 not meeting the objectives of the purpose of the national road, which includes safety and mobility. To reach its objective SANRAL plans to consolidate accesses under future upgrades through Riversdale.

In view of the aforementioned SANRAL has decided not to allow any new accesses in close proximity of the town unless SANRAL receives the co-operation of the Hessequa Municipality that will tie in with their future planning/development.

SANRAL would like to apologize for the delay in responding to your request in time.

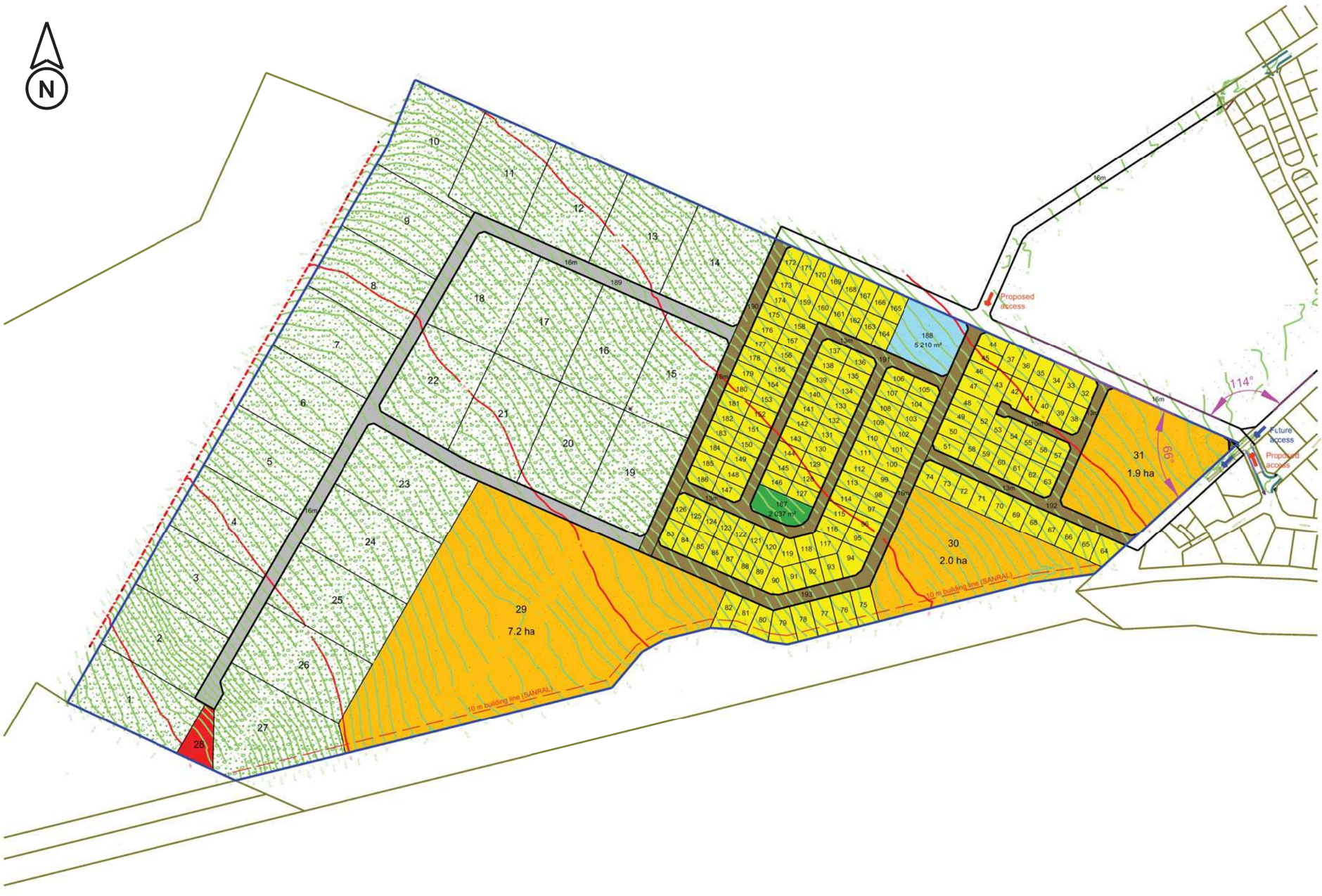
Yours Sincerely

**R LORIO**
**PROJECT MANAGER: PLANNING AND DESIGN**

#N2-5 PROP SUNRISE FILLING STATION ON ERF 266 RIVERSDALE

# ANNEXURE C

# SITE DEVELOPMENT PLAN




# LAYOUT PLAN

PROPOSED DEVELOPMENT ON
LOT 266 & A PORTION OF
REMAINDER OF LOT 21,
RIVERSDALE SETTLEMENT,
HESSEQUA MUNICIPALITY,
WESTERN CAPE PROVINCE

## LEGEND

| ZONING | NO. OF STANDS | ERF NO. | AREA (ha) | % OF AREA |
|---|---|---|---|---|
| Agricultural Zone II | 27 | 1-27 | 28.5 | 50.5 |
| Single Residential Zone I | 155 | 32-186 | 10.5 | 18.6 |
| General Residential Zone II | 3 | 29-31 | 11.2 | 19.9 |
| Business Zone III | 1 | 188 | 0.5 | 0.9 |
| Open Space Zone I | 1 | 187 | 0.2 | 0.3 |
| Transport Zone II | 5 | 190-194 | 3.2 | 5.7 |
| Transport Zone III | 1 | 189 | 2.1 | 3.7 |
| Utility Zone | 1 | 28 | 0.2 | 0.4 |
| TOTAL | 194 | | 56.4 | 100 |

## PROFESSIONAL TEAM

| CONSULTANT | NAME | COMPANY | CONTACT |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## GENERAL NOTES

1. All dimensions and areas are approximate and subject to fina survey by a Professional Land Surveyor.
2. All cadastral dimensions to be confirmed by a Professional Land Surveyor prior to any detail designs being constructed.
3. Detail contour survey to be done prior to Engineering design and implimentation.
4. All calculations are to be confirmed.
5. All contours are based on 0.5 metre intervals.

| | |
|---|---|
| PROJECT NO.: 217 | PLAN NO.: 217/LP1 |
| SCALE: 1 : 5 000 | DATE: 02/03/2022 |



**CLIENT**

BELLADONNA (PTY) LTD
[REG. NO. 1965/003575/07]

**SCALE LINE**

0m 100m 200m 300m

PLANSERV

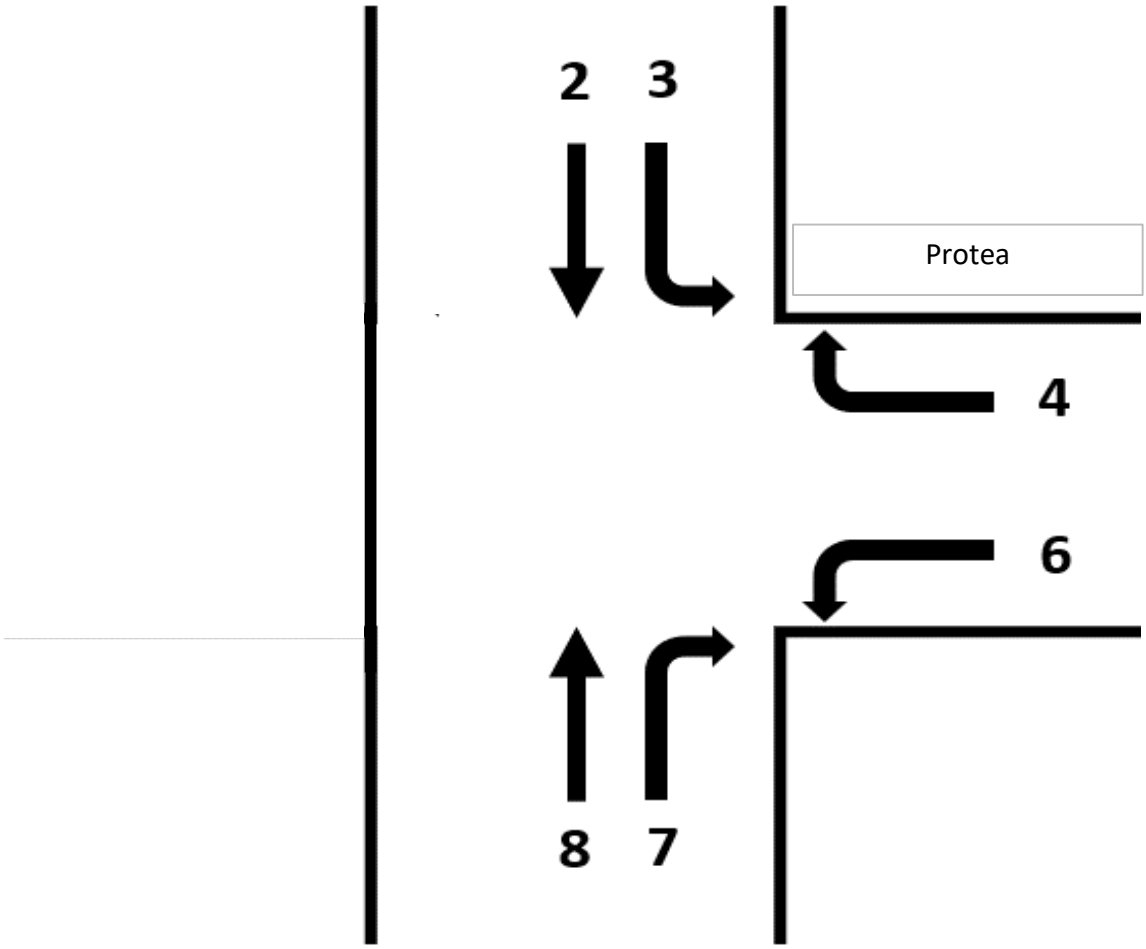
PLANSERV (PTY) LTD
Reg. No. 2013/191660/07

p: PO Box 64 Riversdale 6670
e: madie@planserv.co.za
w: www.planserv.co.za
c: 082 923 6171

# ANNEXURE D

# TRAFFIC COUNT DATA

North
Erica (Heide)



# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Erica (Heide) - Protea
**Datum/Date:** 02/02/2022
**Teller/Counter:** JE Giewelaar

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Tyd | Erica / Heide Str | | | | | | Protea Str | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 - 06:30 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 06:30 - 06:45 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 06:45 - 07:00 | 0 | 0 | 2 | 0 | 7 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 07:00 - 07:15 | 0 | 0 | 3 | 0 | 8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 07:15 - 07:30 | 0 | 0 | 5 | 0 | 12 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| 07:30 - 07:45 | 0 | 0 | 5 | 0 | 18 | 0 | 10 | 0 | 0 | 0 | 1 | 0 |
| 07:45 - 08:00 | 0 | 0 | 6 | 0 | 20 | 0 | 13 | 0 | 0 | 0 | 1 | 0 |
| 08:00 - 08:15 | 0 | 0 | 7 | 0 | 22 | 0 | 13 | 0 | 0 | 0 | 1 | 0 |
| 08:15 - 08:30 | 0 | 0 | 8 | 0 | 22 | 0 | 14 | 0 | 0 | 0 | 2 | 0 |
| 08:30 - 08:45 | 0 | 0 | 10 | 0 | 25 | 0 | 17 | 0 | 0 | 0 | 4 | 0 |
| 08:45 - 09:00 | 0 | 0 | 12 | 0 | 26 | 0 | 20 | 0 | 0 | 0 | 4 | 0 |
| 09:00 - 09:15 | 0 | 0 | 12 | 0 | 27 | 0 | 21 | 0 | 0 | 0 | 5 | 0 |
| 09:15 - 09:30 | 0 | 0 | 12 | 0 | 28 | 0 | 24 | 0 | 0 | 0 | 5 | 0 |
| 09:30 - 09:45 | 0 | 0 | 13 | 0 | 31 | 0 | 26 | 0 | 0 | 0 | 6 | 0 |
| 09:45 - 10:00 | 0 | 0 | 14 | 0 | 34 | 0 | 27 | 0 | 0 | 0 | 6 | 0 |
| 10:00 - 10:15 | 0 | 0 | 15 | 0 | 38 | 0 | 28 | 0 | 0 | 0 | 6 | 0 |
| 10:15 - 10:30 | 0 | 0 | 15 | 0 | 39 | 0 | 28 | 0 | 0 | 0 | 8 | 0 |
| 10:30 - 10:45 | 0 | 0 | 15 | 0 | 42 | 0 | 29 | 0 | 0 | 0 | 8 | 0 |
| 10:45 - 11:00 | 0 | 0 | 18 | 0 | 44 | 0 | 37 | 0 | 0 | 0 | 8 | 0 |
| 11:00 - 11:15 | 0 | 0 | 18 | 0 | 48 | 0 | 42 | 0 | 0 | 0 | 9 | 0 |
| 11:15 - 11:30 | 0 | 0 | 21 | 0 | 53 | 0 | 43 | 0 | 0 | 0 | 9 | 0 |
| 11:30 - 11:45 | 0 | 0 | 22 | 0 | 56 | 0 | 45 | 0 | 0 | 0 | 10 | 0 |
| 11:45 - 12:00 | 0 | 0 | 23 | 0 | 56 | 0 | 47 | 0 | 0 | 0 | 11 | 0 |
| 12:00 - 12:15 | 0 | 0 | 23 | 0 | 59 | 0 | 49 | 0 | 0 | 0 | 12 | 0 |
| 12:15 - 12:30 | 0 | 0 | 26 | 0 | 59 | 0 | 50 | 0 | 0 | 0 | 15 | 0 |
| 12:30 - 12:45 | 0 | 0 | 29 | 0 | 60 | 0 | 53 | 0 | 0 | 0 | 16 | 0 |
| 12:45 - 13:00 | 0 | 0 | 29 | 0 | 64 | 0 | 54 | 0 | 0 | 0 | 19 | 0 |
| 13:00 - 13:15 | 0 | 0 | 29 | 0 | 66 | 0 | 60 | 0 | 0 | 0 | 20 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13:15 - 13:30** | 0 | 0 | 29 | 0 | 68 | 0 | 63 | 0 | 0 | 0 | 20 | 0 |
| **13:30 - 13:45** | 0 | 0 | 31 | 0 | 71 | 0 | 67 | 0 | 0 | 0 | 20 | 0 |
| **13:45 - 14:00** | 0 | 0 | 31 | 0 | 75 | 0 | 70 | 0 | 0 | 0 | 21 | 0 |
| **14:00 - 14:15** | 0 | 0 | 32 | 0 | 77 | 0 | 71 | 0 | 0 | 0 | 21 | 0 |
| **14:15 - 14:30** | 0 | 0 | 33 | 0 | 80 | 0 | 80 | 0 | 0 | 0 | 22 | 0 |
| **14:30 - 14:45** | 0 | 0 | 34 | 0 | 81 | 0 | 85 | 0 | 0 | 0 | 22 | 0 |
| **14:45 - 15:00** | 0 | 0 | 34 | 0 | 82 | 0 | 89 | 0 | 0 | 0 | 22 | 0 |
| **15:00 - 15:15** | 0 | 0 | 37 | 0 | 82 | 0 | 90 | 0 | 0 | 0 | 23 | 0 |
| **15:15 - 15:30** | 0 | 0 | 38 | 0 | 86 | 0 | 92 | 0 | 0 | 0 | 23 | 0 |
| **15:30 - 15:45** | 0 | 0 | 42 | 0 | 87 | 0 | 93 | 0 | 0 | 0 | 24 | 0 |
| **15:45 - 16:00** | 0 | 0 | 44 | 0 | 88 | 0 | 95 | 0 | 0 | 0 | 27 | 0 |
| **16:00 - 16:15** | 0 | 0 | 46 | 0 | 90 | 0 | 101 | 0 | 0 | 0 | 27 | 0 |
| **16:15 - 16:30** | 0 | 0 | 47 | 0 | 95 | 0 | 106 | 0 | 0 | 0 | 27 | 0 |
| **16:30 - 16:45** | 0 | 0 | 50 | 0 | 100 | 0 | 112 | 0 | 0 | 0 | 27 | 0 |
| **16:45 - 17:00** | 0 | 0 | 50 | 0 | 101 | 0 | 115 | 0 | 0 | 0 | 28 | 0 |
| **17:00 - 17:15** | 0 | 0 | 52 | 0 | 106 | 0 | 122 | 0 | 0 | 0 | 30 | 0 |
| **17:15 - 17:30** | 0 | 0 | 52 | 0 | 108 | 0 | 128 | 0 | 0 | 0 | 31 | 0 |
| **17:30 - 17:45** | 0 | 0 | 54 | 0 | 111 | 0 | 132 | 0 | 0 | 0 | 31 | 0 |
| **17:45 - 18:00** | 0 | 0 | 56 | 0 | 113 | 0 | 136 | 0 | 0 | 0 | 31 | 0 |

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Erica (Heide) - Protea
**Datum/Date:** 02/02/2022
**Teller/Counter:** JE Giewelaar

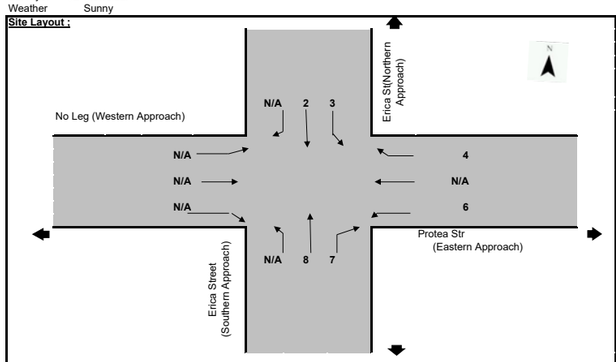
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

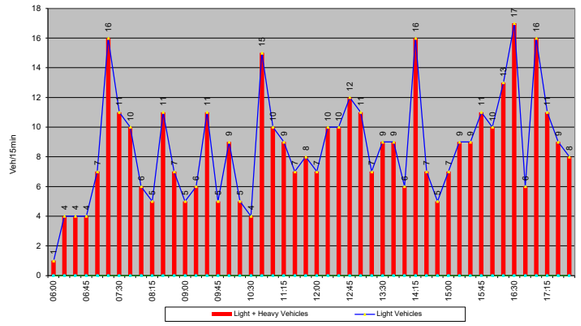
| Tyd | Erica / Heide Str | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 - 06:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 - 06:45 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 - 07:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 - 07:15 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 - 07:30 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 - 07:45 | 2 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 - 08:00 | 2 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 - 08:15 | 4 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 - 08:30 | 4 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 - 08:45 | 4 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 - 09:00 | 4 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 - 09:15 | 5 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:15 - 09:30 | 7 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:30 - 09:45 | 8 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:45 - 10:00 | 8 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 - 10:15 | 10 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:15 - 10:30 | 12 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:30 - 10:45 | 12 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:45 - 11:00 | 12 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00 - 11:15 | 12 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:15 - 11:30 | 12 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:30 - 11:45 | 12 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45 - 12:00 | 14 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00 - 12:15 | 15 | 0 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15 - 12:30 | 15 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12:30 - 12:45** | 17 | 0 | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **12:45 - 13:00** | 19 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13:00 - 13:15** | 21 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13:15 - 13:30** | 21 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13:30 - 13:45** | 21 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13:45 - 14:00** | 22 | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14:00 - 14:15** | 22 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14:15 - 14:30** | 23 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14:30 - 14:45** | 23 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14:45 - 15:00** | 23 | 0 | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **15:00 - 15:15** | 24 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **15:15 - 15:30** | 24 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **15:30 - 15:45** | 24 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **15:45 - 16:00** | 25 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16:00 - 16:15** | 25 | 0 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16:15 - 16:30** | 25 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16:30 - 16:45** | 25 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16:45 - 17:00** | 26 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17:00 - 17:15** | 26 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17:15 - 17:30** | 28 | 0 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17:30 - 17:45** | 30 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17:45 - 18:00** | 30 | 0 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Site Erica (Heide) - Protea
Date 02/02/2022
Surveyor JE Giewelaar
Weather Sunny

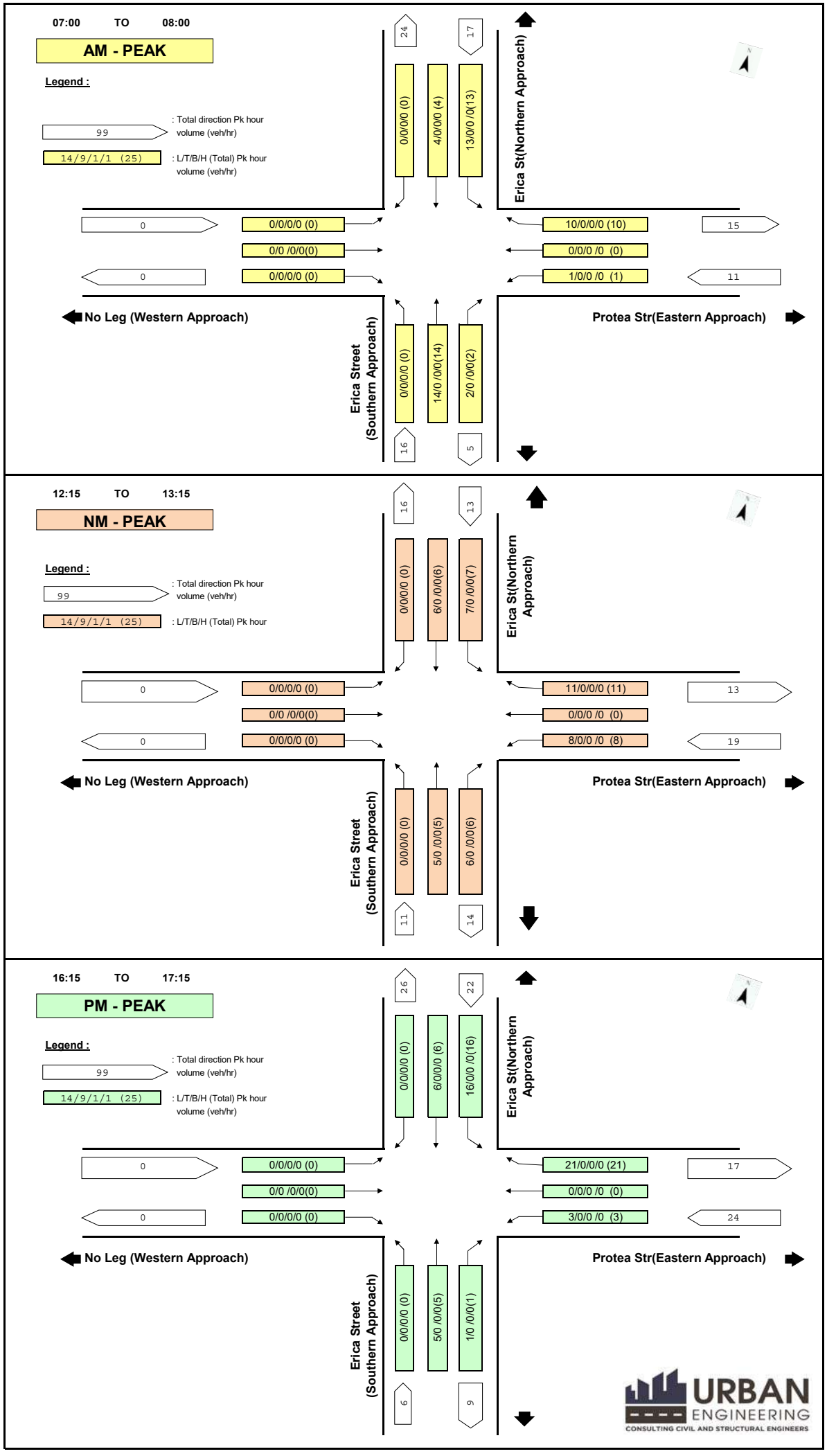
**Site Layout :**

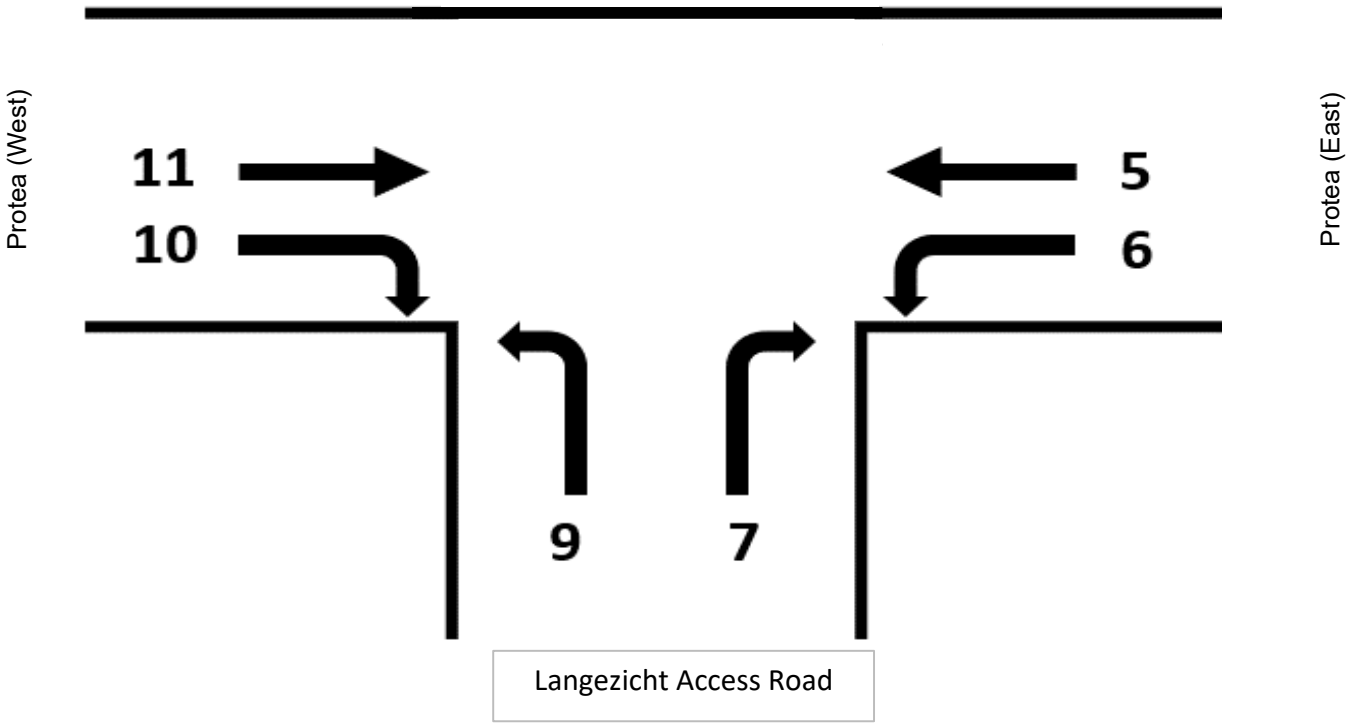



URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Time Period | | | Light Vehicles | | | | | | | | | | | | | Taxis/Minibus-taxis | | | | | | | | | | | | | Bus | | | | | | | | | | | | | Heavy Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start | End | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
| 06:00 | 06:15 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 | 06:30 | 4 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | 06:45 | 4 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:45 | 07:00 | 4 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | 07:15 | 7 | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 | 07:30 | 16 | 0 | 2 | 4 | 3 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 16 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 | 07:45 | 11 | 0 | 0 | 6 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 | 08:00 | 10 | 0 | 1 | 2 | 3 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 10 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:00 | 08:15 | 6 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 | 08:30 | 5 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 5 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 | 08:45 | 11 | 0 | 2 | 3 | 3 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:45 | 09:00 | 7 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:00 | 09:15 | 5 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 5 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:15 | 09:30 | 6 | 0 | 0 | 1 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:30 | 09:45 | 11 | 0 | 1 | 3 | 2 | 0 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 09:45 | 10:00 | 5 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:00 | 10:15 | 9 | 0 | 1 | 4 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:15 | 10:30 | 5 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:30 | 10:45 | 4 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:45 | 11:00 | 15 | 0 | 3 | 2 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 15 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00 | 11:15 | 10 | 0 | 0 | 4 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:15 | 11:30 | 9 | 0 | 3 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:30 | 11:45 | 7 | 0 | 1 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45 | 12:00 | 8 | 0 | 1 | 0 | 2 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 0 | 8 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00 | 12:15 | 7 | 0 | 0 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15 | 12:30 | 10 | 0 | 3 | 0 | 1 | 0 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 10 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30 | 12:45 | 10 | 0 | 3 | 1 | 3 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 10 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 | 13:00 | 12 | 0 | 0 | 4 | 1 | 0 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 12 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:00 | 13:15 | 11 | 0 | 0 | 2 | 6 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:15 | 13:30 | 7 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:30 | 13:45 | 9 | 0 | 2 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:45 | 14:00 | 9 | 0 | 0 | 4 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:00 | 14:15 | 6 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:15 | 14:30 | 16 | 0 | 1 | 3 | 9 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 16 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:30 | 14:45 | 7 | 0 | 1 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:45 | 15:00 | 5 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:00 | 15:15 | 7 | 0 | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 7 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:15 | 15:30 | 9 | 0 | 1 | 4 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:30 | 15:45 | 9 | 0 | 4 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 11 | 0 | 2 | 1 | 2 | 0 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:00 | 16:15 | 10 | 0 | 2 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | 16:30 | 13 | 0 | 1 | 5 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 13 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 16:45 | 17 | 0 | 3 | 5 | 6 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 17 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 17:00 | 6 | 0 | 0 | 1 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:00 | 17:15 | 16 | 0 | 2 | 5 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:15 | 17:30 | 11 | 0 | 0 | 2 | 6 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 11 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 17:45 | 9 | 0 | 2 | 0 | 4 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 9 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:45 | 18:00 | 8 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | | | | | | | | | | | | | 0 | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total (5-19) | | 415 | 0 | 56 | 108 | 136 | 0 | 31 | 30 | 54 | 0 | 0 | 0 | 0 | 415 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AM Pk hour vol | | 44 | 0 | 4 | 13 | 10 | 0 | 1 | 2 | 14 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | to 08:00 | | Total AM Pk hour vol (Light + Heavy) | | | | | | | | | | | | 0 | 4 | 13 | 10 | 0 | 1 | 2 | 14 | 0 | 0 | 0 | 0 | 44 | 0 | 4 | 13 | 10 | 0 | 1 | 2 | 14 | 0 | 0 | 0 | 0 | 44 | 0 | 4 | 13 | 10 | 0 | 1 | 2 | 14 | 0 | 0 | 0 | 0 | 44 |
| NM Pk hour vol | | 43 | 0 | 6 | 7 | 11 | 0 | 8 | 6 | 5 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15 | to 13:15 | | Typical NM Pk hour vol (Light + Heavy) | | | | | | | | | | | | 0 | 6 | 7 | 11 | 0 | 8 | 6 | 5 | 0 | 0 | 0 | 0 | 43 | 0 | 6 | 7 | 11 | 0 | 8 | 6 | 5 | 0 | 0 | 0 | 0 | 43 | 0 | 6 | 7 | 11 | 0 | 8 | 6 | 5 | 0 | 0 | 0 | 0 | 43 |
| PM Pk hour vol | | 52 | 0 | 6 | 16 | 21 | 0 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | to 17:15 | | Total PM Pk hour vol (Light + Heavy) | | | | | | | | | | | | 0 | 6 | 16 | 21 | 0 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 52 | 0 | 6 | 16 | 21 | 0 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 52 | 0 | 6 | 16 | 21 | 0 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 52 |


07:00 TO 08:00
AM - PEAK
Legend :
99 : Total direction Pk hour volume (veh/hr)
14/9/1/1 (25) : L/T/B/H (Total) Pk hour volume (veh/hr)
24
17
0/0/0/0 (0)
4/0/0/0 (4)
13/0/0 /0(13)
Erica St(Northern Approach)
0
0/0/0/0 (0)
0/0 /0/0(0)
0
0/0/0/0 (0)
10/0/0/0 (10)
0/0/0 /0 (0)
1/0/0 /0 (1)
15
11
No Leg (Western Approach)
Protea Str(Eastern Approach)
Erica Street (Southern Approach)
0/0/0/0 (0)
14/0 /0/0(14)
2/0 /0/0(2)
16
5
12:15 TO 13:15
NM - PEAK
Legend :
99 : Total direction Pk hour volume (veh/hr)
14/9/1/1 (25) : L/T/B/H (Total) Pk hour
16
13
0/0/0/0 (0)
6/0 /0/0(6)
7/0 /0/0(7)
Erica St(Northern Approach)
0
0/0/0/0 (0)
0/0 /0/0(0)
0
0/0/0/0 (0)
11/0/0/0 (11)
0/0/0 /0 (0)
8/0/0 /0 (8)
13
19
No Leg (Western Approach)
Protea Str(Eastern Approach)
Erica Street (Southern Approach)
0/0/0/0 (0)
5/0 /0/0(5)
6/0 /0/0(6)
11
14
16:15 TO 17:15
PM - PEAK
Legend :
99 : Total direction Pk hour volume (veh/hr)
14/9/1/1 (25) : L/T/B/H (Total) Pk hour volume (veh/hr)
26
22
0/0/0/0 (0)
6/0/0/0 (6)
16/0/0 /0(16)
Erica St(Northern Approach)
0
0/0/0/0 (0)
0/0 /0/0(0)
0
0/0/0/0 (0)
21/0/0/0 (21)
0/0/0 /0 (0)
3/0/0 /0 (3)
17
24
No Leg (Western Approach)
Protea Str(Eastern Approach)
Erica Street (Southern Approach)
0/0/0/0 (0)
5/0 /0/0(5)
1/0 /0/0(1)
6
9
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS


Protea (West)
11
10
5
6
9
7
Protea (East)
Langezicht Access Road

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Protea / Langezicht
**Datum/Date:** 02/02/2022
**Teller/Counter:** JE Giewelaar

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Tyd | No Leg | | | | | | Protea Str (East) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 - 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 06:30 - 06:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| 06:45 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 07:00 - 07:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 |
| 07:15 - 07:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 2 | 0 |
| 07:30 - 07:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 2 | 0 |
| 07:45 - 08:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 2 | 0 |
| 08:00 - 08:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 2 | 0 |
| 08:15 - 08:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 3 | 0 |
| 08:30 - 08:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 3 | 0 |
| 08:45 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 6 | 0 |
| 09:00 - 09:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 7 | 0 |
| 09:15 - 09:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 8 | 0 |
| 09:30 - 09:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 8 | 0 |
| 09:45 - 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 8 | 0 |
| 10:00 - 10:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 8 | 0 |
| 10:15 - 10:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 0 | 8 | 0 |
| 10:30 - 10:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 8 | 0 |
| 10:45 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 9 | 0 |
| 11:00 - 11:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 | 0 | 9 | 0 |
| 11:15 - 11:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 9 | 0 |
| 11:30 - 11:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 0 | 10 | 0 |
| 11:45 - 12:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 10 | 0 |
| 12:00 - 12:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 11 | 0 |
| 12:15 - 12:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 0 | 12 | 0 |
| 12:30 - 12:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 12 | 0 |
| 12:45 - 13:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 | 0 | 16 | 0 |
| 13:00 - 13:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 16 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13:15 - 13:30** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 | 0 | 16 | 0 |
| **13:30 - 13:45** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 0 | 16 | 0 |
| **13:45 - 14:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 | 0 | 16 | 0 |
| **14:00 - 14:15** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 0 | 16 | 0 |
| **14:15 - 14:30** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108 | 0 | 17 | 0 |
| **14:30 - 14:45** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 0 | 18 | 0 |
| **14:45 - 15:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 116 | 0 | 18 | 0 |
| **15:00 - 15:15** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 123 | 0 | 21 | 0 |
| **15:15 - 15:30** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | 0 | 21 | 0 |
| **15:30 - 15:45** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 | 0 | 23 | 0 |
| **15:45 - 16:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 0 | 25 | 0 |
| **16:00 - 16:15** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 0 | 29 | 0 |
| **16:15 - 16:30** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 | 0 | 30 | 0 |
| **16:30 - 16:45** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 | 0 | 31 | 0 |
| **16:45 - 17:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 164 | 0 | 35 | 0 |
| **17:00 - 17:15** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 176 | 0 | 35 | 0 |
| **17:15 - 17:30** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182 | 0 | 37 | 0 |
| **17:30 - 17:45** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 189 | 0 | 38 | 0 |
| **17:45 - 18:00** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 194 | 0 | 39 | 0 |

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Protea / Langezicht
**Datum/Date:** 02/02/2022
**Teller/Counter:** JE Giewelaar

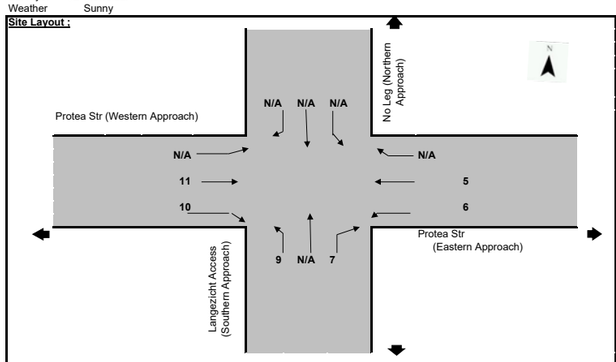
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

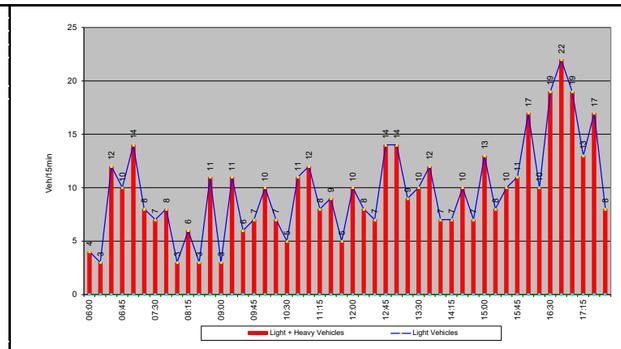
| Tyd | Langezicht Access (South) | | | | | | Protea Str (West) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| 06:15 - 06:30 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 06:30 - 06:45 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 |
| 06:45 - 07:00 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 |
| 07:00 - 07:15 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 |
| 07:15 - 07:30 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 |
| 07:30 - 07:45 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 |
| 07:45 - 08:00 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 0 |
| 08:00 - 08:15 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 |
| 08:15 - 08:30 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 |
| 08:30 - 08:45 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| 08:45 - 09:00 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 |
| 09:00 - 09:15 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 |
| 09:15 - 09:30 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 |
| 09:30 - 09:45 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 0 | 0 | 0 |
| 09:45 - 10:00 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 |
| 10:00 - 10:15 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 | 0 | 0 | 0 |
| 10:15 - 10:30 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 0 | 0 |
| 10:30 - 10:45 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 0 |
| 10:45 - 11:00 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 0 | 0 | 0 |
| 11:00 - 11:15 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 0 |
| 11:15 - 11:30 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 0 | 0 | 0 |
| 11:30 - 11:45 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 0 | 0 | 0 |
| 11:45 - 12:00 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 |
| 12:00 - 12:15 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 |
| 12:15 - 12:30 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12:30 - 12:45** | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 |
| **12:45 - 13:00** | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 |
| **13:00 - 13:15** | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 0 | 0 | 0 |
| **13:15 - 13:30** | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 0 | 0 | 0 |
| **13:30 - 13:45** | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 | 0 | 0 | 0 |
| **13:45 - 14:00** | 27 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 121 | 0 | 0 | 0 |
| **14:00 - 14:15** | 27 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 124 | 0 | 0 | 0 |
| **14:15 - 14:30** | 27 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 128 | 0 | 0 | 0 |
| **14:30 - 14:45** | 29 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 130 | 0 | 0 | 0 |
| **14:45 - 15:00** | 30 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 133 | 0 | 0 | 0 |
| **15:00 - 15:15** | 30 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 136 | 0 | 0 | 0 |
| **15:15 - 15:30** | 32 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 140 | 0 | 0 | 0 |
| **15:30 - 15:45** | 32 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 144 | 0 | 0 | 0 |
| **15:45 - 16:00** | 33 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 146 | 0 | 0 | 0 |
| **16:00 - 16:15** | 34 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 151 | 0 | 0 | 0 |
| **16:15 - 16:30** | 36 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 156 | 0 | 0 | 0 |
| **16:30 - 16:45** | 38 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 160 | 0 | 0 | 0 |
| **16:45 - 17:00** | 39 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 168 | 0 | 0 | 0 |
| **17:00 - 17:15** | 40 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 174 | 0 | 0 | 0 |
| **17:15 - 17:30** | 40 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 179 | 0 | 0 | 0 |
| **17:30 - 17:45** | 44 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 184 | 0 | 0 | 0 |
| **17:45 - 18:00** | 45 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 185 | 0 | 0 | 0 |

Site Protea / Langezicht
Date 02/02/2022
Surveyor JE Giewelaar
Weather Sunny

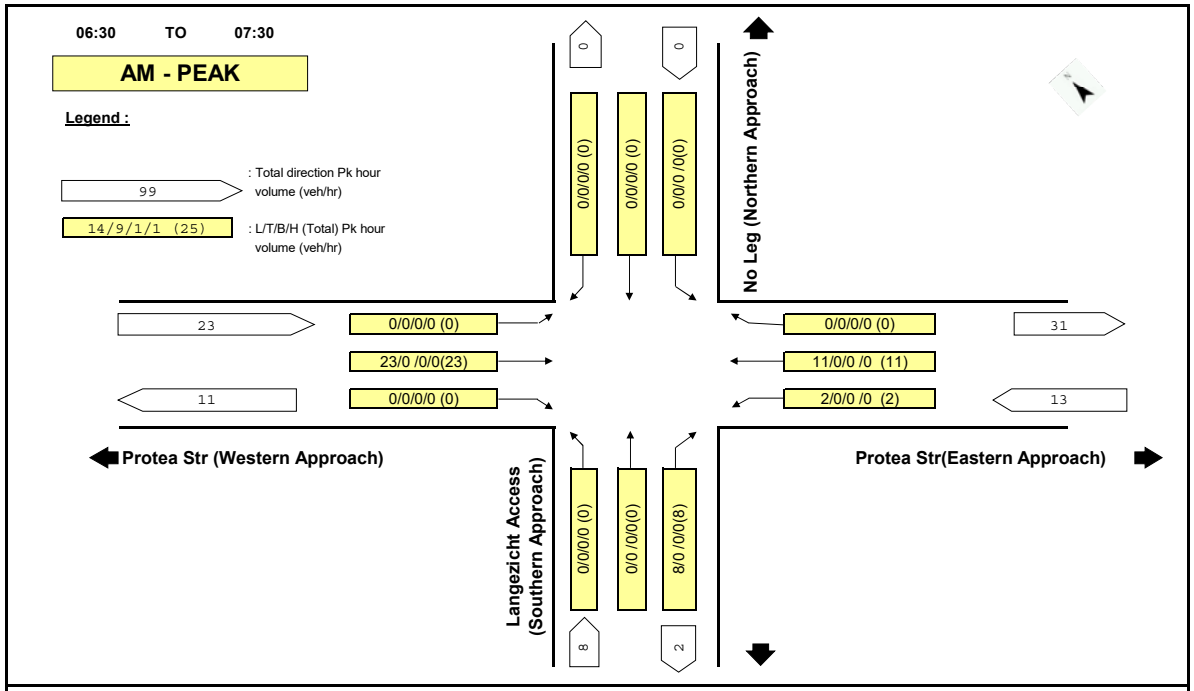
**Site Layout :**

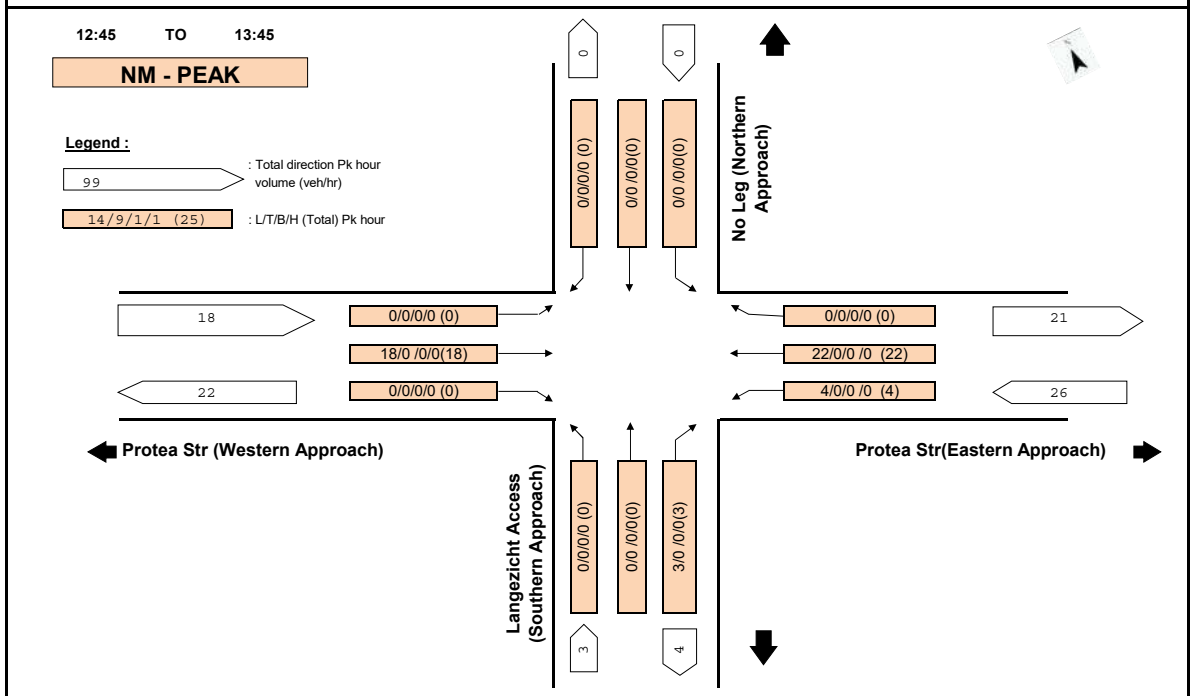


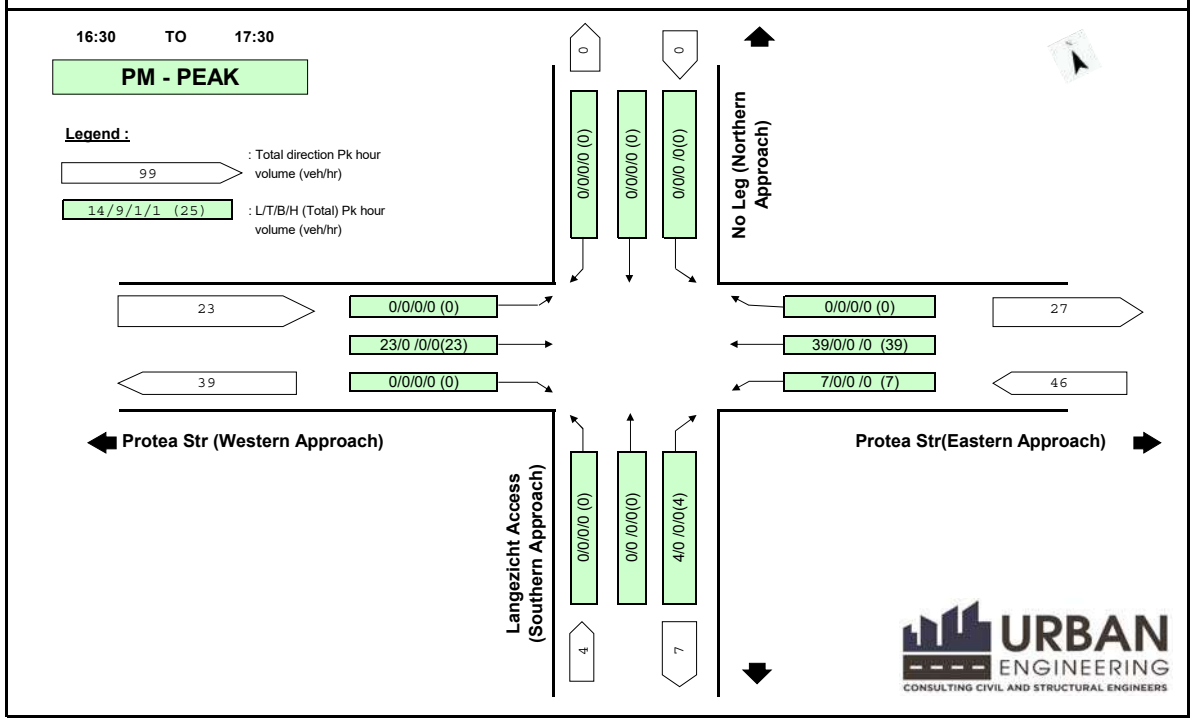




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

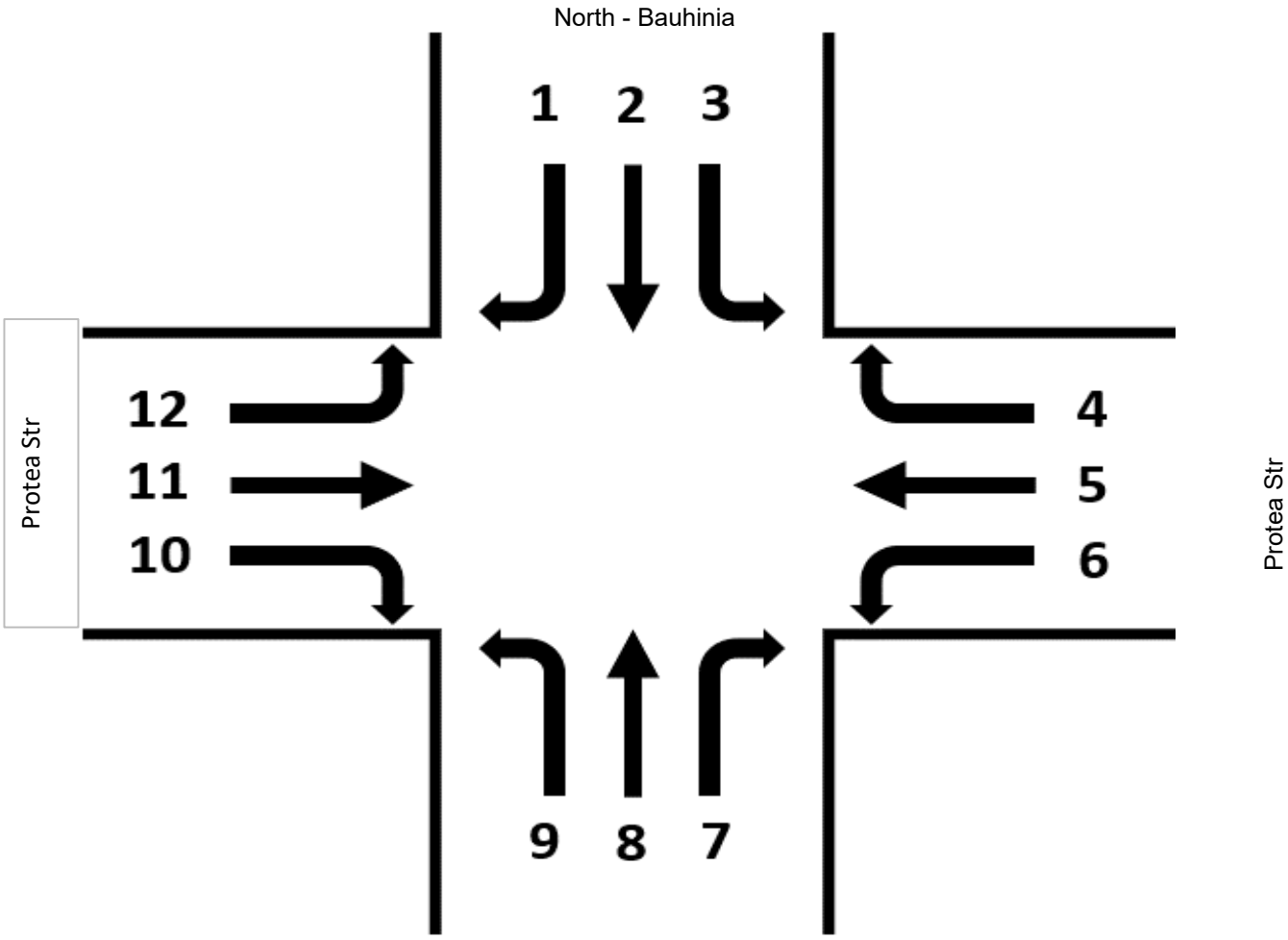
| Time Period | | | Light Vehicles | | | | | | | | | | | | | Taxis/Minibus-taxis | | | | | | | | | | | | | Bus | | | | | | | | | | | | | Heavy Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start | End | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
| 06:00 | 06:15 | **4** | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | **4** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:15 | 06:30 | **3** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | **3** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:30 | 06:45 | **12** | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 7 | 0 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:45 | 07:00 | **10** | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 7 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:00 | 07:15 | **14** | 0 | 0 | 0 | 0 | 7 | 1 | 2 | 0 | 0 | 0 | 4 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:15 | 07:30 | **8** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 5 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:30 | 07:45 | **7** | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:45 | 08:00 | **8** | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:00 | 08:15 | **3** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | **3** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:15 | 08:30 | **6** | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | **6** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:30 | 08:45 | **3** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | **3** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:45 | 09:00 | **11** | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 0 | 0 | 0 | 3 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:00 | 09:15 | **3** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **3** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:15 | 09:30 | **11** | 0 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 | 0 | 6 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:30 | 09:45 | **6** | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | **6** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:45 | 10:00 | **7** | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:00 | 10:15 | **10** | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:15 | 10:30 | **7** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:30 | 10:45 | **5** | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | **5** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:45 | 11:00 | **11** | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:00 | 11:15 | **12** | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:15 | 11:30 | **8** | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:30 | 11:45 | **9** | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | **9** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:45 | 12:00 | **5** | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **5** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:00 | 12:15 | **10** | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:15 | 12:30 | **8** | 0 | 0 | 0 | 0 | 6 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:30 | 12:45 | **7** | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:45 | 13:00 | **14** | 0 | 0 | 0 | 0 | 5 | 4 | 0 | 0 | 0 | 0 | 5 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:00 | 13:15 | **14** | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:15 | 13:30 | **9** | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | **9** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:30 | 13:45 | **10** | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:45 | 14:00 | **12** | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 8 | 0 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:00 | 14:15 | **7** | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:15 | 14:30 | **7** | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:30 | 14:45 | **10** | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:45 | 15:00 | **7** | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | **7** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:00 | 15:15 | **13** | 0 | 0 | 0 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | **13** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:15 | 15:30 | **8** | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 4 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:30 | 15:45 | **10** | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:45 | 16:00 | **11** | 0 | 0 | 0 | 0 | 6 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:00 | 16:15 | **17** | 0 | 0 | 0 | 0 | 7 | 4 | 1 | 0 | 0 | 0 | 5 | 0 | **17** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:15 | 16:30 | **10** | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 0 | 5 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:30 | 16:45 | **19** | 0 | 0 | 0 | 0 | 12 | 1 | 2 | 0 | 0 | 0 | 4 | 0 | **19** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:45 | 17:00 | **22** | 0 | 0 | 0 | 0 | 9 | 4 | 1 | 0 | 0 | 0 | 8 | 0 | **22** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:00 | 17:15 | **19** | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 6 | 0 | **19** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:15 | 17:30 | **13** | 0 | 0 | 0 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 5 | 0 | **13** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:30 | 17:45 | **17** | 0 | 0 | 0 | 0 | 7 | 1 | 4 | 0 | 0 | 0 | 5 | 0 | **17** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:45 | 18:00 | **8** | 0 | 0 | 0 | 0 | 5 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | **8** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total (5-19)** | | **465** | **0** | **0** | **0** | **0** | **194** | **39** | **45** | **0** | **1** | **1** | **185** | **0** | **465** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| AM Pk hour vol | | 44 | 0 | 0 | 0 | 0 | 11 | 2 | 8 | 0 | 0 | 0 | 23 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | to 07:30 | | **Total AM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **0** | **0** | **0** | **0** | **0** | **11** | **2** | **8** | **0** | **0** | **0** | **23** | **0** | **44** | **0** | **0** | **0** | **0** | **11** | **2** | **8** | **0** | **0** | **0** | **23** | **0** | **44** | **0** | **0** | **0** | **0** | **11** | **2** | **8** | **0** | **0** | **0** | **23** | **0** | **44** |
| NM Pk hour vol | | 47 | 0 | 0 | 0 | 0 | 22 | 4 | 3 | 0 | 0 | 0 | 18 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 | to 13:45 | | **Typical NM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **0** | **0** | **0** | **0** | **0** | **22** | **4** | **3** | **0** | **0** | **0** | **18** | **0** | **47** | **0** | **0** | **0** | **0** | **22** | **4** | **3** | **0** | **0** | **0** | **18** | **0** | **47** | **0** | **0** | **0** | **0** | **22** | **4** | **3** | **0** | **0** | **0** | **18** | **0** | **47** |
| PM Pk hour vol | | 73 | 0 | 0 | 0 | 0 | 39 | 7 | 4 | 0 | 0 | 0 | 23 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | to 17:30 | | **Total PM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **0** | **0** | **0** | **0** | **0** | **39** | **7** | **4** | **0** | **0** | **0** | **23** | **0** | **73** | **0** | **0** | **0** | **0** | **39** | **7** | **4** | **0** | **0** | **0** | **23** | **0** | **73** | **0** | **0** | **0** | **0** | **39** | **7** | **4** | **0** | **0** | **0** | **23** | **0** | **73** |




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS


North - Bauhinia
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South - Bauhinia

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Baohinia - Protea
**Datum/Date:** 03/02/2022
**Teller/Counter:** JE Giewelaar

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Tyd | Baohinia Str | | | | | | Protea Str | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:15 - 06:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 - 06:45 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 2 | 0 | 3 | 0 |
| 06:45 - 07:00 | 1 | 0 | 1 | 0 | 6 | 0 | 2 | 0 | 2 | 0 | 7 | 0 |
| 07:00 - 07:15 | 2 | 0 | 1 | 0 | 6 | 0 | 6 | 0 | 7 | 0 | 9 | 0 |
| 07:15 - 07:30 | 2 | 0 | 2 | 0 | 7 | 0 | 9 | 0 | 12 | 0 | 15 | 0 |
| 07:30 - 07:45 | 3 | 0 | 5 | 0 | 10 | 0 | 9 | 0 | 13 | 0 | 17 | 0 |
| 07:45 - 08:00 | 4 | 0 | 6 | 0 | 14 | 0 | 10 | 0 | 17 | 0 | 18 | 0 |
| 08:00 - 08:15 | 4 | 0 | 7 | 0 | 15 | 0 | 10 | 0 | 18 | 0 | 18 | 0 |
| 08:15 - 08:30 | 4 | 0 | 7 | 0 | 15 | 0 | 10 | 0 | 23 | 0 | 19 | 0 |
| 08:30 - 08:45 | 4 | 0 | 8 | 0 | 15 | 0 | 12 | 0 | 24 | 0 | 19 | 0 |
| 08:45 - 09:00 | 4 | 0 | 11 | 0 | 18 | 0 | 13 | 0 | 27 | 0 | 23 | 0 |
| 09:00 - 09:15 | 4 | 0 | 11 | 0 | 19 | 0 | 13 | 0 | 30 | 0 | 23 | 0 |
| 09:15 - 09:30 | 5 | 0 | 15 | 0 | 19 | 0 | 14 | 0 | 36 | 0 | 25 | 0 |
| 09:30 - 09:45 | 5 | 0 | 15 | 0 | 19 | 0 | 14 | 0 | 37 | 0 | 25 | 0 |
| 09:45 - 10:00 | 6 | 0 | 16 | 0 | 20 | 0 | 14 | 0 | 37 | 0 | 25 | 0 |
| 10:00 - 10:15 | 8 | 0 | 17 | 0 | 20 | 0 | 14 | 0 | 40 | 0 | 27 | 0 |
| 10:15 - 10:30 | 8 | 0 | 23 | 0 | 20 | 0 | 14 | 0 | 42 | 0 | 27 | 0 |
| 10:30 - 10:45 | 8 | 0 | 26 | 0 | 21 | 0 | 14 | 0 | 42 | 0 | 30 | 0 |
| 10:45 - 11:00 | 8 | 0 | 26 | 0 | 22 | 0 | 14 | 0 | 48 | 0 | 31 | 0 |
| 11:00 - 11:15 | 8 | 0 | 27 | 0 | 24 | 0 | 15 | 0 | 54 | 0 | 32 | 0 |
| 11:15 - 11:30 | 9 | 0 | 28 | 0 | 26 | 0 | 15 | 0 | 57 | 0 | 33 | 0 |
| 11:30 - 11:45 | 9 | 0 | 29 | 0 | 26 | 0 | 16 | 0 | 59 | 0 | 33 | 0 |
| 11:45 - 12:00 | 11 | 0 | 29 | 0 | 27 | 0 | 16 | 0 | 62 | 0 | 33 | 0 |
| 12:00 - 12:15 | 12 | 0 | 29 | 0 | 28 | 0 | 17 | 0 | 68 | 0 | 37 | 0 |
| 12:15 - 12:30 | 12 | 0 | 29 | 0 | 28 | 0 | 18 | 0 | 73 | 0 | 37 | 0 |
| 12:30 - 12:45 | 13 | 0 | 30 | 0 | 31 | 0 | 18 | 0 | 76 | 0 | 41 | 0 |
| 12:45 - 13:00 | 14 | 0 | 31 | 0 | 32 | 0 | 19 | 0 | 82 | 0 | 44 | 0 |
| 13:00 - 13:15 | 14 | 0 | 33 | 0 | 34 | 0 | 20 | 0 | 97 | 0 | 47 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13:15 - 13:30** | 14 | 0 | 35 | 0 | 34 | 0 | 22 | 0 | 96 | 0 | 49 | 0 |
| **13:30 - 13:45** | 14 | 0 | 37 | 0 | 35 | 0 | 22 | 0 | 102 | 0 | 54 | 0 |
| **13:45 - 14:00** | 14 | 0 | 37 | 0 | 37 | 0 | 23 | 0 | 104 | 0 | 55 | 0 |
| **14:00 - 14:15** | 14 | 0 | 37 | 0 | 37 | 0 | 23 | 0 | 104 | 0 | 56 | 0 |
| **14:15 - 14:30** | 14 | 0 | 39 | 0 | 37 | 0 | 23 | 0 | 109 | 0 | 56 | 0 |
| **14:30 - 14:45** | 14 | 0 | 43 | 0 | 38 | 0 | 23 | 0 | 116 | 0 | 60 | 0 |
| **14:45 - 15:00** | 15 | 0 | 45 | 0 | 38 | 0 | 24 | 0 | 118 | 0 | 60 | 0 |
| **15:00 - 15:15** | 19 | 0 | 47 | 0 | 38 | 0 | 24 | 0 | 123 | 0 | 62 | 0 |
| **15:15 - 15:30** | 19 | 0 | 48 | 0 | 38 | 0 | 24 | 0 | 123 | 0 | 63 | 0 |
| **15:30 - 15:45** | 19 | 0 | 49 | 0 | 38 | 0 | 25 | 0 | 127 | 0 | 65 | 0 |
| **15:45 - 16:00** | 20 | 0 | 49 | 0 | 38 | 0 | 27 | 0 | 137 | 0 | 66 | 0 |
| **16:00 - 16:15** | 21 | 0 | 50 | 0 | 40 | 0 | 28 | 0 | 142 | 0 | 69 | 0 |
| **16:15 - 16:30** | 21 | 0 | 51 | 0 | 40 | 0 | 29 | 0 | 150 | 0 | 74 | 0 |
| **16:30 - 16:45** | 21 | 0 | 52 | 0 | 41 | 0 | 29 | 0 | 160 | 0 | 80 | 0 |
| **16:45 - 17:00** | 23 | 0 | 55 | 0 | 42 | 0 | 32 | 0 | 170 | 0 | 81 | 0 |
| **17:00 - 17:15** | 23 | 0 | 55 | 0 | 43 | 0 | 34 | 0 | 179 | 0 | 87 | 0 |
| **17:15 - 17:30** | 25 | 0 | 58 | 0 | 45 | 0 | 35 | 0 | 187 | 0 | 90 | 0 |
| **17:30 - 17:45** | 25 | 0 | 59 | 0 | 45 | 0 | 35 | 0 | 194 | 0 | 92 | 0 |
| **17:45 - 18:00** | 25 | 0 | 60 | 0 | 45 | 0 | 36 | 0 | 198 | 0 | 93 | 0 |

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Baohinia - Protea
**Datum/Date:** 03/02/2022
**Teller/Counter:** JE Giewelaar

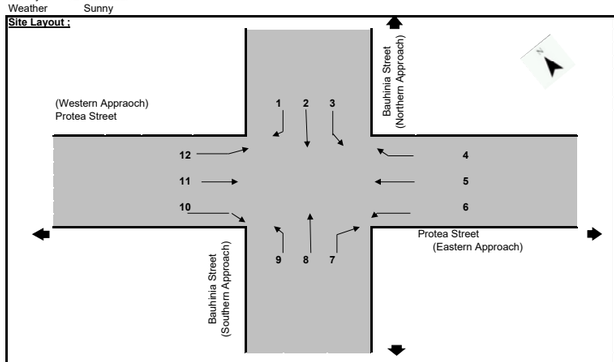
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

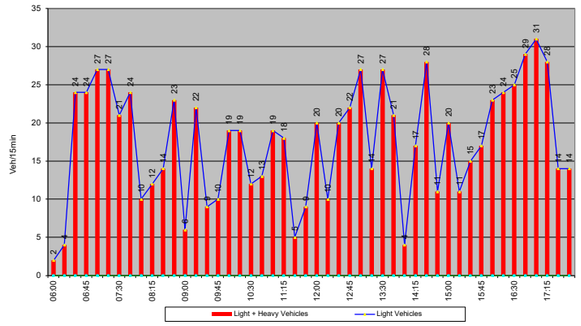
| Tyd | Baohinia Str | | | | | | Protea Str | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 06:15 - 06:30 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| 06:30 - 06:45 | 2 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 13 | 0 | 1 | 0 |
| 06:45 - 07:00 | 4 | 0 | 6 | 0 | 0 | 0 | 2 | 0 | 22 | 0 | 1 | 0 |
| 07:00 - 07:15 | 10 | 0 | 7 | 0 | 0 | 0 | 3 | 0 | 29 | 0 | 1 | 0 |
| 07:15 - 07:30 | 11 | 0 | 10 | 0 | 0 | 0 | 6 | 0 | 33 | 0 | 1 | 0 |
| 07:30 - 07:45 | 15 | 0 | 11 | 0 | 0 | 0 | 6 | 0 | 39 | 0 | 1 | 0 |
| 07:45 - 08:00 | 16 | 0 | 14 | 0 | 0 | 0 | 6 | 0 | 47 | 0 | 1 | 0 |
| 08:00 - 08:15 | 17 | 0 | 17 | 0 | 0 | 0 | 6 | 0 | 50 | 0 | 1 | 0 |
| 08:15 - 08:30 | 19 | 0 | 17 | 0 | 0 | 0 | 7 | 0 | 53 | 0 | 1 | 0 |
| 08:30 - 08:45 | 24 | 0 | 19 | 0 | 0 | 0 | 7 | 0 | 56 | 0 | 1 | 0 |
| 08:45 - 09:00 | 24 | 0 | 22 | 0 | 1 | 0 | 7 | 0 | 60 | 0 | 2 | 0 |
| 09:00 - 09:15 | 24 | 0 | 22 | 0 | 1 | 0 | 7 | 0 | 62 | 0 | 2 | 0 |
| 09:15 - 09:30 | 26 | 0 | 23 | 0 | 1 | 0 | 8 | 0 | 65 | 0 | 3 | 0 |
| 09:30 - 09:45 | 27 | 0 | 24 | 0 | 1 | 0 | 11 | 0 | 68 | 0 | 3 | 0 |
| 09:45 - 10:00 | 29 | 0 | 25 | 0 | 1 | 0 | 11 | 0 | 72 | 0 | 3 | 0 |
| 10:00 - 10:15 | 33 | 0 | 25 | 0 | 1 | 0 | 11 | 0 | 76 | 0 | 6 | 0 |
| 10:15 - 10:30 | 37 | 0 | 27 | 0 | 1 | 0 | 11 | 0 | 81 | 0 | 6 | 0 |
| 10:30 - 10:45 | 37 | 0 | 30 | 0 | 1 | 0 | 11 | 0 | 82 | 0 | 7 | 0 |
| 10:45 - 11:00 | 37 | 0 | 32 | 0 | 2 | 0 | 11 | 0 | 83 | 0 | 8 | 0 |
| 11:00 - 11:15 | 38 | 0 | 33 | 0 | 3 | 0 | 13 | 0 | 83 | 0 | 11 | 0 |
| 11:15 - 11:30 | 40 | 0 | 34 | 0 | 3 | 0 | 14 | 0 | 89 | 0 | 11 | 0 |
| 11:30 - 11:45 | 40 | 0 | 34 | 0 | 4 | 0 | 14 | 0 | 89 | 0 | 11 | 0 |
| 11:45 - 12:00 | 40 | 0 | 34 | 0 | 4 | 0 | 14 | 0 | 92 | 0 | 11 | 0 |
| 12:00 - 12:15 | 41 | 0 | 35 | 0 | 5 | 0 | 15 | 0 | 95 | 0 | 11 | 0 |
| 12:15 - 12:30 | 42 | 0 | 36 | 0 | 5 | 0 | 16 | 0 | 96 | 0 | 11 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12:30 - 12:45** | 43 | 0 | 37 | 0 | 5 | 0 | 16 | 0 | 102 | 0 | 11 | 0 |
| **12:45 - 13:00** | 47 | 0 | 37 | 0 | 5 | 0 | 17 | 0 | 106 | 0 | 11 | 0 |
| **13:00 - 13:15** | 47 | 0 | 37 | 0 | 5 | 0 | 17 | 0 | 109 | 0 | 12 | 0 |
| **13:15 - 13:30** | 51 | 0 | 37 | 0 | 5 | 0 | 17 | 0 | 113 | 0 | 13 | 0 |
| **13:30 - 13:45** | 55 | 0 | 41 | 0 | 6 | 0 | 17 | 0 | 117 | 0 | 13 | 0 |
| **13:45 - 14:00** | 59 | 0 | 43 | 0 | 7 | 0 | 17 | 0 | 124 | 0 | 14 | 0 |
| **14:00 - 14:15** | 61 | 0 | 44 | 0 | 7 | 0 | 17 | 0 | 124 | 0 | 14 | 0 |
| **14:15 - 14:30** | 64 | 0 | 46 | 0 | 8 | 0 | 17 | 0 | 128 | 0 | 14 | 0 |
| **14:30 - 14:45** | 64 | 0 | 52 | 0 | 8 | 0 | 19 | 0 | 132 | 0 | 14 | 0 |
| **14:45 - 15:00** | 64 | 0 | 53 | 0 | 8 | 0 | 19 | 0 | 136 | 0 | 14 | 0 |
| **15:00 - 15:15** | 65 | 0 | 53 | 0 | 8 | 0 | 20 | 0 | 138 | 0 | 17 | 0 |
| **15:15 - 15:30** | 67 | 0 | 55 | 0 | 8 | 0 | 21 | 0 | 142 | 0 | 17 | 0 |
| **15:30 - 15:45** | 69 | 0 | 57 | 0 | 8 | 0 | 22 | 0 | 143 | 0 | 18 | 0 |
| **15:45 - 16:00** | 70 | 0 | 57 | 0 | 8 | 0 | 22 | 0 | 145 | 0 | 18 | 0 |
| **16:00 - 16:15** | 71 | 0 | 58 | 0 | 11 | 0 | 22 | 0 | 149 | 0 | 19 | 0 |
| **16:15 - 16:30** | 71 | 0 | 58 | 0 | 11 | 0 | 22 | 0 | 157 | 0 | 20 | 0 |
| **16:30 - 16:45** | 73 | 0 | 59 | 0 | 12 | 0 | 22 | 0 | 160 | 0 | 20 | 0 |
| **16:45 - 17:00** | 76 | 0 | 59 | 0 | 12 | 0 | 22 | 0 | 165 | 0 | 21 | 0 |
| **17:00 - 17:15** | 77 | 0 | 63 | 0 | 12 | 0 | 26 | 0 | 168 | 0 | 22 | 0 |
| **17:15 - 17:30** | 79 | 0 | 66 | 0 | 12 | 0 | 26 | 0 | 172 | 0 | 22 | 0 |
| **17:30 - 17:45** | 80 | 0 | 66 | 0 | 12 | 0 | 27 | 0 | 174 | 0 | 22 | 0 |
| **17:45 - 18:00** | 83 | 0 | 67 | 0 | 13 | 0 | 27 | 0 | 176 | 0 | 22 | 0 |

Site Baohinia - Protea
Date 03/02/2022
Surveyor JE Giewelaar
Weather Sunny

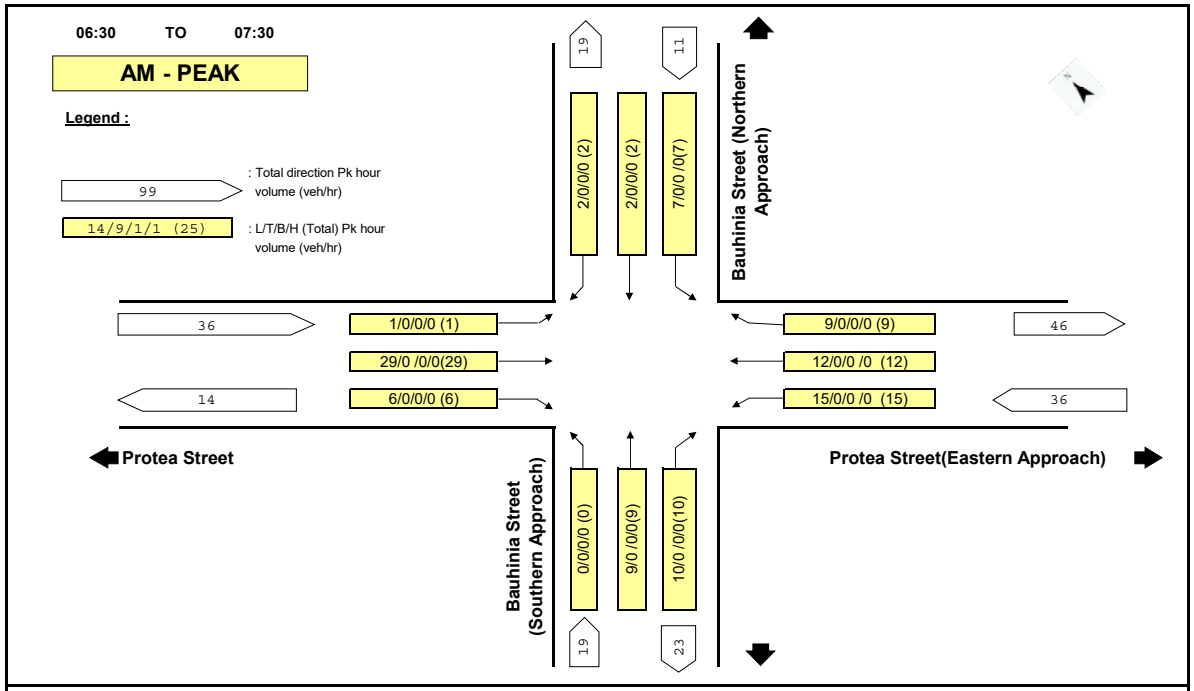
**Site Layout :**

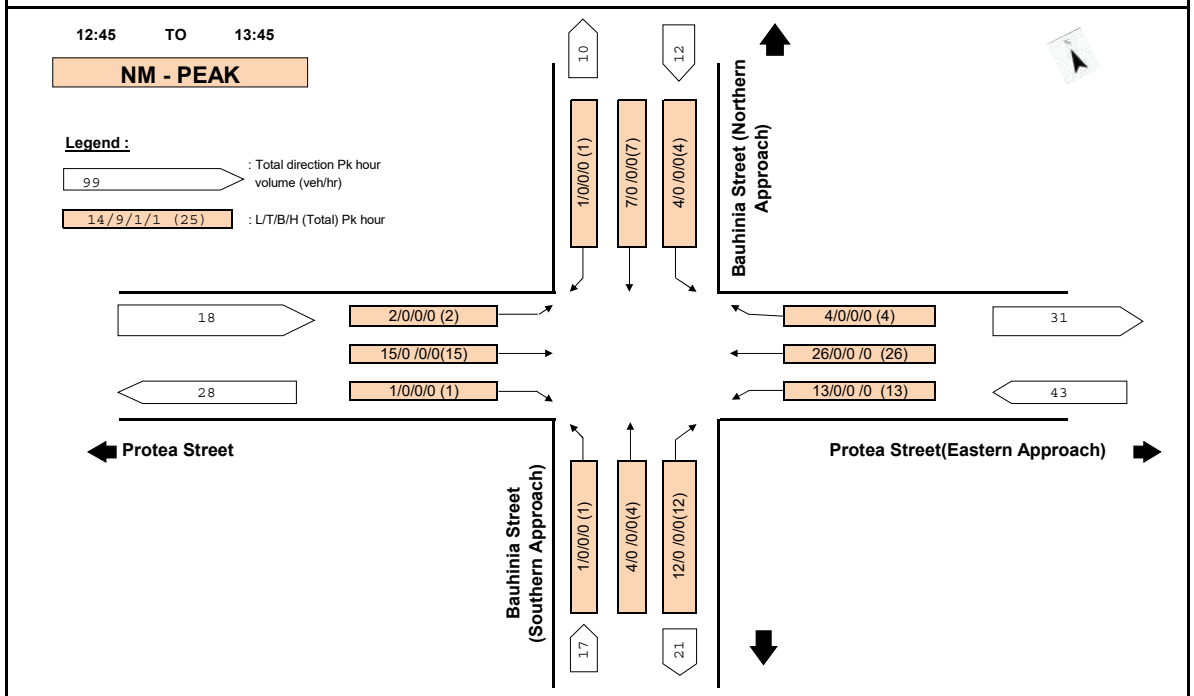


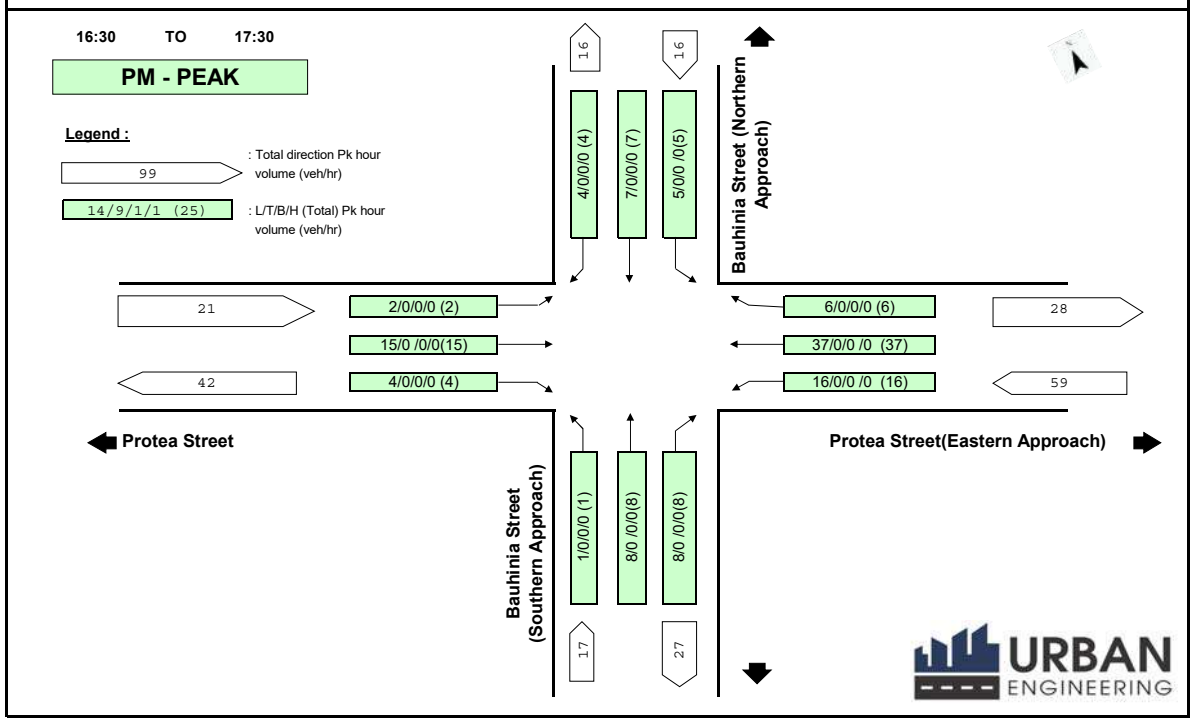




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Time Period | | | Light Vehicles | | | | | | | | | | | | | Taxis/Minibus-taxis | | | | | | | | | | | | | Bus | | | | | | | | | | | | | Heavy Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start | End | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
| 06:00 | 06:15 | **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | **2** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:15 | 06:30 | **4** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | **4** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:30 | 06:45 | **24** | 0 | 0 | 3 | 1 | 2 | 3 | 1 | 2 | 0 | 2 | 9 | 1 | **24** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:45 | 07:00 | **24** | 1 | 1 | 3 | 1 | 0 | 4 | 2 | 3 | 0 | 0 | 9 | 0 | **24** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:00 | 07:15 | **27** | 1 | 0 | 0 | 4 | 5 | 2 | 6 | 1 | 0 | 1 | 7 | 0 | **27** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:15 | 07:30 | **27** | 0 | 1 | 1 | 3 | 5 | 6 | 1 | 3 | 0 | 3 | 4 | 0 | **27** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:30 | 07:45 | **21** | 1 | 3 | 3 | 0 | 1 | 2 | 4 | 1 | 0 | 0 | 6 | 0 | **21** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:45 | 08:00 | **24** | 1 | 1 | 4 | 1 | 4 | 1 | 1 | 3 | 0 | 0 | 8 | 0 | **24** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:00 | 08:15 | **10** | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 3 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:15 | 08:30 | **12** | 0 | 0 | 0 | 0 | 5 | 1 | 2 | 0 | 0 | 1 | 3 | 0 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:30 | 08:45 | **14** | 0 | 1 | 0 | 2 | 1 | 0 | 5 | 2 | 0 | 0 | 3 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:45 | 09:00 | **23** | 0 | 3 | 3 | 1 | 3 | 4 | 0 | 3 | 1 | 0 | 4 | 1 | **23** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:00 | 09:15 | **6** | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | **6** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:15 | 09:30 | **22** | 1 | 4 | 0 | 1 | 6 | 2 | 2 | 1 | 0 | 1 | 3 | 1 | **22** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:30 | 09:45 | **9** | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 3 | 3 | 0 | **9** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:45 | 10:00 | **10** | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 4 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:00 | 10:15 | **19** | 2 | 1 | 0 | 0 | 3 | 2 | 4 | 0 | 0 | 0 | 4 | 3 | **19** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:15 | 10:30 | **19** | 0 | 6 | 0 | 0 | 2 | 0 | 4 | 2 | 0 | 0 | 5 | 0 | **19** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:30 | 10:45 | **12** | 0 | 3 | 1 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 1 | 1 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:45 | 11:00 | **13** | 0 | 0 | 1 | 0 | 6 | 1 | 0 | 2 | 1 | 0 | 1 | 1 | **13** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:00 | 11:15 | **19** | 0 | 1 | 2 | 1 | 6 | 1 | 1 | 1 | 1 | 2 | 0 | 3 | **19** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:15 | 11:30 | **18** | 1 | 1 | 2 | 0 | 3 | 1 | 2 | 1 | 0 | 1 | 6 | 0 | **18** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:30 | 11:45 | **5** | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **5** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:45 | 12:00 | **9** | 2 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | **9** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:00 | 12:15 | **20** | 1 | 0 | 1 | 1 | 6 | 4 | 1 | 1 | 1 | 1 | 3 | 0 | **20** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:15 | 12:30 | **10** | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | **10** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:30 | 12:45 | **20** | 1 | 1 | 3 | 0 | 3 | 4 | 1 | 1 | 0 | 0 | 6 | 0 | **20** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:45 | 13:00 | **22** | 1 | 1 | 1 | 1 | 6 | 3 | 4 | 0 | 0 | 1 | 4 | 0 | **22** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:00 | 13:15 | **27** | 0 | 2 | 2 | 1 | 15 | 3 | 0 | 0 | 0 | 0 | 3 | 1 | **27** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:15 | 13:30 | **14** | 0 | 2 | 0 | 2 | -1 | 2 | 4 | 0 | 0 | 0 | 4 | 1 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:30 | 13:45 | **27** | 0 | 2 | 1 | 0 | 6 | 5 | 4 | 4 | 1 | 0 | 4 | 0 | **27** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:45 | 14:00 | **21** | 0 | 0 | 2 | 1 | 2 | 1 | 4 | 2 | 1 | 0 | 7 | 1 | **21** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:00 | 14:15 | **4** | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | **4** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:15 | 14:30 | **17** | 0 | 2 | 0 | 0 | 5 | 0 | 3 | 2 | 1 | 0 | 4 | 0 | **17** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:30 | 14:45 | **28** | 0 | 4 | 1 | 0 | 7 | 4 | 0 | 6 | 0 | 2 | 4 | 0 | **28** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:45 | 15:00 | **11** | 1 | 2 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:00 | 15:15 | **20** | 4 | 2 | 0 | 0 | 5 | 2 | 1 | 0 | 0 | 1 | 2 | 3 | **20** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:15 | 15:30 | **11** | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 1 | 4 | 0 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:30 | 15:45 | **15** | 0 | 1 | 0 | 1 | 4 | 2 | 2 | 2 | 0 | 1 | 1 | 1 | **15** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:45 | 16:00 | **17** | 1 | 0 | 0 | 2 | 10 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | **17** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:00 | 16:15 | **23** | 1 | 1 | 2 | 1 | 5 | 3 | 1 | 1 | 3 | 0 | 4 | 1 | **23** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:15 | 16:30 | **24** | 0 | 1 | 0 | 1 | 8 | 5 | 0 | 0 | 0 | 0 | 8 | 1 | **24** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:30 | 16:45 | **25** | 0 | 1 | 1 | 0 | 10 | 6 | 2 | 1 | 1 | 0 | 3 | 0 | **25** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:45 | 17:00 | **29** | 2 | 3 | 1 | 3 | 10 | 1 | 3 | 0 | 0 | 0 | 5 | 1 | **29** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:00 | 17:15 | **31** | 0 | 0 | 1 | 2 | 9 | 6 | 1 | 4 | 0 | 4 | 3 | 1 | **31** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:15 | 17:30 | **28** | 2 | 3 | 2 | 1 | 8 | 3 | 2 | 3 | 0 | 0 | 4 | 0 | **28** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:30 | 17:45 | **14** | 0 | 1 | 0 | 0 | 7 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:45 | 18:00 | **14** | 0 | 1 | 0 | 1 | 4 | 1 | 3 | 1 | 1 | 0 | 2 | 0 | **14** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total (5-19)** | | **845** | **25** | **60** | **45** | **36** | **198** | **93** | **83** | **67** | **13** | **27** | **176** | **22** | **845** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| AM Pk hour vol | | 102 | 2 | 2 | 7 | 9 | 12 | 15 | 10 | 9 | 0 | 6 | 29 | 1 | 102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 06:30 | to 07:30 | | **Total AM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **2** | **2** | **7** | **9** | **12** | **15** | **10** | **9** | **0** | **6** | **29** | **1** | **102** | **2** | **2** | **7** | **9** | **12** | **15** | **10** | **9** | **0** | **6** | **29** | **1** | **102** | **2** | **2** | **7** | **9** | **12** | **15** | **10** | **9** | **0** | **6** | **29** | **1** | **102** |
| NM Pk hour vol | | 90 | 1 | 7 | 4 | 4 | 26 | 13 | 12 | 4 | 1 | 1 | 15 | 2 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 | to 13:45 | | **Typical NM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **1** | **7** | **4** | **4** | **26** | **13** | **12** | **4** | **1** | **1** | **15** | **2** | **90** | **1** | **7** | **4** | **4** | **26** | **13** | **12** | **4** | **1** | **1** | **15** | **2** | **90** | **1** | **7** | **4** | **4** | **26** | **13** | **12** | **4** | **1** | **1** | **15** | **2** | **90** |
| PM Pk hour vol | | 113 | 4 | 7 | 5 | 6 | 37 | 16 | 8 | 8 | 1 | 4 | 15 | 2 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | to 17:30 | | **Total PM Pk hour vol (Light + Heavy)** | | | | | | | | | | | | **4** | **7** | **5** | **6** | **37** | **16** | **8** | **8** | **1** | **4** | **15** | **2** | **113** | **4** | **7** | **5** | **6** | **37** | **16** | **8** | **8** | **1** | **4** | **15** | **2** | **113** | **4** | **7** | **5** | **6** | **37** | **16** | **8** | **8** | **1** | **4** | **15** | **2** | **113** |

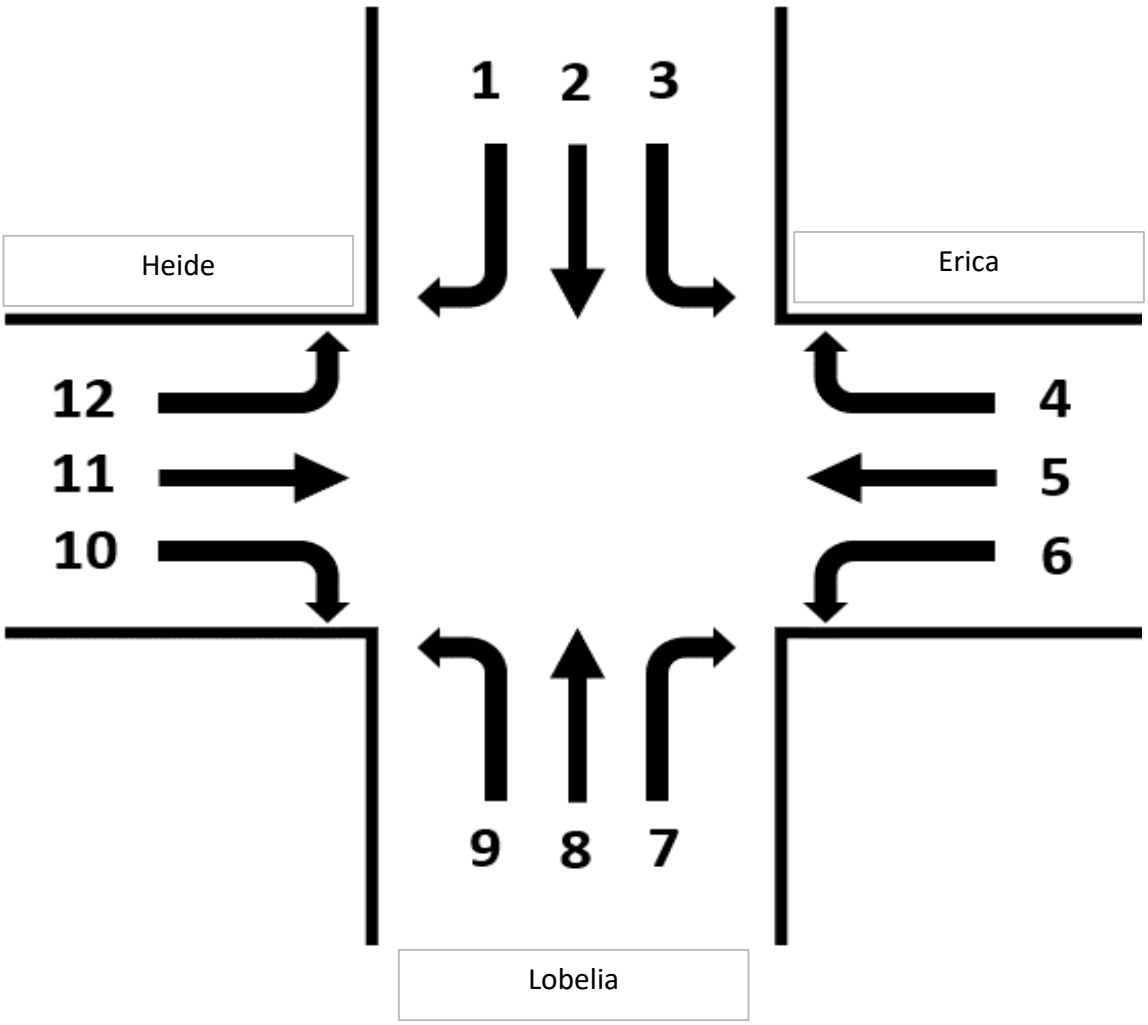



URBAN ENGINEERING

Lobelia - North



# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Lobelia / Heide (Erica)
**Datum/Date:** 03/02/2022
**Teller/Counter:** JE Giewelaar

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Tyd | Lobelia Str | | | | | | Erica / Heide Str | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 06:15 - 06:30 | 3 | 0 | 3 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 06:30 - 06:45 | 3 | 0 | 7 | 0 | 1 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 06:45 - 07:00 | 5 | 0 | 11 | 0 | 7 | 0 | 12 | 0 | 0 | 0 | 2 | 0 |
| 07:00 - 07:15 | 11 | 0 | 14 | 0 | 23 | 0 | 24 | 0 | 1 | 0 | 2 | 0 |
| 07:15 - 07:30 | 18 | 0 | 22 | 0 | 33 | 0 | 37 | 0 | 1 | 0 | 2 | 0 |
| 07:30 - 07:45 | 22 | 0 | 27 | 0 | 39 | 0 | 52 | 0 | 2 | 0 | 8 | 0 |
| 07:45 - 08:00 | 26 | 0 | 34 | 0 | 50 | 0 | 69 | 0 | 3 | 0 | 16 | 0 |
| 08:00 - 08:15 | 31 | 0 | 34 | 0 | 54 | 0 | 75 | 0 | 4 | 0 | 17 | 0 |
| 08:15 - 08:30 | 34 | 0 | 39 | 0 | 56 | 0 | 80 | 0 | 5 | 0 | 19 | 0 |
| 08:30 - 08:45 | 39 | 0 | 43 | 0 | 64 | 0 | 85 | 0 | 7 | 0 | 20 | 0 |
| 08:45 - 09:00 | 41 | 0 | 46 | 0 | 67 | 0 | 88 | 0 | 7 | 0 | 20 | 0 |
| 09:00 - 09:15 | 44 | 0 | 51 | 0 | 68 | 0 | 92 | 0 | 8 | 0 | 21 | 0 |
| 09:15 - 09:30 | 47 | 0 | 56 | 0 | 77 | 0 | 97 | 0 | 9 | 0 | 22 | 0 |
| 09:30 - 09:45 | 49 | 0 | 62 | 0 | 79 | 0 | 103 | 0 | 9 | 0 | 22 | 0 |
| 09:45 - 10:00 | 52 | 0 | 63 | 0 | 83 | 0 | 107 | 0 | 10 | 0 | 22 | 0 |
| 10:00 - 10:15 | 59 | 0 | 67 | 0 | 86 | 0 | 114 | 0 | 10 | 0 | 22 | 0 |
| 10:15 - 10:30 | 61 | 0 | 75 | 0 | 90 | 0 | 122 | 0 | 10 | 0 | 23 | 0 |
| 10:30 - 10:45 | 64 | 0 | 83 | 0 | 98 | 0 | 125 | 0 | 10 | 0 | 23 | 0 |
| 10:45 - 11:00 | 67 | 0 | 88 | 0 | 104 | 0 | 128 | 0 | 12 | 0 | 25 | 0 |
| 11:00 - 11:15 | 77 | 0 | 95 | 0 | 109 | 0 | 135 | 0 | 12 | 0 | 25 | 0 |
| 11:15 - 11:30 | 85 | 0 | 102 | 0 | 115 | 0 | 139 | 0 | 13 | 0 | 25 | 0 |
| 11:30 - 11:45 | 94 | 0 | 108 | 0 | 118 | 0 | 143 | 0 | 13 | 0 | 25 | 0 |
| 11:45 - 12:00 | 99 | 0 | 115 | 0 | 121 | 0 | 150 | 0 | 13 | 0 | 25 | 0 |
| 12:00 - 12:15 | 102 | 0 | 122 | 0 | 123 | 0 | 159 | 0 | 15 | 0 | 26 | 0 |
| 12:15 - 12:30 | 105 | 0 | 125 | 0 | 127 | 0 | 164 | 0 | 15 | 0 | 28 | 0 |
| 12:30 - 12:45 | 107 | 0 | 131 | 0 | 142 | 0 | 179 | 0 | 19 | 0 | 32 | 0 |
| 12:45 - 13:00 | 113 | 0 | 138 | 0 | 150 | 0 | 185 | 0 | 23 | 0 | 33 | 0 |
| 13:00 - 13:15 | 117 | 0 | 146 | 0 | 153 | 0 | 188 | 0 | 24 | 0 | 33 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13:15 - 13:30** | 121 | 0 | 151 | 0 | 155 | 0 | 195 | 0 | 24 | 0 | 33 | 0 |
| **13:30 - 13:45** | 130 | 0 | 169 | 0 | 161 | 0 | 207 | 0 | 24 | 0 | 33 | 0 |
| **13:45 - 14:00** | 133 | 0 | 172 | 0 | 161 | 0 | 212 | 0 | 24 | 0 | 33 | 0 |
| **14:00 - 14:15** | 136 | 0 | 178 | 0 | 166 | 0 | 216 | 0 | 24 | 0 | 34 | 0 |
| **14:15 - 14:30** | 142 | 0 | 185 | 0 | 172 | 0 | 219 | 0 | 25 | 0 | 35 | 0 |
| **14:30 - 14:45** | 145 | 0 | 192 | 0 | 182 | 0 | 227 | 0 | 27 | 0 | 36 | 0 |
| **14:45 - 15:00** | 152 | 0 | 203 | 0 | 189 | 0 | 231 | 0 | 27 | 0 | 36 | 0 |
| **15:00 - 15:15** | 162 | 0 | 212 | 0 | 197 | 0 | 234 | 0 | 29 | 0 | 36 | 0 |
| **15:15 - 15:30** | 167 | 0 | 218 | 0 | 203 | 0 | 238 | 0 | 30 | 0 | 36 | 0 |
| **15:30 - 15:45** | 172 | 0 | 225 | 0 | 211 | 0 | 239 | 0 | 30 | 0 | 36 | 0 |
| **15:45 - 16:00** | 178 | 0 | 234 | 0 | 215 | 0 | 243 | 0 | 30 | 0 | 36 | 0 |
| **16:00 - 16:15** | 181 | 0 | 242 | 0 | 221 | 0 | 255 | 0 | 32 | 0 | 36 | 0 |
| **16:15 - 16:30** | 190 | 0 | 248 | 0 | 230 | 0 | 262 | 0 | 32 | 0 | 38 | 0 |
| **16:30 - 16:45** | 194 | 0 | 259 | 0 | 236 | 0 | 267 | 0 | 34 | 0 | 38 | 0 |
| **16:45 - 17:00** | 200 | 0 | 271 | 0 | 244 | 0 | 269 | 0 | 34 | 0 | 39 | 0 |
| **17:00 - 17:15** | 212 | 0 | 284 | 0 | 255 | 0 | 275 | 0 | 37 | 0 | 41 | 0 |
| **17:15 - 17:30** | 215 | 0 | 290 | 0 | 261 | 0 | 281 | 0 | 38 | 0 | 41 | 0 |
| **17:30 - 17:45** | 221 | 0 | 296 | 0 | 269 | 0 | 286 | 0 | 41 | 0 | 42 | 0 |
| **17:45 - 18:00** | 228 | 0 | 302 | 0 | 272 | 0 | 297 | 0 | 42 | 0 | 42 | 0 |

# Verkeerstelling/Traffic Count

**Projek Naam:** Riversdal
**Plek/Location:** Lobelia / Heide (Erica)
**Datum/Date:** 03/02/2022
**Teller/Counter:** JE Giewelaar

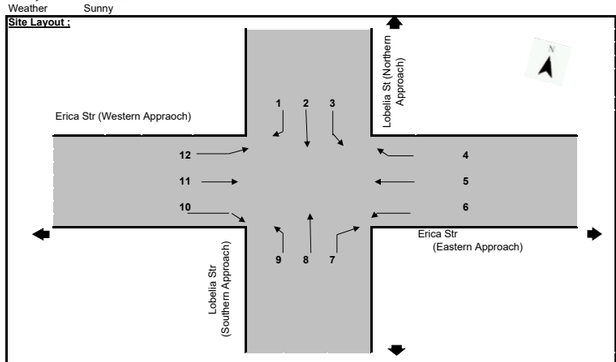
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

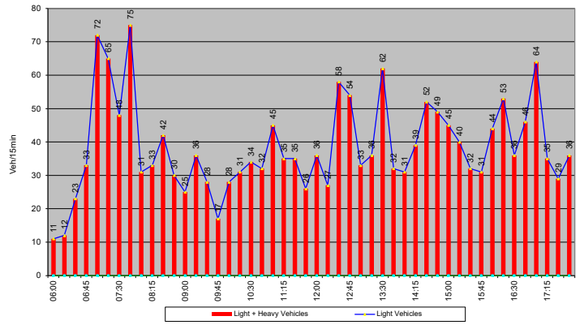
| Tyd | Lobelia Str | | | | | | Erica / Heide Str | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | |
| | L | S | L | S | L | S | L | S | L | S | L | S |
| 06:00 - 06:15 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 0 |
| 06:15 - 06:30 | 0 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 5 | 0 |
| 06:30 - 06:45 | 0 | 0 | 10 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 11 | 0 |
| 06:45 - 07:00 | 0 | 0 | 24 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 13 | 0 |
| 07:00 - 07:15 | 2 | 0 | 41 | 0 | 2 | 0 | 3 | 0 | 2 | 0 | 26 | 0 |
| 07:15 - 07:30 | 4 | 0 | 51 | 0 | 3 | 0 | 4 | 0 | 5 | 0 | 36 | 0 |
| 07:30 - 07:45 | 4 | 0 | 54 | 0 | 3 | 0 | 5 | 0 | 9 | 0 | 39 | 0 |
| 07:45 - 08:00 | 7 | 0 | 65 | 0 | 4 | 0 | 6 | 0 | 13 | 0 | 46 | 0 |
| 08:00 - 08:15 | 8 | 0 | 73 | 0 | 4 | 0 | 6 | 0 | 13 | 0 | 51 | 0 |
| 08:15 - 08:30 | 8 | 0 | 77 | 0 | 4 | 0 | 6 | 0 | 16 | 0 | 59 | 0 |
| 08:30 - 08:45 | 9 | 0 | 84 | 0 | 4 | 0 | 6 | 0 | 17 | 0 | 67 | 0 |
| 08:45 - 09:00 | 10 | 0 | 93 | 0 | 4 | 0 | 7 | 0 | 21 | 0 | 71 | 0 |
| 09:00 - 09:15 | 10 | 0 | 100 | 0 | 4 | 0 | 7 | 0 | 22 | 0 | 73 | 0 |
| 09:15 - 09:30 | 11 | 0 | 105 | 0 | 4 | 0 | 7 | 0 | 24 | 0 | 77 | 0 |
| 09:30 - 09:45 | 12 | 0 | 109 | 0 | 4 | 0 | 7 | 0 | 24 | 0 | 84 | 0 |
| 09:45 - 10:00 | 12 | 0 | 110 | 0 | 4 | 0 | 7 | 0 | 26 | 0 | 85 | 0 |
| 10:00 - 10:15 | 12 | 0 | 113 | 0 | 4 | 0 | 7 | 0 | 26 | 0 | 89 | 0 |
| 10:15 - 10:30 | 12 | 0 | 120 | 0 | 4 | 0 | 7 | 0 | 27 | 0 | 89 | 0 |
| 10:30 - 10:45 | 12 | 0 | 125 | 0 | 5 | 0 | 7 | 0 | 28 | 0 | 94 | 0 |
| 10:45 - 11:00 | 13 | 0 | 129 | 0 | 6 | 0 | 7 | 0 | 28 | 0 | 99 | 0 |
| 11:00 - 11:15 | 13 | 0 | 137 | 0 | 7 | 0 | 8 | 0 | 29 | 0 | 104 | 0 |
| 11:15 - 11:30 | 13 | 0 | 142 | 0 | 7 | 0 | 9 | 0 | 30 | 0 | 106 | 0 |
| 11:30 - 11:45 | 13 | 0 | 145 | 0 | 8 | 0 | 9 | 0 | 30 | 0 | 115 | 0 |
| 11:45 - 12:00 | 14 | 0 | 146 | 0 | 8 | 0 | 9 | 0 | 30 | 0 | 117 | 0 |
| 12:00 - 12:15 | 15 | 0 | 150 | 0 | 8 | 0 | 9 | 0 | 31 | 0 | 123 | 0 |
| 12:15 - 12:30 | 17 | 0 | 152 | 0 | 8 | 0 | 9 | 0 | 35 | 0 | 125 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12:30 - 12:45** | 18 | 0 | 158 | 0 | 8 | 0 | 9 | 0 | 36 | 0 | 129 | 0 |
| **12:45 - 13:00** | 19 | 0 | 167 | 0 | 9 | 0 | 10 | 0 | 40 | 0 | 135 | 0 |
| **13:00 - 13:15** | 19 | 0 | 175 | 0 | 9 | 0 | 10 | 0 | 41 | 0 | 140 | 0 |
| **13:15 - 13:30** | 19 | 0 | 184 | 0 | 9 | 0 | 10 | 0 | 43 | 0 | 147 | 0 |
| **13:30 - 13:45** | 21 | 0 | 193 | 0 | 9 | 0 | 10 | 0 | 45 | 0 | 151 | 0 |
| **13:45 - 14:00** | 21 | 0 | 204 | 0 | 11 | 0 | 11 | 0 | 46 | 0 | 157 | 0 |
| **14:00 - 14:15** | 21 | 0 | 210 | 0 | 12 | 0 | 11 | 0 | 47 | 0 | 161 | 0 |
| **14:15 - 14:30** | 21 | 0 | 216 | 0 | 13 | 0 | 12 | 0 | 47 | 0 | 168 | 0 |
| **14:30 - 14:45** | 21 | 0 | 230 | 0 | 13 | 0 | 12 | 0 | 48 | 0 | 174 | 0 |
| **14:45 - 15:00** | 21 | 0 | 243 | 0 | 14 | 0 | 12 | 0 | 49 | 0 | 179 | 0 |
| **15:00 - 15:15** | 21 | 0 | 250 | 0 | 14 | 0 | 12 | 0 | 50 | 0 | 184 | 0 |
| **15:15 - 15:30** | 23 | 0 | 257 | 0 | 14 | 0 | 12 | 0 | 53 | 0 | 190 | 0 |
| **15:30 - 15:45** | 23 | 0 | 262 | 0 | 14 | 0 | 13 | 0 | 53 | 0 | 195 | 0 |
| **15:45 - 16:00** | 23 | 0 | 267 | 0 | 14 | 0 | 13 | 0 | 54 | 0 | 197 | 0 |
| **16:00 - 16:15** | 23 | 0 | 272 | 0 | 14 | 0 | 13 | 0 | 54 | 0 | 205 | 0 |
| **16:15 - 16:30** | 27 | 0 | 279 | 0 | 14 | 0 | 15 | 0 | 57 | 0 | 209 | 0 |
| **16:30 - 16:45** | 27 | 0 | 282 | 0 | 14 | 0 | 15 | 0 | 57 | 0 | 214 | 0 |
| **16:45 - 17:00** | 27 | 0 | 290 | 0 | 16 | 0 | 15 | 0 | 59 | 0 | 219 | 0 |
| **17:00 - 17:15** | 29 | 0 | 300 | 0 | 16 | 0 | 16 | 0 | 60 | 0 | 222 | 0 |
| **17:15 - 17:30** | 30 | 0 | 306 | 0 | 17 | 0 | 18 | 0 | 62 | 0 | 223 | 0 |
| **17:30 - 17:45** | 30 | 0 | 308 | 0 | 17 | 0 | 18 | 0 | 63 | 0 | 228 | 0 |
| **17:45 - 18:00** | 31 | 0 | 314 | 0 | 18 | 0 | 18 | 0 | 64 | 0 | 230 | 0 |

Site Lobelia / Heide (Erica)
Date 03/02/2022
Surveyor JE Giewelaar
Weather Sunny

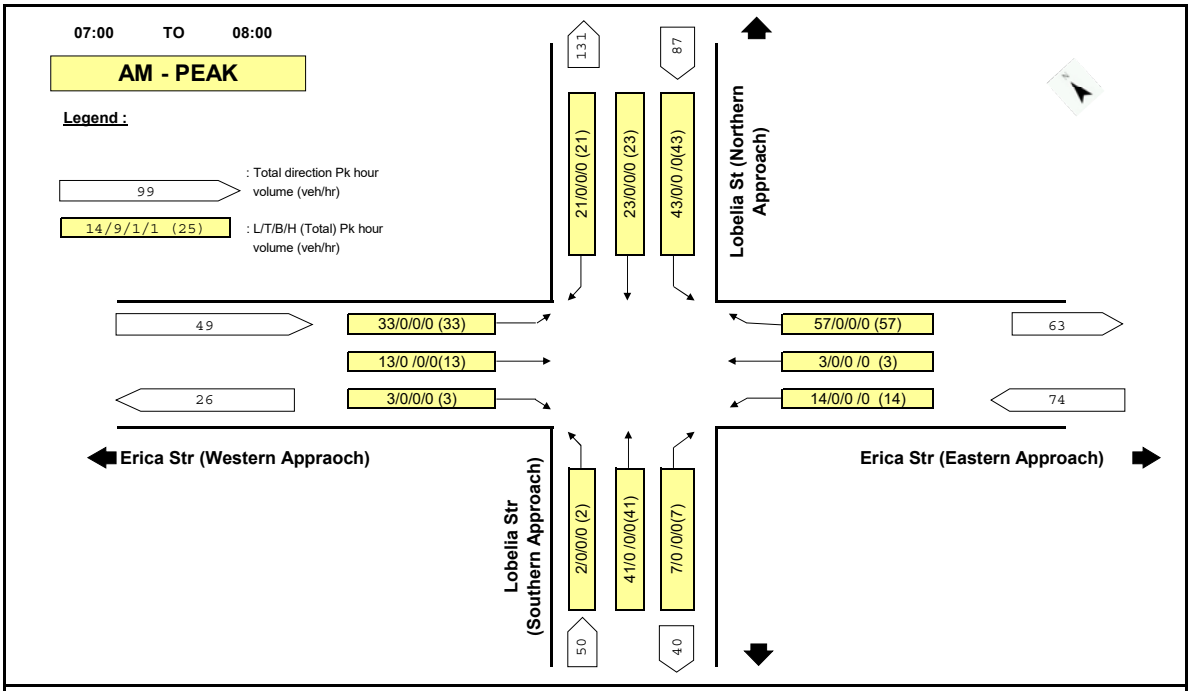
**Site Layout :**

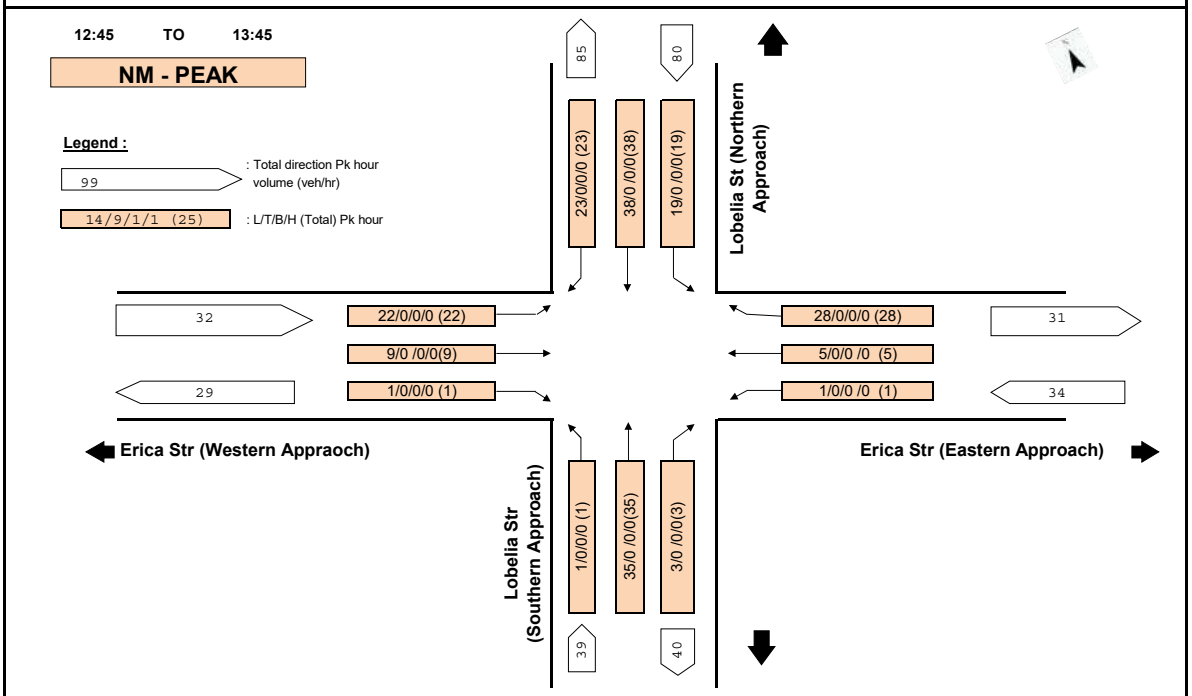


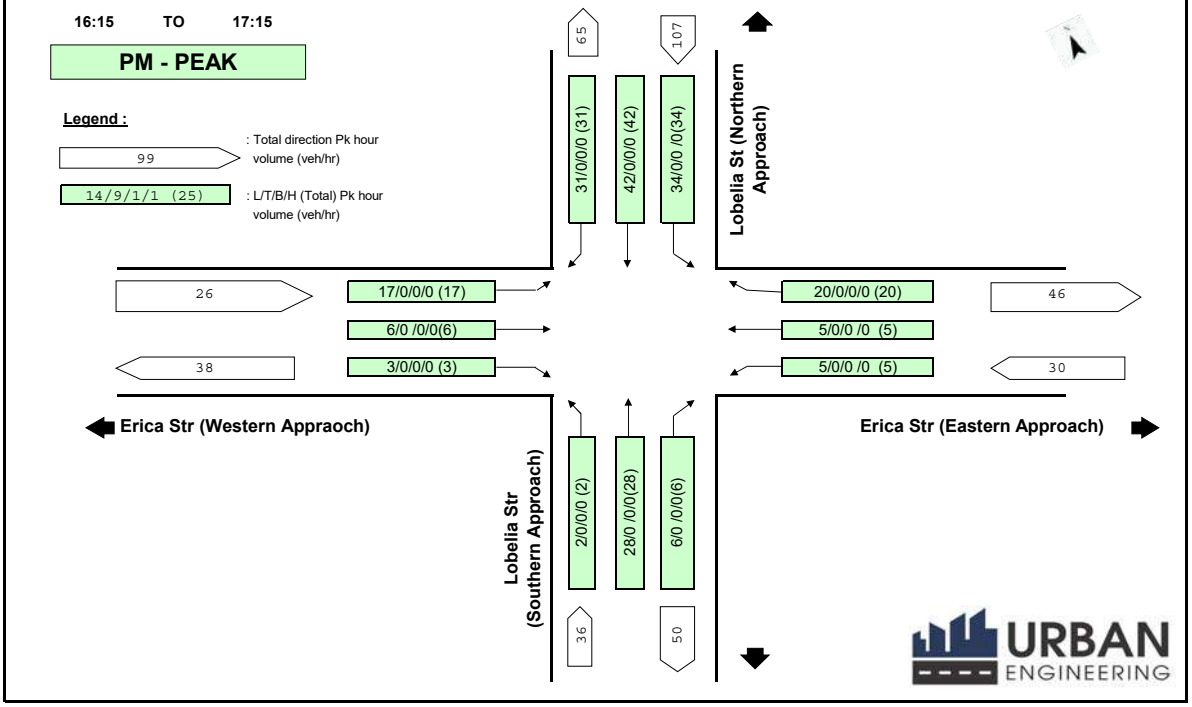




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

| Time Period | | | Light Vehicles | | | | | | | | | | | | | Taxis/Minibus-taxis | | | | | | | | | | | | | Bus | | | | | | | | | | | | | Heavy Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start | End | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Total |
| 06:00 | 06:15 | **11** | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 3 | **11** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:15 | 06:30 | **12** | 2 | 2 | 1 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | **12** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:30 | 06:45 | **23** | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 6 | 1 | 2 | 0 | 6 | **23** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 06:45 | 07:00 | **33** | 2 | 4 | 6 | 3 | 0 | 2 | 0 | 14 | 0 | 0 | 0 | 2 | **33** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:00 | 07:15 | **72** | 6 | 3 | 16 | 12 | 1 | 0 | 2 | 17 | 0 | 0 | 2 | 13 | **72** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:15 | 07:30 | **65** | 7 | 8 | 10 | 13 | 0 | 0 | 2 | 10 | 1 | 1 | 3 | 10 | **65** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:30 | 07:45 | **48** | 4 | 5 | 6 | 15 | 1 | 6 | 0 | 3 | 0 | 1 | 4 | 3 | **48** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 07:45 | 08:00 | **75** | 4 | 7 | 11 | 17 | 1 | 8 | 3 | 11 | 1 | 1 | 4 | 7 | **75** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:00 | 08:15 | **31** | 5 | 0 | 4 | 6 | 1 | 1 | 1 | 8 | 0 | 0 | 0 | 5 | **31** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:15 | 08:30 | **33** | 3 | 5 | 2 | 5 | 1 | 2 | 0 | 4 | 0 | 0 | 3 | 8 | **33** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:30 | 08:45 | **42** | 5 | 4 | 8 | 5 | 2 | 1 | 1 | 7 | 0 | 0 | 1 | 8 | **42** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 08:45 | 09:00 | **30** | 2 | 3 | 3 | 3 | 0 | 0 | 1 | 9 | 0 | 1 | 4 | 4 | **30** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:00 | 09:15 | **25** | 3 | 5 | 1 | 4 | 1 | 1 | 0 | 7 | 0 | 0 | 1 | 2 | **25** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:15 | 09:30 | **36** | 3 | 5 | 9 | 5 | 1 | 1 | 1 | 5 | 0 | 0 | 2 | 4 | **36** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:30 | 09:45 | **28** | 2 | 6 | 2 | 6 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 7 | **28** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 09:45 | 10:00 | **17** | 3 | 1 | 4 | 4 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | **17** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:00 | 10:15 | **28** | 7 | 4 | 3 | 7 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 4 | **28** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:15 | 10:30 | **31** | 2 | 8 | 4 | 8 | 0 | 1 | 0 | 7 | 0 | 0 | 1 | 0 | **31** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:30 | 10:45 | **34** | 3 | 8 | 8 | 3 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 5 | **34** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10:45 | 11:00 | **32** | 3 | 5 | 6 | 3 | 2 | 2 | 1 | 4 | 1 | 0 | 0 | 5 | **32** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:00 | 11:15 | **45** | 10 | 7 | 5 | 7 | 0 | 0 | 0 | 8 | 1 | 1 | 1 | 5 | **45** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:15 | 11:30 | **35** | 8 | 7 | 6 | 4 | 1 | 0 | 0 | 5 | 0 | 1 | 1 | 2 | **35** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:30 | 11:45 | **35** | 9 | 6 | 3 | 4 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 9 | **35** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 11:45 | 12:00 | **26** | 5 | 7 | 3 | 7 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | **26** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:00 | 12:15 | **36** | 3 | 7 | 2 | 9 | 2 | 1 | 1 | 4 | 0 | 0 | 1 | 6 | **36** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:15 | 12:30 | **27** | 3 | 3 | 4 | 5 | 0 | 2 | 2 | 2 | 0 | 0 | 4 | 2 | **27** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:30 | 12:45 | **58** | 2 | 6 | 15 | 15 | 4 | 4 | 1 | 6 | 0 | 0 | 1 | 4 | **58** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 12:45 | 13:00 | **54** | 6 | 7 | 8 | 6 | 4 | 1 | 1 | 9 | 1 | 1 | 4 | 6 | **54** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:00 | 13:15 | **33** | 4 | 8 | 3 | 3 | 1 | 0 | 0 | 8 | 0 | 0 | 1 | 5 | **33** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:15 | 13:30 | **36** | 4 | 5 | 2 | 7 | 0 | 0 | 0 | 9 | 0 | 0 | 2 | 7 | **36** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:30 | 13:45 | **62** | 9 | 18 | 6 | 12 | 0 | 0 | 2 | 9 | 0 | 0 | 2 | 4 | **62** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 13:45 | 14:00 | **32** | 3 | 3 | 0 | 5 | 0 | 0 | 0 | 11 | 2 | 1 | 1 | 6 | **32** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:00 | 14:15 | **31** | 3 | 6 | 5 | 4 | 0 | 1 | 0 | 6 | 1 | 0 | 1 | 4 | **31** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:15 | 14:30 | **39** | 6 | 7 | 6 | 3 | 1 | 1 | 0 | 6 | 1 | 1 | 0 | 7 | **39** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:30 | 14:45 | **52** | 3 | 7 | 10 | 8 | 2 | 1 | 0 | 14 | 0 | 0 | 1 | 6 | **52** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 14:45 | 15:00 | **49** | 7 | 11 | 7 | 4 | 0 | 0 | 0 | 13 | 1 | 0 | 1 | 5 | **49** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:00 | 15:15 | **45** | 10 | 9 | 8 | 3 | 2 | 0 | 0 | 7 | 0 | 0 | 1 | 5 | **45** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:15 | 15:30 | **40** | 5 | 6 | 6 | 4 | 1 | 0 | 2 | 7 | 0 | 0 | 3 | 6 | **40** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:30 | 15:45 | **32** | 5 | 7 | 8 | 1 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | 5 | **32** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 15:45 | 16:00 | **31** | 6 | 9 | 4 | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 2 | **31** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:00 | 16:15 | **44** | 3 | 8 | 6 | 12 | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 8 | **44** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:15 | 16:30 | **53** | 9 | 6 | 9 | 7 | 0 | 2 | 4 | 7 | 0 | 2 | 3 | 4 | **53** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:30 | 16:45 | **36** | 4 | 11 | 6 | 5 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 5 | **36** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 16:45 | 17:00 | **46** | 6 | 12 | 8 | 2 | 0 | 1 | 0 | 8 | 2 | 0 | 2 | 5 | **46** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:00 | 17:15 | **64** | 12 | 13 | 11 | 6 | 3 | 2 | 2 | 10 | 0 | 1 | 1 | 3 | **64** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:15 | 17:30 | **35** | 3 | 6 | 6 | 6 | 1 | 0 | 1 | 6 | 1 | 2 | 2 | 1 | **35** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:30 | 17:45 | **29** | 6 | 6 | 0 | 5 | 3 | 1 | 0 | 2 | 0 | 0 | 1 | 5 | **29** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| 17:45 | 18:00 | **36** | 7 | 6 | 0 | 11 | 1 | 0 | 1 | 6 | 1 | 0 | 1 | 2 | **36** | | | | | | | | | | | | | **0** | | | | | | | | | | | | | **0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total (5-19)** | | **1847** | **228** | **302** | **261** | **297** | **42** | **42** | **31** | **314** | **18** | **18** | **64** | **230** | **1847** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| AM Pk hour vol | | 260 | 21 | 23 | 43 | 57 | 3 | 14 | 7 | 41 | 2 | 3 | 13 | 33 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:00 | to | 08:00 | | | | | | | | | | | | **Total AM Pk hour vol (Light + Heavy)** | | **21** | **23** | **43** | **57** | **3** | **14** | **7** | **41** | **2** | **3** | **13** | **33** | **260** | **21** | **23** | **43** | **57** | **3** | **14** | **7** | **41** | **2** | **3** | **13** | **33** | **260** | **21** | **23** | **43** | **57** | **3** | **14** | **7** | **41** | **2** | **3** | **13** | **33** | **260** |
| NM Pk hour vol | | 185 | 23 | 38 | 19 | 28 | 5 | 1 | 3 | 35 | 1 | 1 | 9 | 22 | 185 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 | to | 13:45 | | | | | | | | | | | | **Typical NM Pk hour vol (Light + Heavy)** | | **23** | **38** | **19** | **28** | **5** | **1** | **3** | **35** | **1** | **1** | **9** | **22** | **185** | **23** | **38** | **19** | **28** | **5** | **1** | **3** | **35** | **1** | **1** | **9** | **22** | **185** | **23** | **38** | **19** | **28** | **5** | **1** | **3** | **35** | **1** | **1** | **9** | **22** | **185** |
| PM Pk hour vol | | 199 | 31 | 42 | 34 | 20 | 5 | 5 | 6 | 28 | 2 | 3 | 6 | 17 | 199 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:15 | to | 17:15 | | | | | | | | | | | | **Total PM Pk hour vol (Light + Heavy)** | | **31** | **42** | **34** | **20** | **5** | **5** | **6** | **28** | **2** | **3** | **6** | **17** | **199** | **31** | **42** | **34** | **20** | **5** | **5** | **6** | **28** | **2** | **3** | **6** | **17** | **199** | **31** | **42** | **34** | **20** | **5** | **5** | **6** | **28** | **2** | **3** | **6** | **17** | **199** |



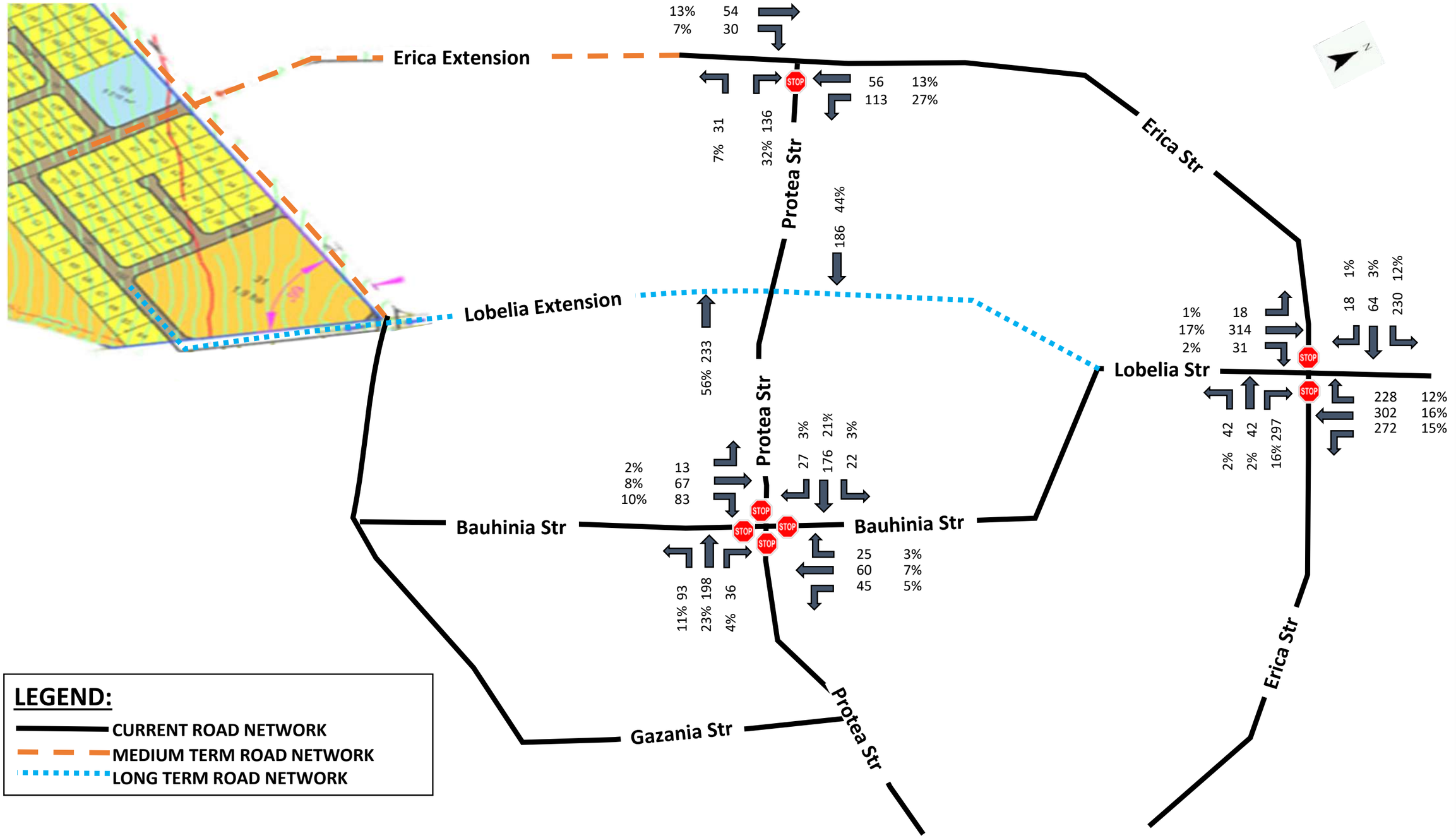




URBAN ENGINEERING

# ANNEXURE E

# EXCEL SPREADSHEETS



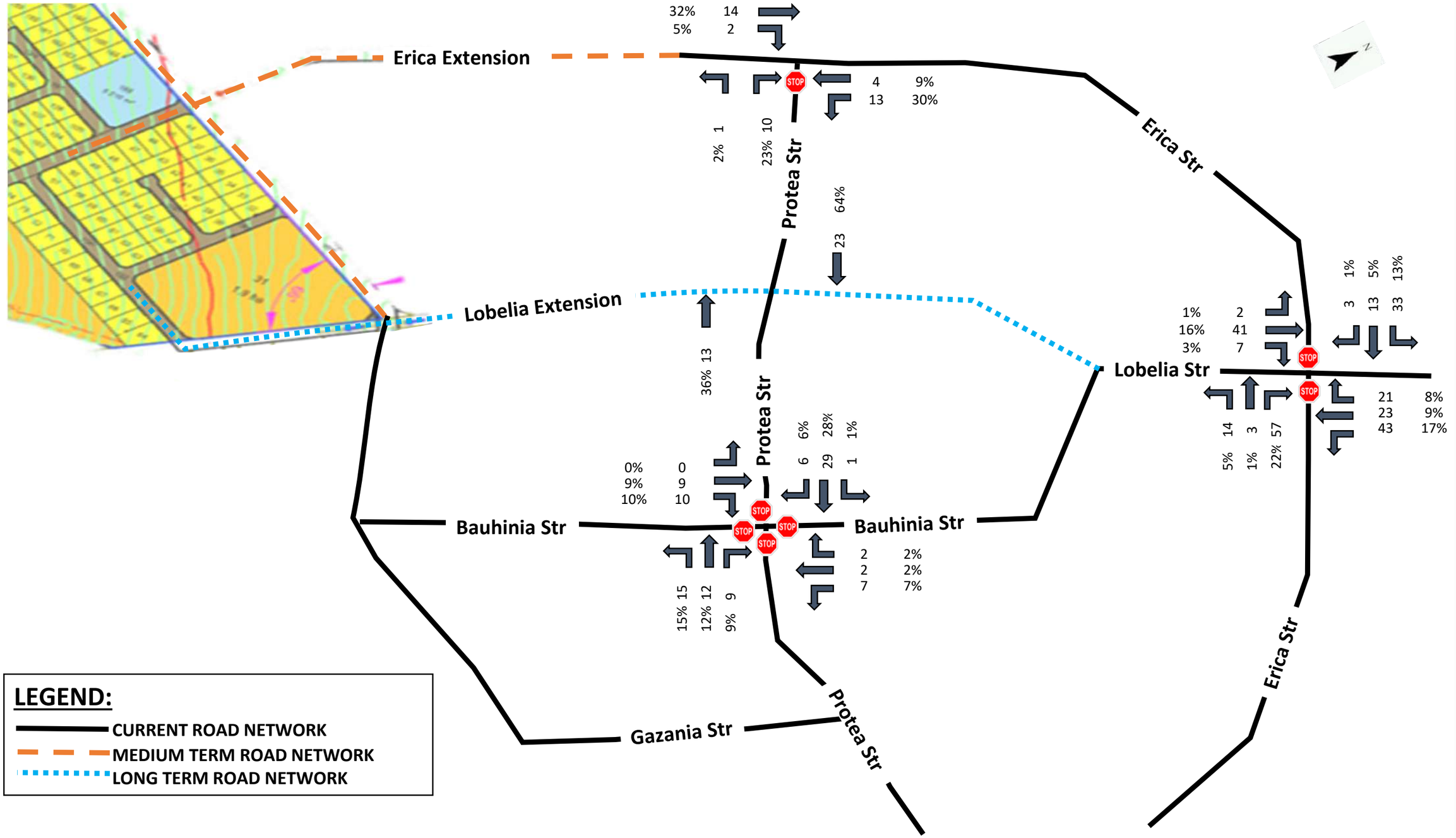

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
2022 DAILY TRAFFIC VOLUMES

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE A



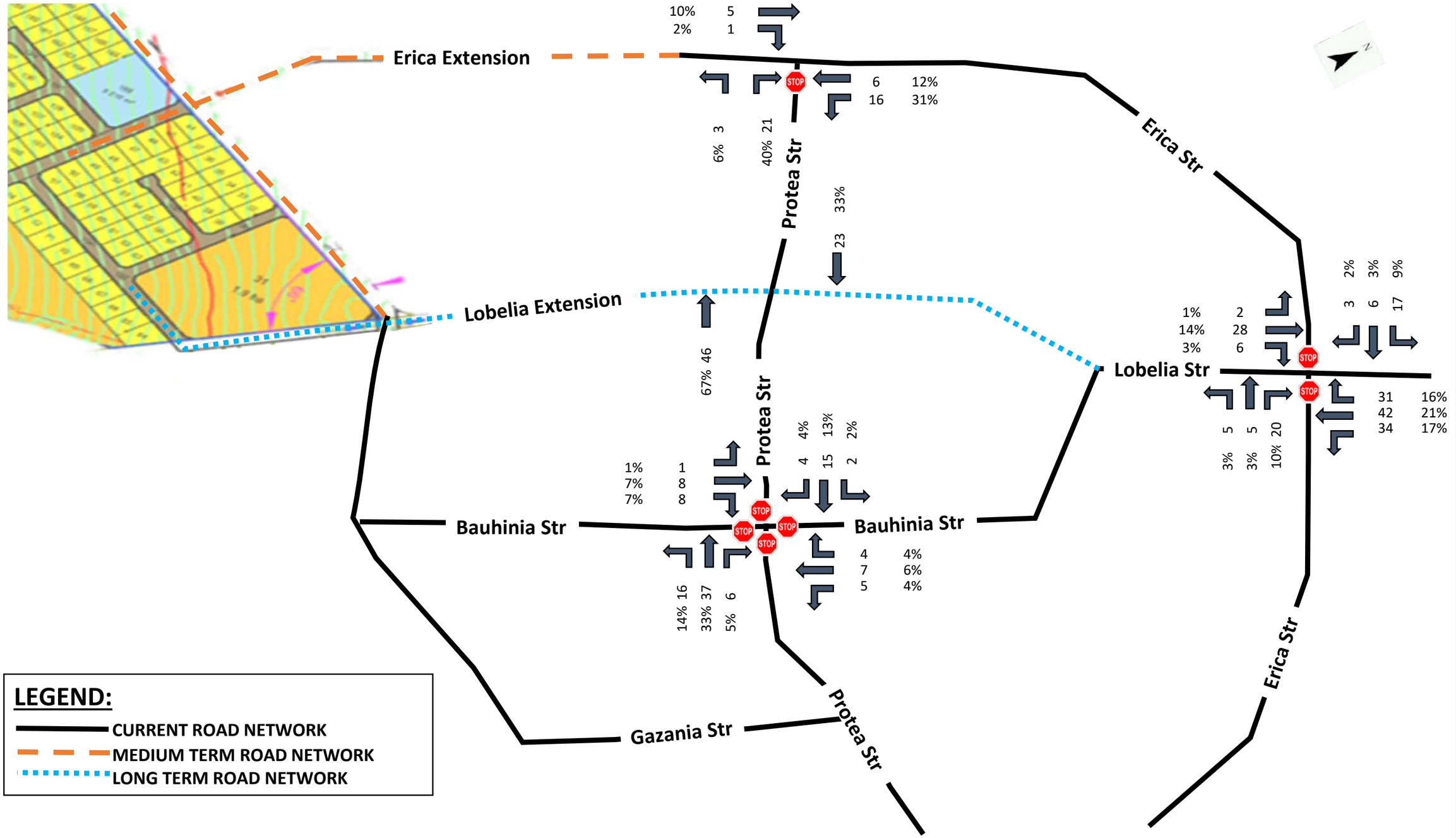

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
2022 AM PEAK HOUR TRAFFIC VOLUMES

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE B



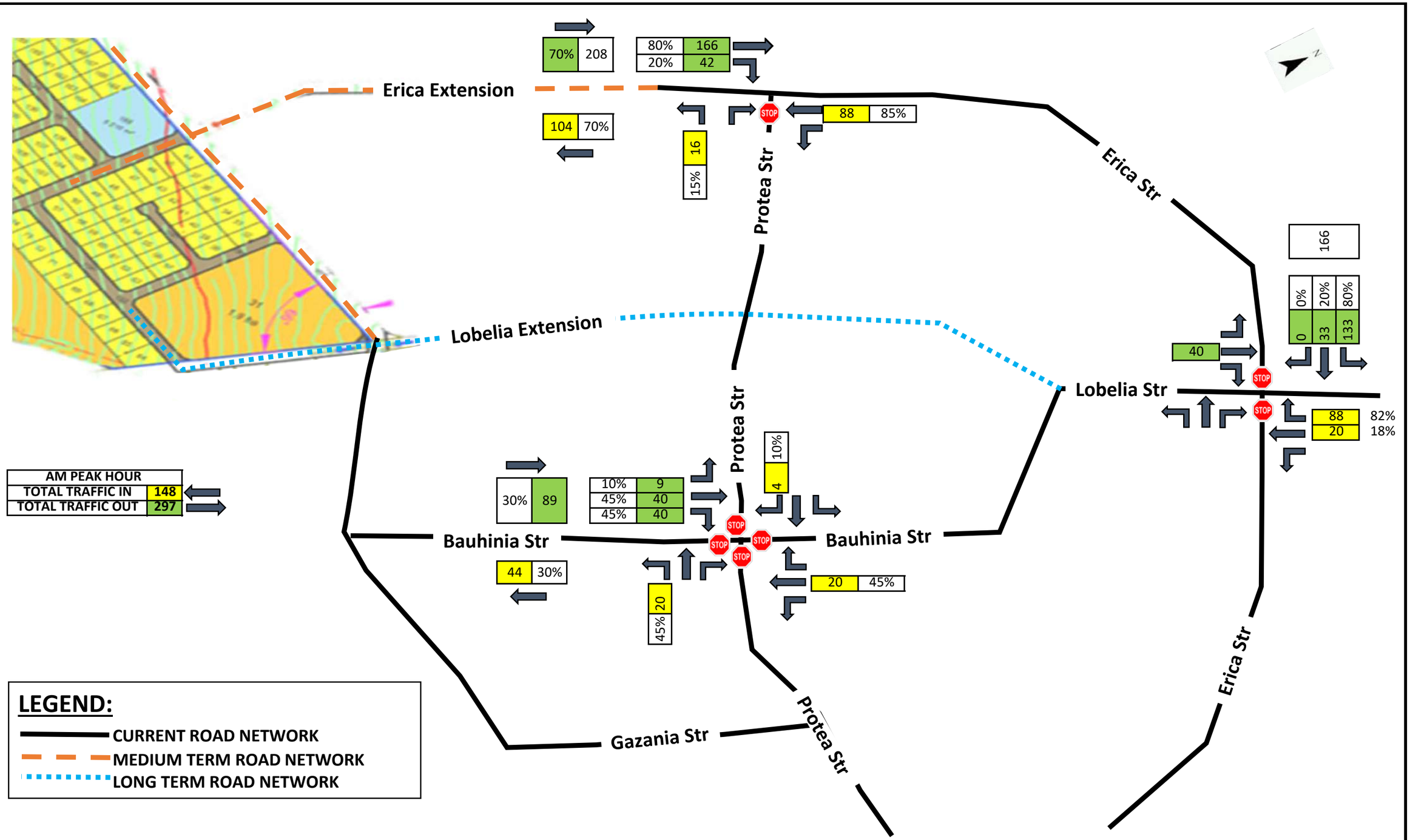

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
2022 PM PEAK HOUR TRAFFIC VOLUMES

LEGEND:
STOP STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE C



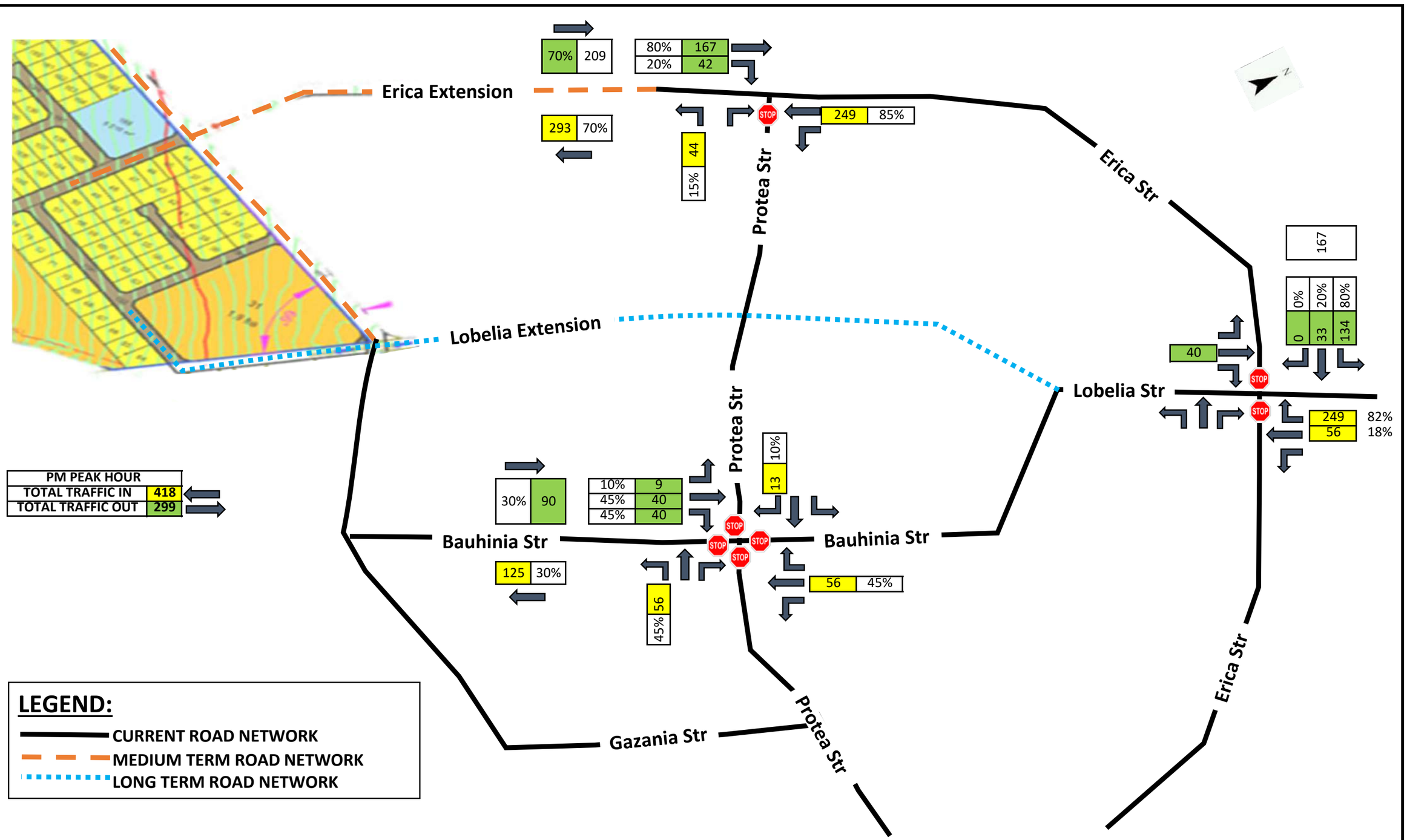

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
AM TRIP GENERATION AND DISTRIBUTION (SHORT TERM)

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE D



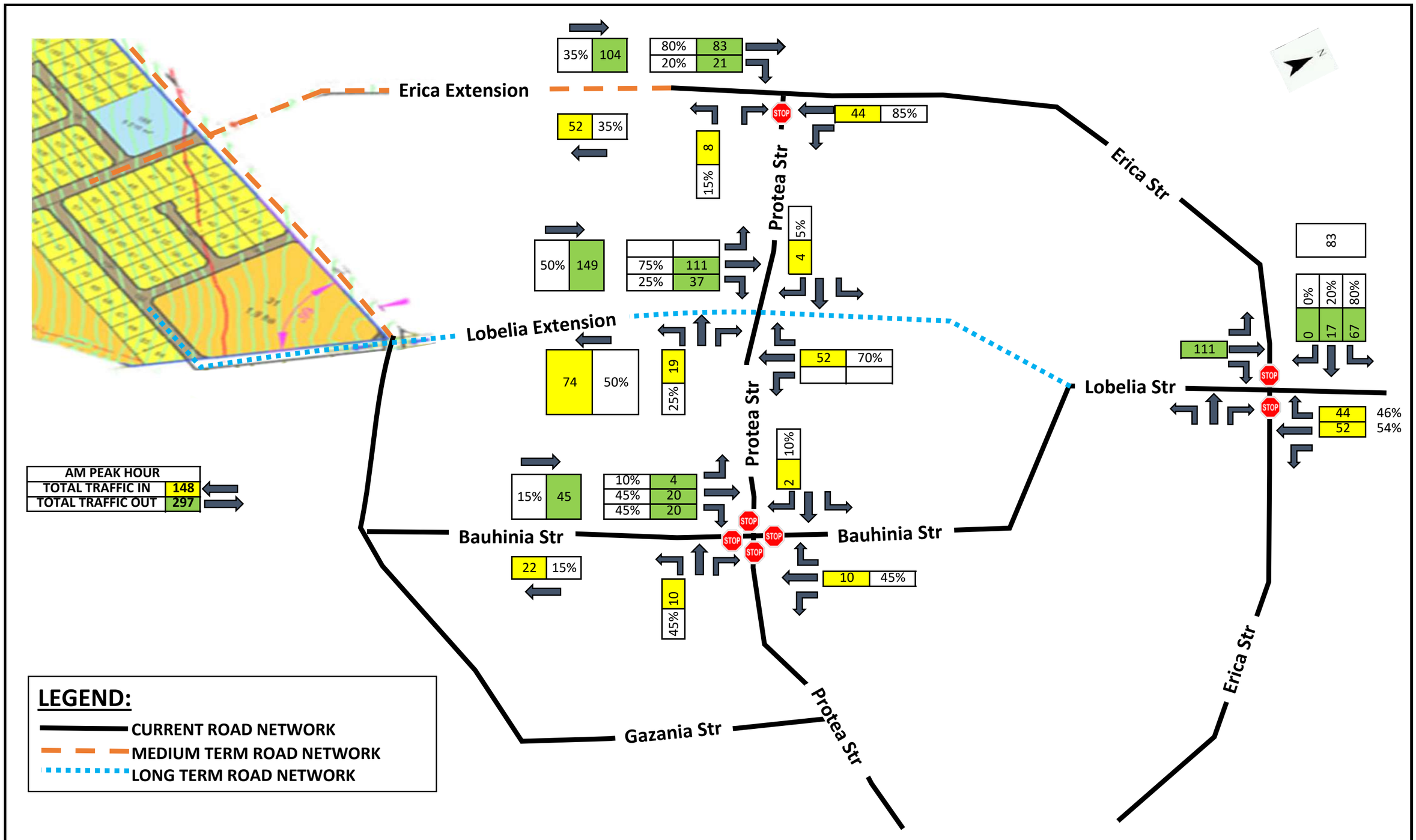

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
PM TRIP GENERATION AND DISTRIBUTION (SHORT TERM)

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE E




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:

**22-019 RIVERSDALE LOT 21 DEVELOPMENT**

DESCRIPTION:

**AM TRIP GENERATION AND DISTRIBUTION (LONG TERM)**

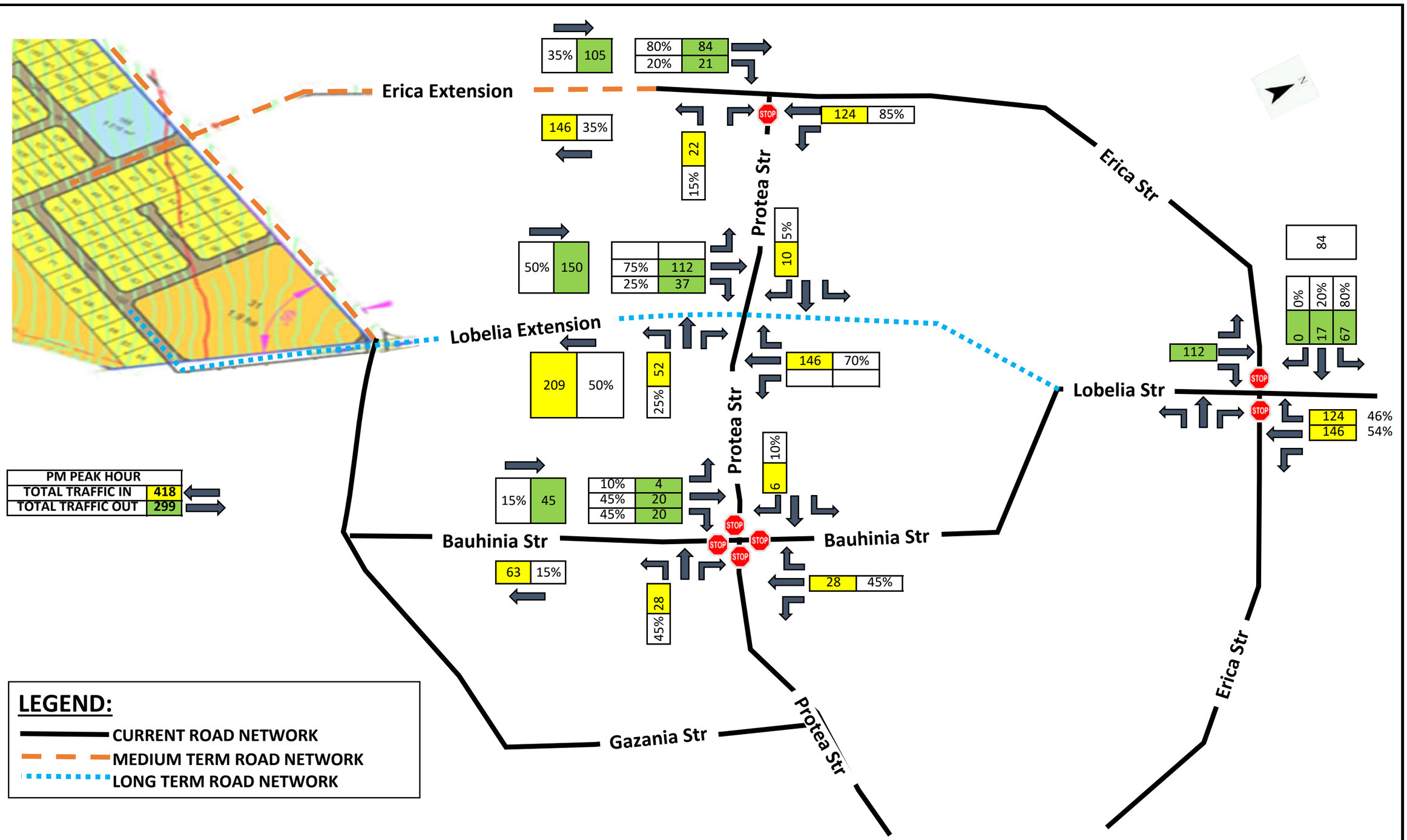
LEGEND:

STOP CONTROLLED APPROACH

SIGNAL CONTROLLED INTERSECTION

TITLE:

**FIGURE F**



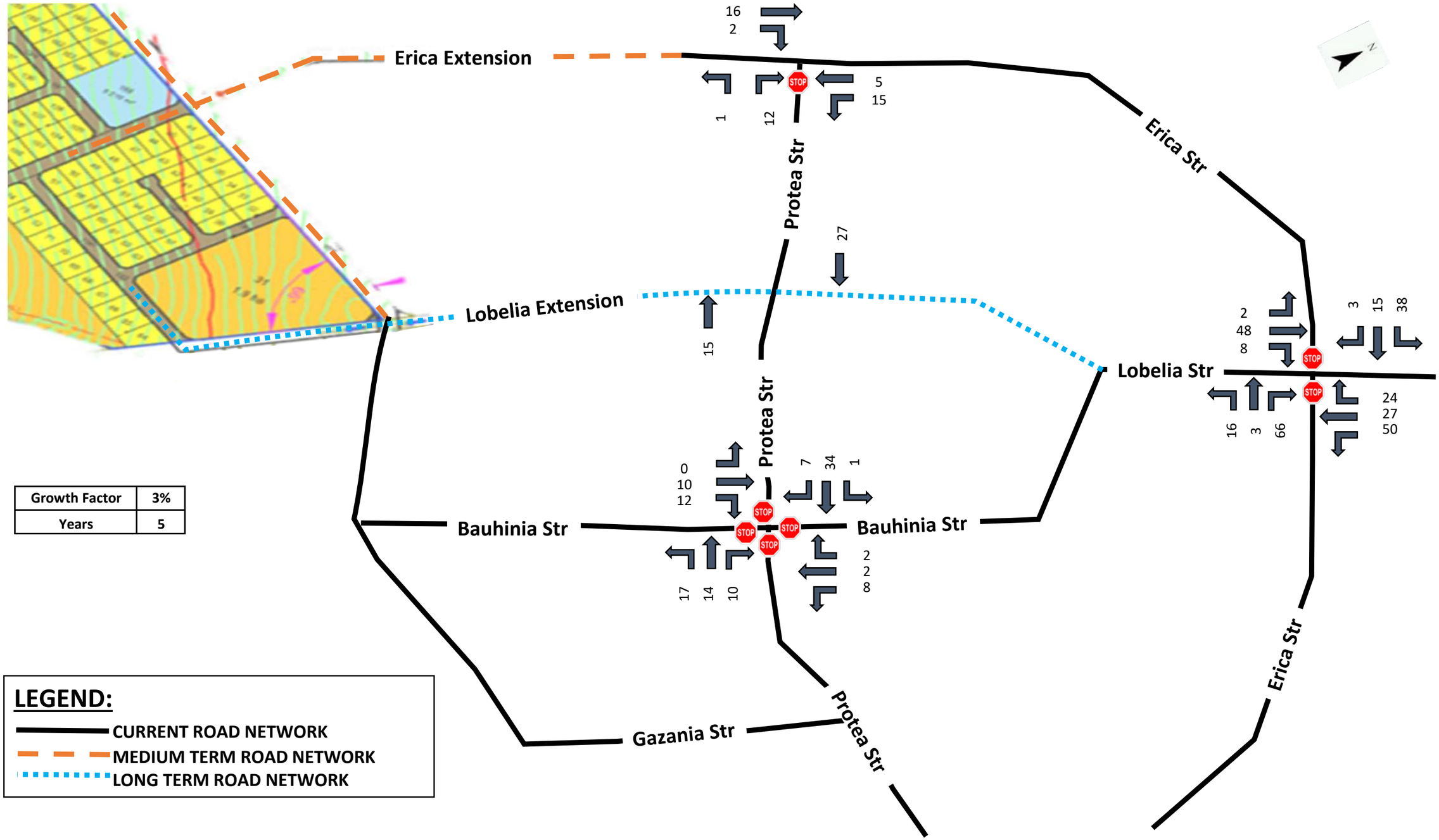

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
PM TRIP GENERATION AND DISTRIBUTION (LONG TERM)

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE G




| Growth Factor | 3% |
|---|---|
| Years | 5 |

**LEGEND:**

- CURRENT ROAD NETWORK
- MEDIUM TERM ROAD NETWORK
- LONG TERM ROAD NETWORK

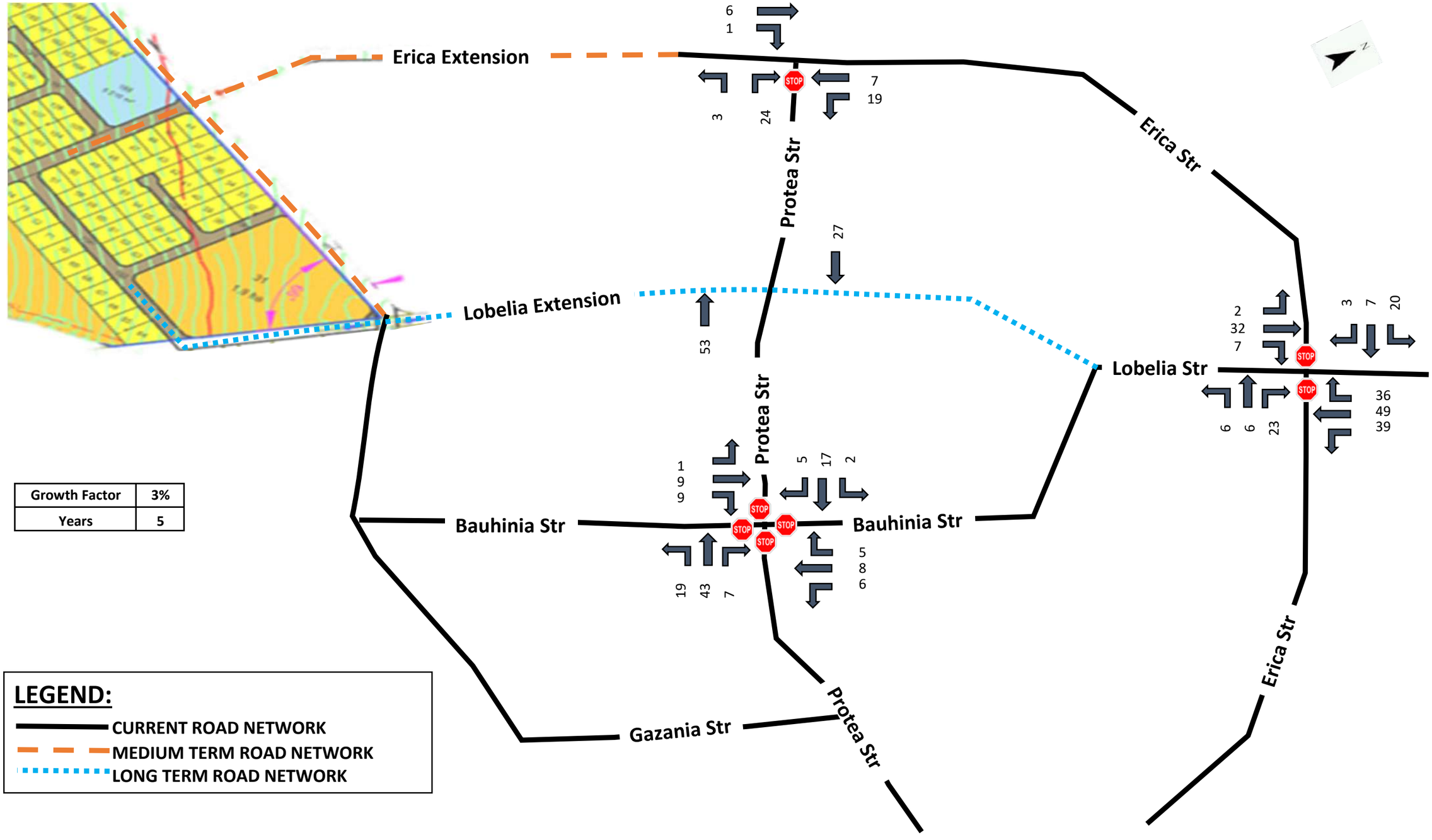
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
FUTURE AM (2027) PEAK HOUR TRAFFIC VOLUMES

LEGEND:
STOP STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE H




| Growth Factor | 3% |
|---|---|
| Years | 5 |

**LEGEND:**

- CURRENT ROAD NETWORK
- MEDIUM TERM ROAD NETWORK
- LONG TERM ROAD NETWORK

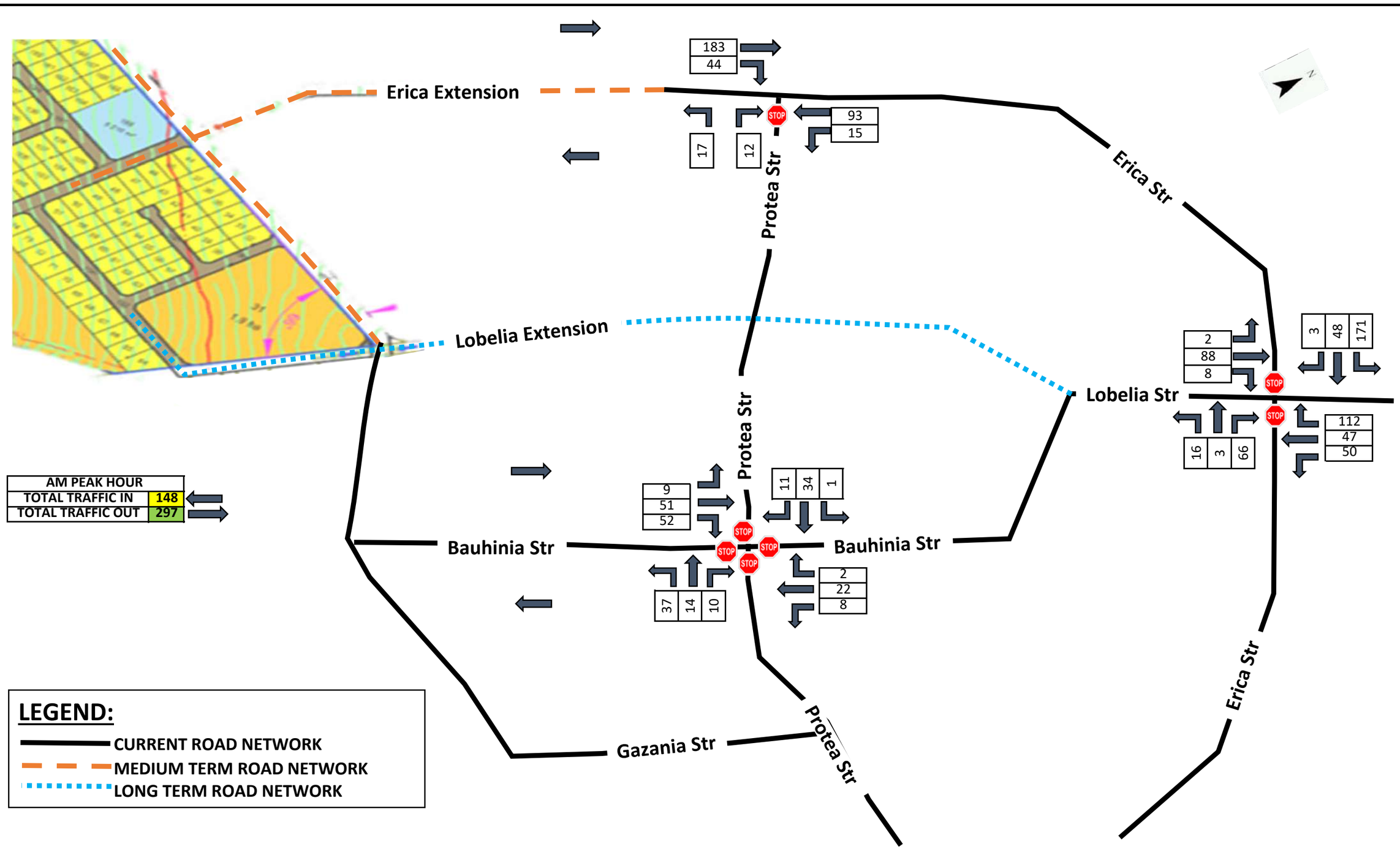
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
FUTURE PM (2027) PEAK HOUR TRAFFIC VOLUMES

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE I




| AM PEAK HOUR | |
|---|---|
| TOTAL TRAFFIC IN | 148 |
| TOTAL TRAFFIC OUT | 297 |

**LEGEND:**

- CURRENT ROAD NETWORK
- MEDIUM TERM ROAD NETWORK
- LONG TERM ROAD NETWORK

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:

**22-019 RIVERSDALE LOT 21 DEVELOPMENT**

DESCRIPTION:

**2027 BACKGROUND + DEVELOPMENT GENERATED TRAFFIC (AM PEAK HOUR WITHOUT LOBELIA)**

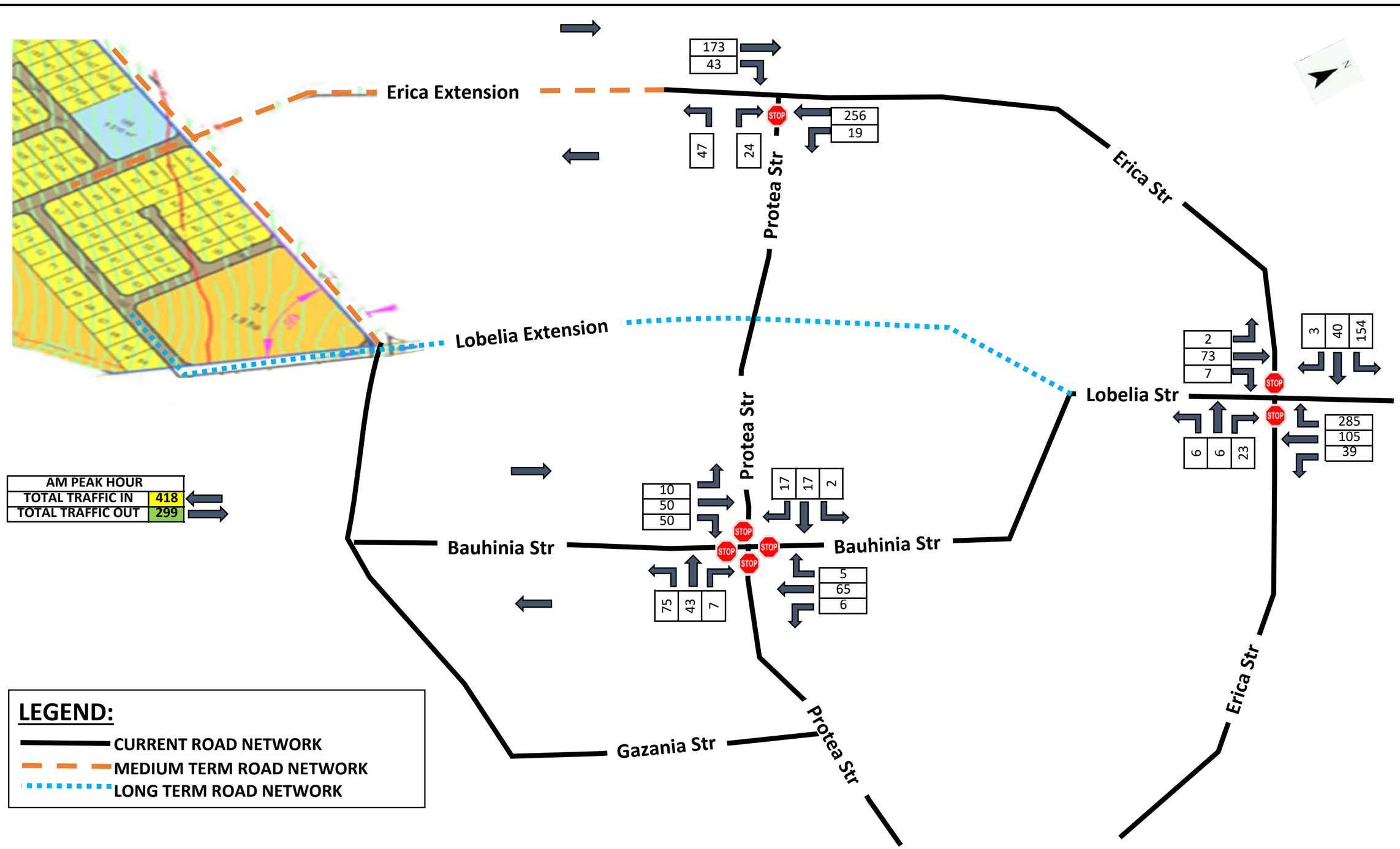
LEGEND:

STOP — **STOP CONTROLLED APPROACH**

**SIGNAL CONTROLLED INTERSECTION**

TITLE:

**FIGURE J**



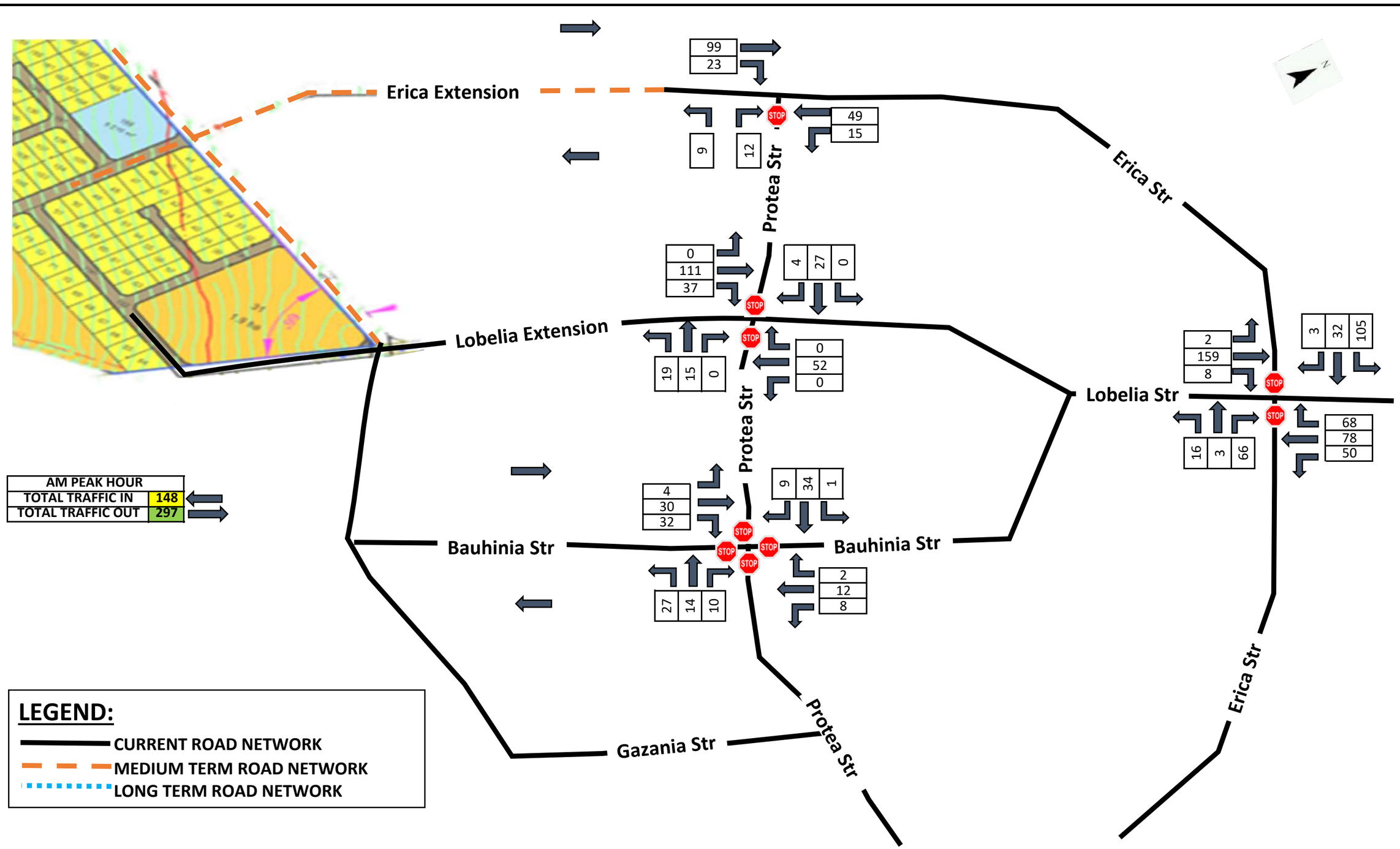

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
22-019 RIVERSDALE LOT 21 DEVELOPMENT

DESCRIPTION:
2027 BACKGROUND + DEVELOPMENT GENERATED TRAFFIC (PM PEAK HOUR WITHOUT LOBELIA)

LEGEND:
STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
FIGURE K




| AM PEAK HOUR | |
|---|---|
| TOTAL TRAFFIC IN | 148 |
| TOTAL TRAFFIC OUT | 297 |

**LEGEND:**

- CURRENT ROAD NETWORK
- MEDIUM TERM ROAD NETWORK
- LONG TERM ROAD NETWORK

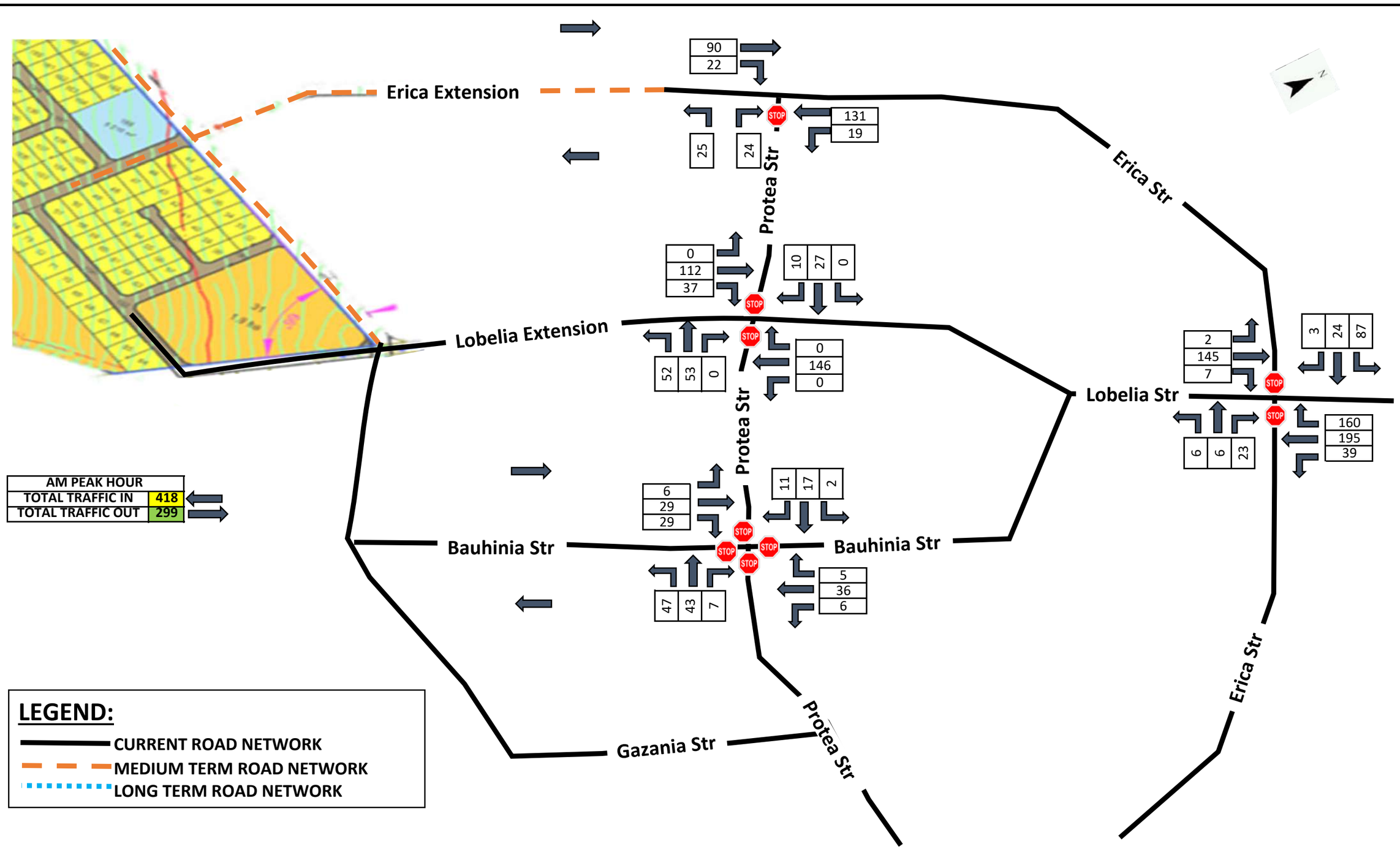
URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:
**22-019 RIVERSDALE LOT 21 DEVELOPMENT**

DESCRIPTION:
**2027 BACKGROUND + DEVELOPMENT GENERATED TRAFFIC (AM PEAK HOUR WITH LOBELIA)**

LEGEND:
STOP — STOP CONTROLLED APPROACH
SIGNAL CONTROLLED INTERSECTION

TITLE:
**FIGURE L**




URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

PROJECT:

**22-019 RIVERSDALE LOT 21 DEVELOPMENT**

DESCRIPTION:

**2027 BACKGROUND + DEVELOPMENT GENERATED TRAFFIC (PM PEAK HOUR WITH LOBELIA)**

LEGEND:

STOP CONTROLLED APPROACH

SIGNAL CONTROLLED INTERSECTION

TITLE:

**FIGURE M**

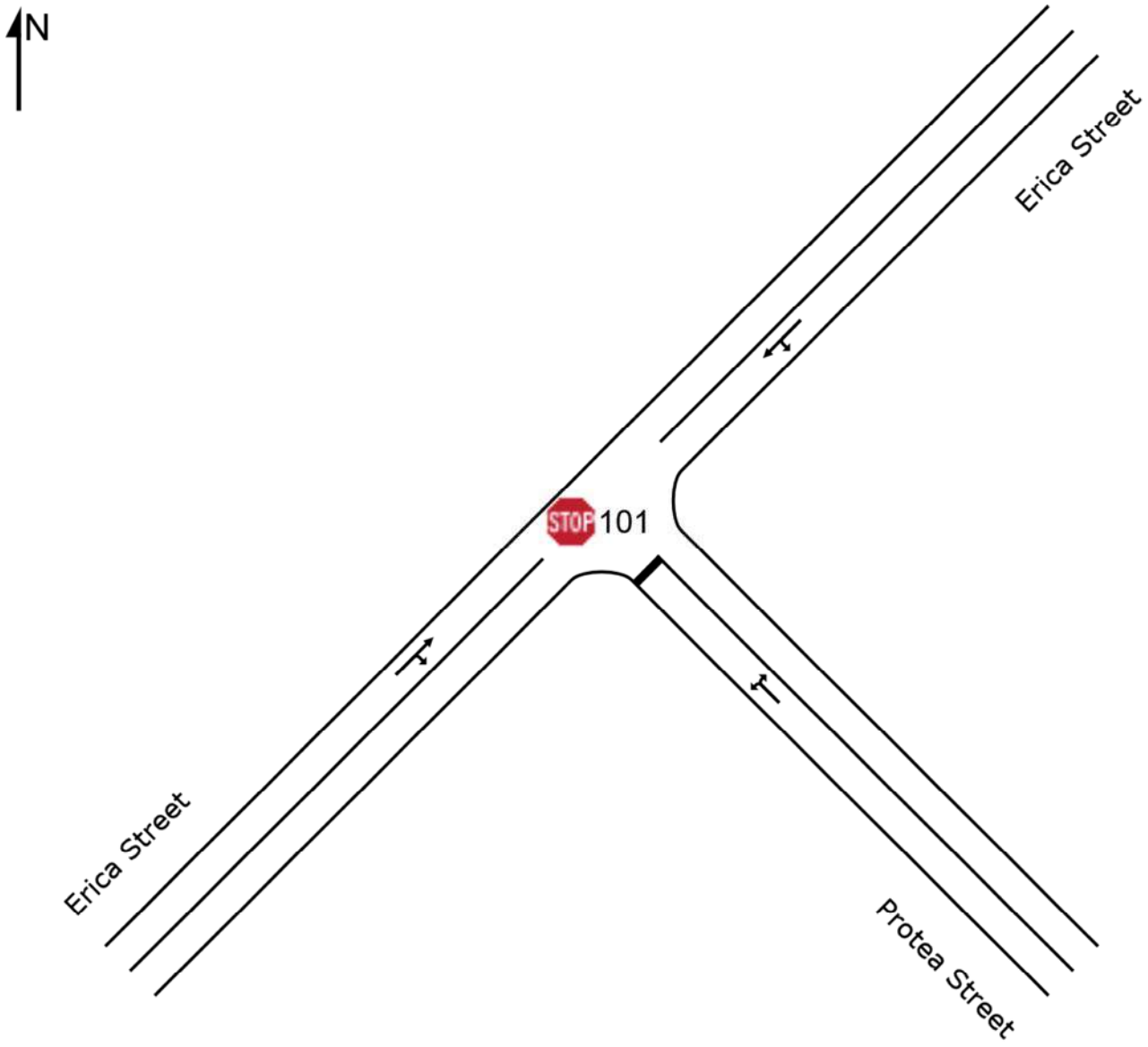
# ANNEXURE F

# SIDRA RESULTS

# SITE LAYOUT

## Site: 101 [Erica Status Quo AM]

New Site
Site Category: (None)
Stop (Two-Way)





Organisation: URBAN ENGINEERING | Created: Monday, 25 April 2022 10:10:36
Project: C:\Users\Frans2\Urban Engineering (Pty) Ltd\UE - UrbanCloud\Projects\22-019 TIA Riversdal Lot 21\3_Working\Reports\Rev 1\SIDRA \1 Erica and Protea.sip8

# MOVEMENT SUMMARY

## Site: 101 [Erica Status Quo AM]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,010 | 8,0 | LOS A | 0,0 | 0,2 | 0,06 | 0,96 | 0,06 | 52,1 |
| 3 | R2 | 10 | 0,0 | 0,010 | 7,5 | LOS A | 0,0 | 0,2 | 0,06 | 0,96 | 0,06 | 51,6 |
| Approach | | 11 | 0,0 | 0,010 | 7,6 | LOS A | 0,0 | 0,2 | 0,06 | 0,96 | 0,06 | 51,6 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 13 | 0,0 | 0,009 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,45 | 0,00 | 54,7 |
| 5 | T1 | 4 | 0,0 | 0,009 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,45 | 0,00 | 56,1 |
| Approach | | 17 | 0,0 | 0,009 | 4,2 | NA | 0,0 | 0,0 | 0,00 | 0,45 | 0,00 | 55,0 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 14 | 0,0 | 0,008 | 0,0 | LOS A | 0,0 | 0,1 | 0,02 | 0,08 | 0,02 | 59,3 |
| 12 | R2 | 2 | 0,0 | 0,008 | 5,5 | LOS A | 0,0 | 0,1 | 0,02 | 0,08 | 0,02 | 57,0 |
| Approach | | 16 | 0,0 | 0,008 | 0,7 | NA | 0,0 | 0,1 | 0,02 | 0,08 | 0,02 | 59,0 |
| All Vehicles | | 44 | 0,0 | 0,010 | 3,8 | NA | 0,0 | 0,2 | 0,02 | 0,44 | 0,02 | 55,5 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica Status Quo PM]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 3 | 0,0 | 0,021 | 8,0 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 52,1 |
| 3 | R2 | 21 | 0,0 | 0,021 | 7,5 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 51,6 |
| Approach | | 24 | 0,0 | 0,021 | 7,6 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 51,6 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 16 | 0,0 | 0,012 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 54,8 |
| 5 | T1 | 6 | 0,0 | 0,012 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 56,3 |
| Approach | | 22 | 0,0 | 0,012 | 4,0 | NA | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 55,2 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 5 | 0,0 | 0,003 | 0,0 | LOS A | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 59,0 |
| 12 | R2 | 1 | 0,0 | 0,003 | 5,5 | LOS A | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 56,8 |
| Approach | | 6 | 0,0 | 0,003 | 0,9 | NA | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 58,6 |
| All Vehicles | | 52 | 0,0 | 0,021 | 5,3 | NA | 0,1 | 0,5 | 0,03 | 0,63 | 0,03 | 53,9 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 AM]

New Site
Site Category: (None)
Stop (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,011 | 8,0 | LOS A | 0,0 | 0,3 | 0,07 | 0,95 | 0,07 | 52,1 |
| 3 | R2 | 12 | 0,0 | 0,011 | 7,6 | LOS A | 0,0 | 0,3 | 0,07 | 0,95 | 0,07 | 51,6 |
| Approach | | 13 | 0,0 | 0,011 | 7,6 | LOS A | 0,0 | 0,3 | 0,07 | 0,95 | 0,07 | 51,6 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 15 | 0,0 | 0,011 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,44 | 0,00 | 54,7 |
| 5 | T1 | 5 | 0,0 | 0,011 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,44 | 0,00 | 56,2 |
| Approach | | 20 | 0,0 | 0,011 | 4,2 | NA | 0,0 | 0,0 | 0,00 | 0,44 | 0,00 | 55,1 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 16 | 0,0 | 0,009 | 0,0 | LOS A | 0,0 | 0,1 | 0,02 | 0,07 | 0,02 | 59,3 |
| 12 | R2 | 2 | 0,0 | 0,009 | 5,5 | LOS A | 0,0 | 0,1 | 0,02 | 0,07 | 0,02 | 57,1 |
| Approach | | 18 | 0,0 | 0,009 | 0,6 | NA | 0,0 | 0,1 | 0,02 | 0,07 | 0,02 | 59,1 |
| All Vehicles | | 51 | 0,0 | 0,011 | 3,8 | NA | 0,0 | 0,3 | 0,02 | 0,44 | 0,02 | 55,5 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 PM]

New Site
Site Category: (None)
Stop (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 3 | 0,0 | 0,023 | 8,0 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 52,1 |
| 3 | R2 | 24 | 0,0 | 0,023 | 7,5 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 51,6 |
| Approach | | 27 | 0,0 | 0,023 | 7,6 | LOS A | 0,1 | 0,5 | 0,06 | 0,95 | 0,06 | 51,6 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 19 | 0,0 | 0,014 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 54,8 |
| 5 | T1 | 7 | 0,0 | 0,014 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 56,3 |
| Approach | | 26 | 0,0 | 0,014 | 4,1 | NA | 0,0 | 0,0 | 0,00 | 0,43 | 0,00 | 55,2 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 5 | 0,0 | 0,003 | 0,0 | LOS A | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 59,0 |
| 12 | R2 | 1 | 0,0 | 0,003 | 5,5 | LOS A | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 56,8 |
| Approach | | 6 | 0,0 | 0,003 | 0,9 | NA | 0,0 | 0,0 | 0,03 | 0,10 | 0,03 | 58,6 |
| All Vehicles | | 59 | 0,0 | 0,023 | 5,4 | NA | 0,1 | 0,5 | 0,03 | 0,63 | 0,03 | 53,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 + Dev AM (short)]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 17 | 0,0 | 0,027 | 8,3 | LOS A | 0,1 | 0,7 | 0,21 | 0,90 | 0,21 | 51,6 |
| 3 | R2 | 12 | 0,0 | 0,027 | 9,0 | LOS A | 0,1 | 0,7 | 0,21 | 0,90 | 0,21 | 51,1 |
| Approach | | 29 | 0,0 | 0,027 | 8,6 | LOS A | 0,1 | 0,7 | 0,21 | 0,90 | 0,21 | 51,4 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 15 | 0,0 | 0,056 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 57,6 |
| 5 | T1 | 93 | 0,0 | 0,056 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 59,2 |
| Approach | | 108 | 0,0 | 0,056 | 0,8 | NA | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 59,0 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 183 | 0,0 | 0,122 | 0,1 | LOS A | 0,3 | 2,0 | 0,10 | 0,12 | 0,10 | 58,6 |
| 12 | R2 | 44 | 0,0 | 0,122 | 5,8 | LOS A | 0,3 | 2,0 | 0,10 | 0,12 | 0,10 | 56,4 |
| Approach | | 227 | 0,0 | 0,122 | 1,2 | NA | 0,3 | 2,0 | 0,10 | 0,12 | 0,10 | 58,1 |
| All Vehicles | | 364 | 0,0 | 0,122 | 1,7 | NA | 0,3 | 2,0 | 0,08 | 0,17 | 0,08 | 57,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 + Dev PM (short)]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 47 | 0,0 | 0,076 | 9,1 | LOS A | 0,3 | 1,9 | 0,38 | 0,89 | 0,38 | 51,2 |
| 3 | R2 | 24 | 0,0 | 0,076 | 10,1 | LOS B | 0,3 | 1,9 | 0,38 | 0,89 | 0,38 | 50,8 |
| Approach | | 71 | 0,0 | 0,076 | 9,4 | LOS A | 0,3 | 1,9 | 0,38 | 0,89 | 0,38 | 51,1 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 19 | 0,0 | 0,142 | 5,6 | LOS A | 0,0 | 0,0 | 0,00 | 0,04 | 0,00 | 58,0 |
| 5 | T1 | 256 | 0,0 | 0,142 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,04 | 0,00 | 59,6 |
| Approach | | 275 | 0,0 | 0,142 | 0,4 | NA | 0,0 | 0,0 | 0,00 | 0,04 | 0,00 | 59,5 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 173 | 0,0 | 0,120 | 0,3 | LOS A | 0,3 | 2,3 | 0,17 | 0,12 | 0,17 | 58,2 |
| 12 | R2 | 43 | 0,0 | 0,120 | 6,4 | LOS A | 0,3 | 2,3 | 0,17 | 0,12 | 0,17 | 56,1 |
| Approach | | 216 | 0,0 | 0,120 | 1,5 | NA | 0,3 | 2,3 | 0,17 | 0,12 | 0,17 | 57,8 |
| All Vehicles | | 562 | 0,0 | 0,142 | 2,0 | NA | 0,3 | 2,3 | 0,11 | 0,18 | 0,11 | 57,6 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 + Dev AM (Long)]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 9 | 0,0 | 0,019 | 8,2 | LOS A | 0,1 | 0,5 | 0,15 | 0,91 | 0,15 | 51,8 |
| 3 | R2 | 12 | 0,0 | 0,019 | 8,2 | LOS A | 0,1 | 0,5 | 0,15 | 0,91 | 0,15 | 51,3 |
| Approach | | 21 | 0,0 | 0,019 | 8,2 | LOS A | 0,1 | 0,5 | 0,15 | 0,91 | 0,15 | 51,5 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 15 | 0,0 | 0,033 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,14 | 0,00 | 57,2 |
| 5 | T1 | 49 | 0,0 | 0,033 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,14 | 0,00 | 58,7 |
| Approach | | 64 | 0,0 | 0,033 | 1,3 | NA | 0,0 | 0,0 | 0,00 | 0,14 | 0,00 | 58,4 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 99 | 0,0 | 0,065 | 0,1 | LOS A | 0,1 | 1,0 | 0,07 | 0,11 | 0,07 | 58,7 |
| 12 | R2 | 23 | 0,0 | 0,065 | 5,6 | LOS A | 0,1 | 1,0 | 0,07 | 0,11 | 0,07 | 56,6 |
| Approach | | 122 | 0,0 | 0,065 | 1,1 | NA | 0,1 | 1,0 | 0,07 | 0,11 | 0,07 | 58,3 |
| All Vehicles | | 207 | 0,0 | 0,065 | 1,9 | NA | 0,1 | 1,0 | 0,05 | 0,20 | 0,05 | 57,6 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Erica 2027 + Dev PM (Long)]

New Site
Site Category: (None)
Stop (Two-Way)

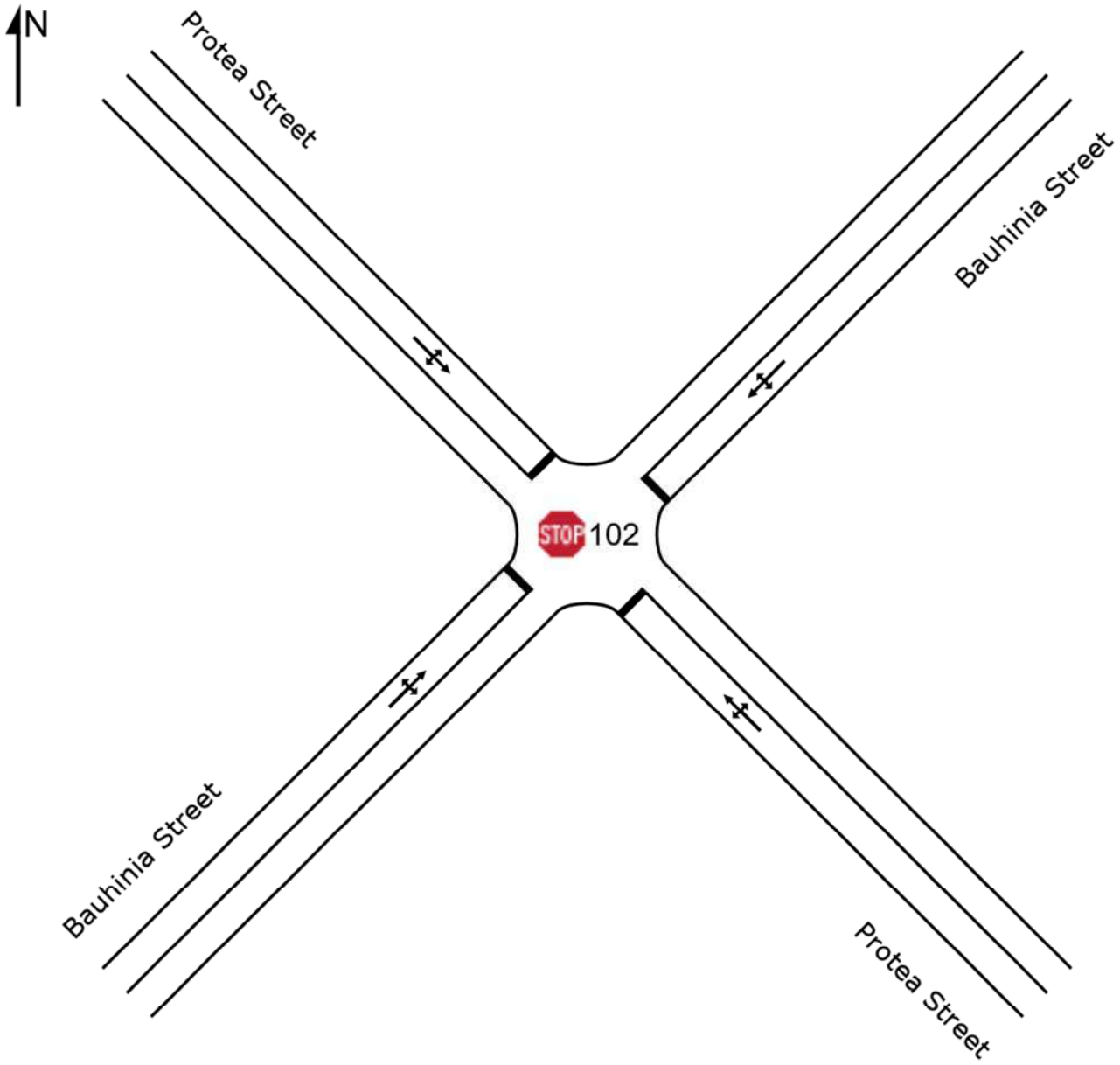
| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 1 | L2 | 25 | 0,0 | 0,046 | 8,5 | LOS A | 0,2 | 1,1 | 0,26 | 0,88 | 0,26 | 51,7 |
| 3 | R2 | 24 | 0,0 | 0,046 | 8,6 | LOS A | 0,2 | 1,1 | 0,26 | 0,88 | 0,26 | 51,2 |
| Approach | | 49 | 0,0 | 0,046 | 8,5 | LOS A | 0,2 | 1,1 | 0,26 | 0,88 | 0,26 | 51,5 |
| NorthEast: Erica Street | | | | | | | | | | | | |
| 4 | L2 | 19 | 0,0 | 0,077 | 5,5 | LOS A | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 57,7 |
| 5 | T1 | 131 | 0,0 | 0,077 | 0,0 | LOS A | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 59,3 |
| Approach | | 150 | 0,0 | 0,077 | 0,7 | NA | 0,0 | 0,0 | 0,00 | 0,08 | 0,00 | 59,1 |
| SouthWest: Erica Street | | | | | | | | | | | | |
| 11 | T1 | 90 | 0,0 | 0,061 | 0,1 | LOS A | 0,1 | 1,0 | 0,11 | 0,12 | 0,11 | 58,5 |
| 12 | R2 | 22 | 0,0 | 0,061 | 5,9 | LOS A | 0,1 | 1,0 | 0,11 | 0,12 | 0,11 | 56,3 |
| Approach | | 112 | 0,0 | 0,061 | 1,3 | NA | 0,1 | 1,0 | 0,11 | 0,12 | 0,11 | 58,1 |
| All Vehicles | | 311 | 0,0 | 0,077 | 2,1 | NA | 0,2 | 1,1 | 0,08 | 0,22 | 0,08 | 57,4 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 102 [Bauhinia Status Quo AM]

New Site
Site Category: (None)
Stop (All-Way)





Organisation: URBAN ENGINEERING | Created: Monday, 25 April 2022 10:15:57
Project: C:\Users\Frans2\Urban Engineering (Pty) Ltd\UE - UrbanCloud\Projects\22-019 TIA Riversdal Lot 21\3_Working\Reports\Rev 1\SIDRA \2 Bauhinia Protea.sip8

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia Status Quo AM]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 15 | 0,0 | 0,059 | 12,3 | LOS B | 0,2 | 1,2 | 0,74 | 1,25 | 1,80 | 50,0 |
| 5 | T1 | 12 | 0,0 | 0,059 | 11,9 | LOS B | 0,2 | 1,2 | 0,74 | 1,25 | 1,80 | 49,8 |
| 6 | R2 | 9 | 0,0 | 0,059 | 11,7 | LOS B | 0,2 | 1,2 | 0,74 | 1,25 | 1,80 | 49,5 |
| Approach | | 36 | 0,0 | 0,059 | 12,0 | LOS B | 0,2 | 1,2 | 0,74 | 1,25 | 1,80 | 49,8 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 7 | 0,0 | 0,053 | 24,4 | LOS C | 0,2 | 1,3 | 0,98 | 1,24 | 2,04 | 43,1 |
| 8 | T1 | 2 | 0,0 | 0,053 | 24,0 | LOS C | 0,2 | 1,3 | 0,98 | 1,24 | 2,04 | 42,9 |
| 9 | R2 | 2 | 0,0 | 0,053 | 23,8 | LOS C | 0,2 | 1,3 | 0,98 | 1,24 | 2,04 | 42,7 |
| Approach | | 11 | 0,0 | 0,053 | 24,2 | LOS C | 0,2 | 1,3 | 0,98 | 1,24 | 2,04 | 43,0 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,054 | 11,7 | LOS B | 0,2 | 1,1 | 0,71 | 1,26 | 1,77 | 50,5 |
| 11 | T1 | 29 | 0,0 | 0,054 | 11,4 | LOS B | 0,2 | 1,1 | 0,71 | 1,26 | 1,77 | 50,2 |
| 12 | R2 | 6 | 0,0 | 0,054 | 11,2 | LOS B | 0,2 | 1,1 | 0,71 | 1,26 | 1,77 | 50,0 |
| Approach | | 36 | 0,0 | 0,054 | 11,4 | LOS B | 0,2 | 1,1 | 0,71 | 1,26 | 1,77 | 50,2 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,045 | 14,5 | LOS B | 0,1 | 1,0 | 0,84 | 1,24 | 1,88 | 48,8 |
| 2 | T1 | 9 | 0,0 | 0,045 | 14,1 | LOS B | 0,1 | 1,0 | 0,84 | 1,24 | 1,88 | 48,5 |
| 3 | R2 | 10 | 0,0 | 0,045 | 13,9 | LOS B | 0,1 | 1,0 | 0,84 | 1,24 | 1,88 | 48,3 |
| Approach | | 20 | 0,0 | 0,045 | 14,0 | LOS B | 0,1 | 1,0 | 0,84 | 1,24 | 1,88 | 48,4 |
| All Vehicles | | 103 | 0,0 | 0,059 | 13,5 | LOS B | 0,2 | 1,3 | 0,77 | 1,25 | 1,83 | 48,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia Status Quo PM]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 16 | 0,0 | 0,089 | 12,0 | LOS B | 0,3 | 1,9 | 0,72 | 1,27 | 1,82 | 50,2 |
| 5 | T1 | 37 | 0,0 | 0,089 | 11,7 | LOS B | 0,3 | 1,9 | 0,72 | 1,27 | 1,82 | 50,0 |
| 6 | R2 | 6 | 0,0 | 0,089 | 11,4 | LOS B | 0,3 | 1,9 | 0,72 | 1,27 | 1,82 | 49,8 |
| Approach | | 59 | 0,0 | 0,089 | 11,7 | LOS B | 0,3 | 1,9 | 0,72 | 1,27 | 1,82 | 50,0 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 5 | 0,0 | 0,065 | 21,6 | LOS C | 0,2 | 1,5 | 0,96 | 1,24 | 2,03 | 44,6 |
| 8 | T1 | 7 | 0,0 | 0,065 | 21,2 | LOS C | 0,2 | 1,5 | 0,96 | 1,24 | 2,03 | 44,4 |
| 9 | R2 | 4 | 0,0 | 0,065 | 21,0 | LOS C | 0,2 | 1,5 | 0,96 | 1,24 | 2,03 | 44,3 |
| Approach | | 16 | 0,0 | 0,065 | 21,3 | LOS C | 0,2 | 1,5 | 0,96 | 1,24 | 2,03 | 44,5 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,034 | 12,0 | LOS B | 0,1 | 0,7 | 0,73 | 1,25 | 1,76 | 50,3 |
| 11 | T1 | 15 | 0,0 | 0,034 | 11,7 | LOS B | 0,1 | 0,7 | 0,73 | 1,25 | 1,76 | 50,0 |
| 12 | R2 | 4 | 0,0 | 0,034 | 11,5 | LOS B | 0,1 | 0,7 | 0,73 | 1,25 | 1,76 | 49,8 |
| Approach | | 21 | 0,0 | 0,034 | 11,7 | LOS B | 0,1 | 0,7 | 0,73 | 1,25 | 1,76 | 50,0 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,046 | 16,3 | LOS C | 0,1 | 1,0 | 0,88 | 1,24 | 1,93 | 47,7 |
| 2 | T1 | 8 | 0,0 | 0,046 | 16,0 | LOS C | 0,1 | 1,0 | 0,88 | 1,24 | 1,93 | 47,4 |
| 3 | R2 | 8 | 0,0 | 0,046 | 15,7 | LOS C | 0,1 | 1,0 | 0,88 | 1,24 | 1,93 | 47,2 |
| Approach | | 17 | 0,0 | 0,046 | 15,9 | LOS C | 0,1 | 1,0 | 0,88 | 1,24 | 1,93 | 47,4 |
| All Vehicles | | 113 | 0,0 | 0,089 | 13,7 | LOS B | 0,3 | 1,9 | 0,78 | 1,26 | 1,85 | 48,7 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia 2027 AM]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 17 | 0,0 | 0,067 | 12,4 | LOS B | 0,2 | 1,4 | 0,75 | 1,25 | 1,82 | 50,0 |
| 5 | T1 | 14 | 0,0 | 0,067 | 12,0 | LOS B | 0,2 | 1,4 | 0,75 | 1,25 | 1,82 | 49,7 |
| 6 | R2 | 10 | 0,0 | 0,067 | 11,8 | LOS B | 0,2 | 1,4 | 0,75 | 1,25 | 1,82 | 49,5 |
| Approach | | 41 | 0,0 | 0,067 | 12,1 | LOS B | 0,2 | 1,4 | 0,75 | 1,25 | 1,82 | 49,8 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 8 | 0,0 | 0,062 | 25,8 | LOS D | 0,2 | 1,5 | 0,99 | 1,24 | 2,05 | 42,4 |
| 8 | T1 | 2 | 0,0 | 0,062 | 25,5 | LOS D | 0,2 | 1,5 | 0,99 | 1,24 | 2,05 | 42,2 |
| 9 | R2 | 2 | 0,0 | 0,062 | 25,2 | LOS D | 0,2 | 1,5 | 0,99 | 1,24 | 2,05 | 42,1 |
| Approach | | 12 | 0,0 | 0,062 | 25,7 | LOS D | 0,2 | 1,5 | 0,99 | 1,24 | 2,05 | 42,3 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,063 | 11,8 | LOS B | 0,2 | 1,3 | 0,71 | 1,26 | 1,78 | 50,4 |
| 11 | T1 | 34 | 0,0 | 0,063 | 11,4 | LOS B | 0,2 | 1,3 | 0,71 | 1,26 | 1,78 | 50,2 |
| 12 | R2 | 7 | 0,0 | 0,063 | 11,2 | LOS B | 0,2 | 1,3 | 0,71 | 1,26 | 1,78 | 50,0 |
| Approach | | 42 | 0,0 | 0,063 | 11,4 | LOS B | 0,2 | 1,3 | 0,71 | 1,26 | 1,78 | 50,2 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,051 | 14,4 | LOS B | 0,2 | 1,1 | 0,83 | 1,25 | 1,89 | 48,8 |
| 2 | T1 | 10 | 0,0 | 0,051 | 14,0 | LOS B | 0,2 | 1,1 | 0,83 | 1,25 | 1,89 | 48,6 |
| 3 | R2 | 12 | 0,0 | 0,051 | 13,8 | LOS B | 0,2 | 1,1 | 0,83 | 1,25 | 1,89 | 48,4 |
| Approach | | 23 | 0,0 | 0,051 | 13,9 | LOS B | 0,2 | 1,1 | 0,83 | 1,25 | 1,89 | 48,5 |
| All Vehicles | | 118 | 0,0 | 0,067 | 13,6 | LOS B | 0,2 | 1,5 | 0,77 | 1,25 | 1,84 | 48,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia 2027 PM]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 19 | 0,0 | 0,106 | 12,2 | LOS B | 0,3 | 2,3 | 0,73 | 1,27 | 1,85 | 50,1 |
| 5 | T1 | 43 | 0,0 | 0,106 | 11,8 | LOS B | 0,3 | 2,3 | 0,73 | 1,27 | 1,85 | 49,9 |
| 6 | R2 | 7 | 0,0 | 0,106 | 11,6 | LOS B | 0,3 | 2,3 | 0,73 | 1,27 | 1,85 | 49,7 |
| Approach | | 69 | 0,0 | 0,106 | 11,9 | LOS B | 0,3 | 2,3 | 0,73 | 1,27 | 1,85 | 49,9 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 6 | 0,0 | 0,078 | 22,0 | LOS C | 0,3 | 1,9 | 0,96 | 1,25 | 2,04 | 44,4 |
| 8 | T1 | 8 | 0,0 | 0,078 | 21,7 | LOS C | 0,3 | 1,9 | 0,96 | 1,25 | 2,04 | 44,2 |
| 9 | R2 | 5 | 0,0 | 0,078 | 21,4 | LOS C | 0,3 | 1,9 | 0,96 | 1,25 | 2,04 | 44,0 |
| Approach | | 19 | 0,0 | 0,078 | 21,7 | LOS C | 0,3 | 1,9 | 0,96 | 1,25 | 2,04 | 44,2 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,039 | 12,0 | LOS B | 0,1 | 0,8 | 0,73 | 1,25 | 1,77 | 50,3 |
| 11 | T1 | 17 | 0,0 | 0,039 | 11,7 | LOS B | 0,1 | 0,8 | 0,73 | 1,25 | 1,77 | 50,0 |
| 12 | R2 | 5 | 0,0 | 0,039 | 11,5 | LOS B | 0,1 | 0,8 | 0,73 | 1,25 | 1,77 | 49,8 |
| Approach | | 24 | 0,0 | 0,039 | 11,7 | LOS B | 0,1 | 0,8 | 0,73 | 1,25 | 1,77 | 50,0 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 1 | 0,0 | 0,053 | 16,6 | LOS C | 0,2 | 1,2 | 0,89 | 1,24 | 1,94 | 47,5 |
| 2 | T1 | 9 | 0,0 | 0,053 | 16,2 | LOS C | 0,2 | 1,2 | 0,89 | 1,24 | 1,94 | 47,3 |
| 3 | R2 | 9 | 0,0 | 0,053 | 16,0 | LOS C | 0,2 | 1,2 | 0,89 | 1,24 | 1,94 | 47,1 |
| Approach | | 19 | 0,0 | 0,053 | 16,1 | LOS C | 0,2 | 1,2 | 0,89 | 1,24 | 1,94 | 47,2 |
| All Vehicles | | 131 | 0,0 | 0,106 | 13,9 | LOS B | 0,3 | 2,3 | 0,79 | 1,26 | 1,88 | 48,6 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia AM 2027 + Dev Short]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 37 | 0,0 | 0,187 | 19,6 | LOS C | 0,7 | 4,7 | 0,93 | 1,28 | 2,16 | 45,7 |
| 5 | T1 | 14 | 0,0 | 0,187 | 19,2 | LOS C | 0,7 | 4,7 | 0,93 | 1,28 | 2,16 | 45,4 |
| 6 | R2 | 10 | 0,0 | 0,187 | 19,0 | LOS C | 0,7 | 4,7 | 0,93 | 1,28 | 2,16 | 45,3 |
| Approach | | 61 | 0,0 | 0,187 | 19,4 | LOS C | 0,7 | 4,7 | 0,93 | 1,28 | 2,16 | 45,5 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 8 | 0,0 | 0,069 | 14,3 | LOS B | 0,2 | 1,5 | 0,83 | 1,25 | 1,90 | 48,8 |
| 8 | T1 | 22 | 0,0 | 0,069 | 14,0 | LOS B | 0,2 | 1,5 | 0,83 | 1,25 | 1,90 | 48,6 |
| 9 | R2 | 2 | 0,0 | 0,069 | 13,8 | LOS B | 0,2 | 1,5 | 0,83 | 1,25 | 1,90 | 48,4 |
| Approach | | 32 | 0,0 | 0,069 | 14,1 | LOS B | 0,2 | 1,5 | 0,83 | 1,25 | 1,90 | 48,6 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,103 | 15,0 | LOS B | 0,3 | 2,4 | 0,85 | 1,26 | 1,96 | 48,5 |
| 11 | T1 | 34 | 0,0 | 0,103 | 14,6 | LOS B | 0,3 | 2,4 | 0,85 | 1,26 | 1,96 | 48,3 |
| 12 | R2 | 11 | 0,0 | 0,103 | 14,4 | LOS B | 0,3 | 2,4 | 0,85 | 1,26 | 1,96 | 48,1 |
| Approach | | 46 | 0,0 | 0,103 | 14,6 | LOS B | 0,3 | 2,4 | 0,85 | 1,26 | 1,96 | 48,2 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 9 | 0,0 | 0,157 | 12,0 | LOS B | 0,5 | 3,5 | 0,71 | 1,28 | 1,89 | 50,2 |
| 2 | T1 | 51 | 0,0 | 0,157 | 11,6 | LOS B | 0,5 | 3,5 | 0,71 | 1,28 | 1,89 | 50,0 |
| 3 | R2 | 52 | 0,0 | 0,157 | 11,4 | LOS B | 0,5 | 3,5 | 0,71 | 1,28 | 1,89 | 49,8 |
| Approach | | 112 | 0,0 | 0,157 | 11,6 | LOS B | 0,5 | 3,5 | 0,71 | 1,28 | 1,89 | 49,9 |
| All Vehicles | | 251 | 0,0 | 0,187 | 14,3 | LOS B | 0,7 | 4,7 | 0,80 | 1,27 | 1,97 | 48,3 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia PM 2027 + Dev Short]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 75 | 0,0 | 0,368 | 22,8 | LOS C | 1,6 | 10,9 | 0,96 | 1,36 | 2,53 | 43,9 |
| 5 | T1 | 43 | 0,0 | 0,368 | 22,4 | LOS C | 1,6 | 10,9 | 0,96 | 1,36 | 2,53 | 43,7 |
| 6 | R2 | 7 | 0,0 | 0,368 | 22,2 | LOS C | 1,6 | 10,9 | 0,96 | 1,36 | 2,53 | 43,6 |
| Approach | | 125 | 0,0 | 0,368 | 22,6 | LOS C | 1,6 | 10,9 | 0,96 | 1,36 | 2,53 | 43,8 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 6 | 0,0 | 0,146 | 14,1 | LOS B | 0,5 | 3,4 | 0,82 | 1,28 | 1,99 | 49,0 |
| 8 | T1 | 65 | 0,0 | 0,146 | 13,7 | LOS B | 0,5 | 3,4 | 0,82 | 1,28 | 1,99 | 48,8 |
| 9 | R2 | 5 | 0,0 | 0,146 | 13,5 | LOS B | 0,5 | 3,4 | 0,82 | 1,28 | 1,99 | 48,6 |
| Approach | | 76 | 0,0 | 0,146 | 13,8 | LOS B | 0,5 | 3,4 | 0,82 | 1,28 | 1,99 | 48,8 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,073 | 13,8 | LOS B | 0,2 | 1,6 | 0,81 | 1,25 | 1,89 | 49,1 |
| 11 | T1 | 17 | 0,0 | 0,073 | 13,5 | LOS B | 0,2 | 1,6 | 0,81 | 1,25 | 1,89 | 48,9 |
| 12 | R2 | 17 | 0,0 | 0,073 | 13,3 | LOS B | 0,2 | 1,6 | 0,81 | 1,25 | 1,89 | 48,7 |
| Approach | | 36 | 0,0 | 0,073 | 13,4 | LOS B | 0,2 | 1,6 | 0,81 | 1,25 | 1,89 | 48,8 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 10 | 0,0 | 0,165 | 12,5 | LOS B | 0,5 | 3,7 | 0,74 | 1,28 | 1,94 | 49,9 |
| 2 | T1 | 50 | 0,0 | 0,165 | 12,2 | LOS B | 0,5 | 3,7 | 0,74 | 1,28 | 1,94 | 49,7 |
| 3 | R2 | 50 | 0,0 | 0,165 | 11,9 | LOS B | 0,5 | 3,7 | 0,74 | 1,28 | 1,94 | 49,5 |
| Approach | | 110 | 0,0 | 0,165 | 12,1 | LOS B | 0,5 | 3,7 | 0,74 | 1,28 | 1,94 | 49,6 |
| All Vehicles | | 347 | 0,0 | 0,368 | 16,4 | LOS C | 1,6 | 10,9 | 0,84 | 1,31 | 2,16 | 47,1 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia AM 2027 + Dev Long]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 27 | 0,0 | 0,123 | 15,9 | LOS C | 0,4 | 2,9 | 0,87 | 1,26 | 2,01 | 47,8 |
| 5 | T1 | 14 | 0,0 | 0,123 | 15,6 | LOS C | 0,4 | 2,9 | 0,87 | 1,26 | 2,01 | 47,6 |
| 6 | R2 | 10 | 0,0 | 0,123 | 15,3 | LOS C | 0,4 | 2,9 | 0,87 | 1,26 | 2,01 | 47,4 |
| Approach | | 51 | 0,0 | 0,123 | 15,7 | LOS C | 0,4 | 2,9 | 0,87 | 1,26 | 2,01 | 47,6 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 8 | 0,0 | 0,060 | 16,4 | LOS C | 0,2 | 1,4 | 0,89 | 1,25 | 1,95 | 47,5 |
| 8 | T1 | 12 | 0,0 | 0,060 | 16,1 | LOS C | 0,2 | 1,4 | 0,89 | 1,25 | 1,95 | 47,3 |
| 9 | R2 | 2 | 0,0 | 0,060 | 15,9 | LOS C | 0,2 | 1,4 | 0,89 | 1,25 | 1,95 | 47,1 |
| Approach | | 22 | 0,0 | 0,060 | 16,2 | LOS C | 0,2 | 1,4 | 0,89 | 1,25 | 1,95 | 47,4 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,087 | 13,8 | LOS B | 0,3 | 1,9 | 0,81 | 1,26 | 1,90 | 49,2 |
| 11 | T1 | 34 | 0,0 | 0,087 | 13,4 | LOS B | 0,3 | 1,9 | 0,81 | 1,26 | 1,90 | 49,0 |
| 12 | R2 | 9 | 0,0 | 0,087 | 13,2 | LOS B | 0,3 | 1,9 | 0,81 | 1,26 | 1,90 | 48,8 |
| Approach | | 44 | 0,0 | 0,087 | 13,4 | LOS B | 0,3 | 1,9 | 0,81 | 1,26 | 1,90 | 49,0 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 4 | 0,0 | 0,107 | 12,5 | LOS B | 0,3 | 2,3 | 0,75 | 1,26 | 1,87 | 49,9 |
| 2 | T1 | 30 | 0,0 | 0,107 | 12,2 | LOS B | 0,3 | 2,3 | 0,75 | 1,26 | 1,87 | 49,7 |
| 3 | R2 | 32 | 0,0 | 0,107 | 12,0 | LOS B | 0,3 | 2,3 | 0,75 | 1,26 | 1,87 | 49,5 |
| Approach | | 66 | 0,0 | 0,107 | 12,1 | LOS B | 0,3 | 2,3 | 0,75 | 1,26 | 1,87 | 49,6 |
| All Vehicles | | 183 | 0,0 | 0,123 | 13,9 | LOS B | 0,4 | 2,9 | 0,81 | 1,26 | 1,93 | 48,6 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102 [Bauhinia PM 2027 + Dev Long]

New Site
Site Category: (None)
Stop (All-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 47 | 0,0 | 0,221 | 16,5 | LOS C | 0,8 | 5,6 | 0,88 | 1,30 | 2,16 | 47,4 |
| 5 | T1 | 43 | 0,0 | 0,221 | 16,2 | LOS C | 0,8 | 5,6 | 0,88 | 1,30 | 2,16 | 47,2 |
| 6 | R2 | 7 | 0,0 | 0,221 | 15,9 | LOS C | 0,8 | 5,6 | 0,88 | 1,30 | 2,16 | 47,0 |
| Approach | | 97 | 0,0 | 0,221 | 16,3 | LOS C | 0,8 | 5,6 | 0,88 | 1,30 | 2,16 | 47,3 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 6 | 0,0 | 0,106 | 15,1 | LOS C | 0,4 | 2,5 | 0,85 | 1,26 | 1,97 | 48,4 |
| 8 | T1 | 36 | 0,0 | 0,106 | 14,8 | LOS B | 0,4 | 2,5 | 0,85 | 1,26 | 1,97 | 48,2 |
| 9 | R2 | 5 | 0,0 | 0,106 | 14,6 | LOS B | 0,4 | 2,5 | 0,85 | 1,26 | 1,97 | 48,0 |
| Approach | | 47 | 0,0 | 0,106 | 14,8 | LOS B | 0,4 | 2,5 | 0,85 | 1,26 | 1,97 | 48,2 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,057 | 13,3 | LOS B | 0,2 | 1,2 | 0,79 | 1,25 | 1,85 | 49,5 |
| 11 | T1 | 17 | 0,0 | 0,057 | 12,9 | LOS B | 0,2 | 1,2 | 0,79 | 1,25 | 1,85 | 49,3 |
| 12 | R2 | 11 | 0,0 | 0,057 | 12,7 | LOS B | 0,2 | 1,2 | 0,79 | 1,25 | 1,85 | 49,1 |
| Approach | | 30 | 0,0 | 0,057 | 12,9 | LOS B | 0,2 | 1,2 | 0,79 | 1,25 | 1,85 | 49,2 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 6 | 0,0 | 0,112 | 13,1 | LOS B | 0,4 | 2,5 | 0,78 | 1,26 | 1,90 | 49,6 |
| 2 | T1 | 29 | 0,0 | 0,112 | 12,7 | LOS B | 0,4 | 2,5 | 0,78 | 1,26 | 1,90 | 49,4 |
| 3 | R2 | 29 | 0,0 | 0,112 | 12,5 | LOS B | 0,4 | 2,5 | 0,78 | 1,26 | 1,90 | 49,1 |
| Approach | | 64 | 0,0 | 0,112 | 12,7 | LOS B | 0,4 | 2,5 | 0,78 | 1,26 | 1,90 | 49,3 |
| All Vehicles | | 238 | 0,0 | 0,221 | 14,6 | LOS B | 0,8 | 5,6 | 0,84 | 1,28 | 2,01 | 48,2 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102v [Bauhinia AM 2027 + Dev Short - Conversion]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 37 | 0,0 | 0,051 | 8,1 | LOS A | 0,2 | 1,4 | 0,08 | 0,97 | 0,08 | 51,7 |
| 5 | T1 | 14 | 0,0 | 0,051 | 8,3 | LOS A | 0,2 | 1,4 | 0,08 | 0,97 | 0,08 | 51,5 |
| 6 | R2 | 10 | 0,0 | 0,051 | 8,4 | LOS A | 0,2 | 1,4 | 0,08 | 0,97 | 0,08 | 51,2 |
| Approach | | 61 | 0,0 | 0,051 | 8,2 | LOS A | 0,2 | 1,4 | 0,08 | 0,97 | 0,08 | 51,6 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 8 | 0,0 | 0,017 | 5,6 | LOS A | 0,0 | 0,1 | 0,03 | 0,18 | 0,03 | 56,7 |
| 8 | T1 | 22 | 0,0 | 0,017 | 0,0 | LOS A | 0,0 | 0,1 | 0,03 | 0,18 | 0,03 | 58,2 |
| 9 | R2 | 2 | 0,0 | 0,017 | 5,6 | LOS A | 0,0 | 0,1 | 0,03 | 0,18 | 0,03 | 56,1 |
| Approach | | 32 | 0,0 | 0,017 | 1,8 | NA | 0,0 | 0,1 | 0,03 | 0,18 | 0,03 | 57,7 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,046 | 8,2 | LOS A | 0,2 | 1,1 | 0,25 | 0,94 | 0,25 | 51,9 |
| 11 | T1 | 34 | 0,0 | 0,046 | 8,3 | LOS A | 0,2 | 1,1 | 0,25 | 0,94 | 0,25 | 51,6 |
| 12 | R2 | 11 | 0,0 | 0,046 | 8,5 | LOS A | 0,2 | 1,1 | 0,25 | 0,94 | 0,25 | 51,4 |
| Approach | | 46 | 0,0 | 0,046 | 8,4 | LOS A | 0,2 | 1,1 | 0,25 | 0,94 | 0,25 | 51,6 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 9 | 0,0 | 0,061 | 5,6 | LOS A | 0,3 | 1,8 | 0,09 | 0,31 | 0,09 | 55,4 |
| 2 | T1 | 51 | 0,0 | 0,061 | 0,1 | LOS A | 0,3 | 1,8 | 0,09 | 0,31 | 0,09 | 56,9 |
| 3 | R2 | 52 | 0,0 | 0,061 | 5,5 | LOS A | 0,3 | 1,8 | 0,09 | 0,31 | 0,09 | 54,8 |
| Approach | | 112 | 0,0 | 0,061 | 3,0 | NA | 0,3 | 1,8 | 0,09 | 0,31 | 0,09 | 55,8 |
| All Vehicles | | 251 | 0,0 | 0,061 | 5,1 | NA | 0,3 | 1,8 | 0,11 | 0,57 | 0,11 | 54,1 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102v [Bauhinia PM 2027 + Dev Short - Conversion]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 75 | 0,0 | 0,107 | 8,3 | LOS A | 0,4 | 3,0 | 0,18 | 0,93 | 0,18 | 51,7 |
| 5 | T1 | 43 | 0,0 | 0,107 | 8,6 | LOS A | 0,4 | 3,0 | 0,18 | 0,93 | 0,18 | 51,5 |
| 6 | R2 | 7 | 0,0 | 0,107 | 8,7 | LOS A | 0,4 | 3,0 | 0,18 | 0,93 | 0,18 | 51,2 |
| Approach | | 125 | 0,0 | 0,107 | 8,4 | LOS A | 0,4 | 3,0 | 0,18 | 0,93 | 0,18 | 51,6 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 6 | 0,0 | 0,040 | 5,6 | LOS A | 0,0 | 0,3 | 0,03 | 0,09 | 0,03 | 57,5 |
| 8 | T1 | 65 | 0,0 | 0,040 | 0,0 | LOS A | 0,0 | 0,3 | 0,03 | 0,09 | 0,03 | 59,1 |
| 9 | R2 | 5 | 0,0 | 0,040 | 5,6 | LOS A | 0,0 | 0,3 | 0,03 | 0,09 | 0,03 | 56,9 |
| Approach | | 76 | 0,0 | 0,040 | 0,8 | NA | 0,0 | 0,3 | 0,03 | 0,09 | 0,03 | 58,8 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,041 | 8,2 | LOS A | 0,1 | 1,0 | 0,28 | 0,92 | 0,28 | 51,5 |
| 11 | T1 | 17 | 0,0 | 0,041 | 8,5 | LOS A | 0,1 | 1,0 | 0,28 | 0,92 | 0,28 | 51,3 |
| 12 | R2 | 17 | 0,0 | 0,041 | 9,2 | LOS A | 0,1 | 1,0 | 0,28 | 0,92 | 0,28 | 51,1 |
| Approach | | 36 | 0,0 | 0,041 | 8,8 | LOS A | 0,1 | 1,0 | 0,28 | 0,92 | 0,28 | 51,2 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 10 | 0,0 | 0,061 | 5,7 | LOS A | 0,3 | 1,8 | 0,15 | 0,31 | 0,15 | 55,2 |
| 2 | T1 | 50 | 0,0 | 0,061 | 0,1 | LOS A | 0,3 | 1,8 | 0,15 | 0,31 | 0,15 | 56,7 |
| 3 | R2 | 50 | 0,0 | 0,061 | 5,7 | LOS A | 0,3 | 1,8 | 0,15 | 0,31 | 0,15 | 54,7 |
| Approach | | 110 | 0,0 | 0,061 | 3,2 | NA | 0,3 | 1,8 | 0,15 | 0,31 | 0,15 | 55,6 |
| All Vehicles | | 347 | 0,0 | 0,107 | 5,1 | NA | 0,4 | 3,0 | 0,15 | 0,55 | 0,15 | 54,3 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102v [Bauhinia AM 2027 + Dev Long - Conversion]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 27 | 0,0 | 0,043 | 8,1 | LOS A | 0,2 | 1,1 | 0,05 | 0,99 | 0,05 | 51,8 |
| 5 | T1 | 14 | 0,0 | 0,043 | 8,0 | LOS A | 0,2 | 1,1 | 0,05 | 0,99 | 0,05 | 51,5 |
| 6 | R2 | 10 | 0,0 | 0,043 | 8,1 | LOS A | 0,2 | 1,1 | 0,05 | 0,99 | 0,05 | 51,3 |
| Approach | | 51 | 0,0 | 0,043 | 8,1 | LOS A | 0,2 | 1,1 | 0,05 | 0,99 | 0,05 | 51,6 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 8 | 0,0 | 0,012 | 5,6 | LOS A | 0,0 | 0,1 | 0,03 | 0,26 | 0,03 | 56,0 |
| 8 | T1 | 12 | 0,0 | 0,012 | 0,0 | LOS A | 0,0 | 0,1 | 0,03 | 0,26 | 0,03 | 57,5 |
| 9 | R2 | 2 | 0,0 | 0,012 | 5,5 | LOS A | 0,0 | 0,1 | 0,03 | 0,26 | 0,03 | 55,4 |
| Approach | | 22 | 0,0 | 0,012 | 2,5 | NA | 0,0 | 0,1 | 0,03 | 0,26 | 0,03 | 56,8 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 1 | 0,0 | 0,042 | 8,1 | LOS A | 0,1 | 1,0 | 0,18 | 0,95 | 0,18 | 52,0 |
| 11 | T1 | 34 | 0,0 | 0,042 | 8,0 | LOS A | 0,1 | 1,0 | 0,18 | 0,95 | 0,18 | 51,7 |
| 12 | R2 | 9 | 0,0 | 0,042 | 8,1 | LOS A | 0,1 | 1,0 | 0,18 | 0,95 | 0,18 | 51,5 |
| Approach | | 44 | 0,0 | 0,042 | 8,1 | LOS A | 0,1 | 1,0 | 0,18 | 0,95 | 0,18 | 51,7 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 4 | 0,0 | 0,036 | 5,6 | LOS A | 0,2 | 1,1 | 0,07 | 0,32 | 0,07 | 55,5 |
| 2 | T1 | 30 | 0,0 | 0,036 | 0,0 | LOS A | 0,2 | 1,1 | 0,07 | 0,32 | 0,07 | 57,0 |
| 3 | R2 | 32 | 0,0 | 0,036 | 5,5 | LOS A | 0,2 | 1,1 | 0,07 | 0,32 | 0,07 | 54,9 |
| Approach | | 66 | 0,0 | 0,036 | 3,0 | NA | 0,2 | 1,1 | 0,07 | 0,32 | 0,07 | 55,9 |
| All Vehicles | | 183 | 0,0 | 0,043 | 5,6 | NA | 0,2 | 1,1 | 0,09 | 0,65 | 0,09 | 53,7 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 102v [Bauhinia PM 2027 + Dev Long - Conversion]

New Site
Site Category: (None)
Stop (Two-Way)

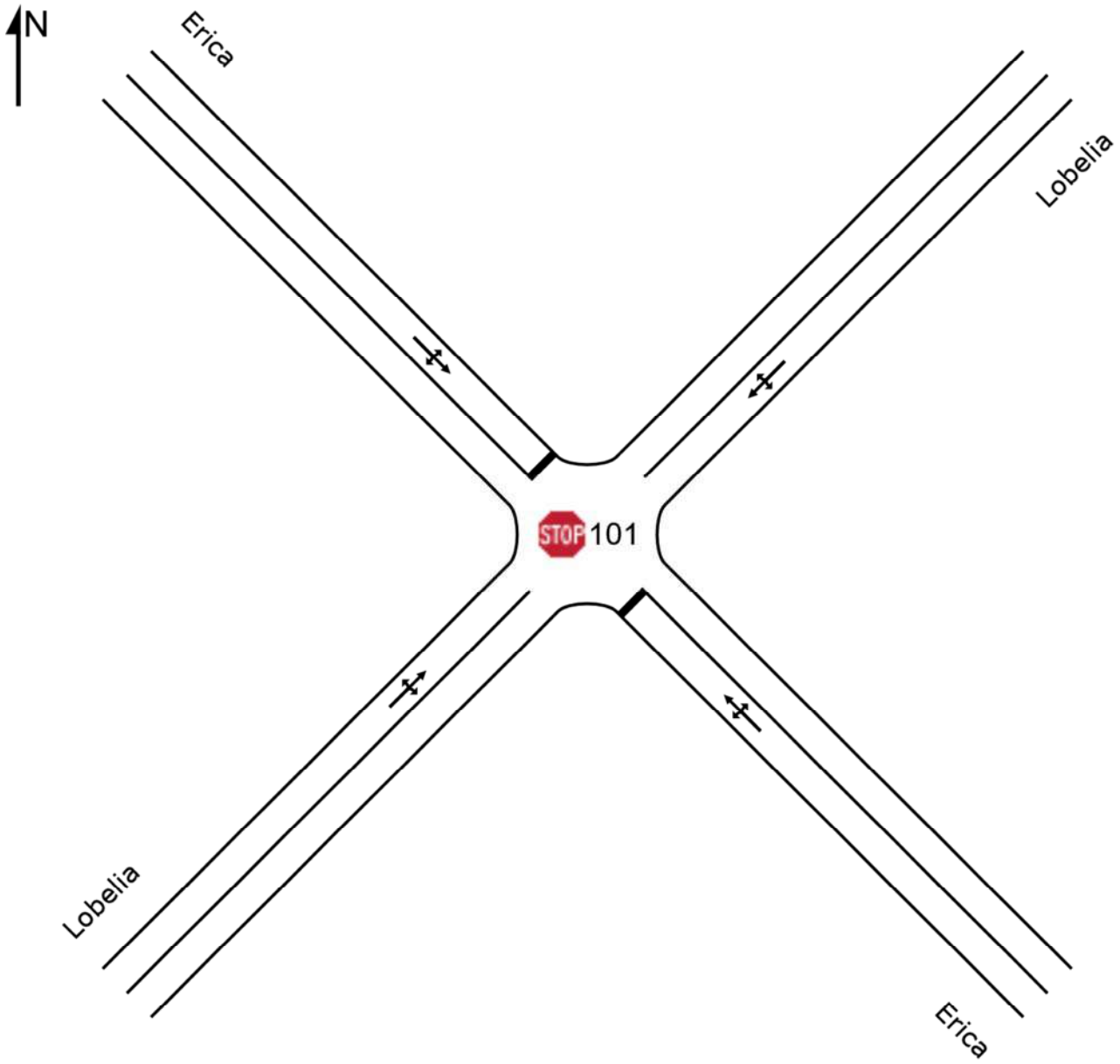
| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Protea Street | | | | | | | | | | | | |
| 4 | L2 | 47 | 0,0 | 0,081 | 8,1 | LOS A | 0,3 | 2,2 | 0,13 | 0,96 | 0,13 | 51,8 |
| 5 | T1 | 43 | 0,0 | 0,081 | 8,2 | LOS A | 0,3 | 2,2 | 0,13 | 0,96 | 0,13 | 51,6 |
| 6 | R2 | 7 | 0,0 | 0,081 | 8,1 | LOS A | 0,3 | 2,2 | 0,13 | 0,96 | 0,13 | 51,3 |
| Approach | | 97 | 0,0 | 0,081 | 8,2 | LOS A | 0,3 | 2,2 | 0,13 | 0,96 | 0,13 | 51,7 |
| NorthEast: Bauhinia Street | | | | | | | | | | | | |
| 7 | L2 | 6 | 0,0 | 0,025 | 5,6 | LOS A | 0,0 | 0,3 | 0,03 | 0,14 | 0,03 | 57,1 |
| 8 | T1 | 36 | 0,0 | 0,025 | 0,0 | LOS A | 0,0 | 0,3 | 0,03 | 0,14 | 0,03 | 58,6 |
| 9 | R2 | 5 | 0,0 | 0,025 | 5,5 | LOS A | 0,0 | 0,3 | 0,03 | 0,14 | 0,03 | 56,5 |
| Approach | | 47 | 0,0 | 0,025 | 1,3 | NA | 0,0 | 0,3 | 0,03 | 0,14 | 0,03 | 58,2 |
| NorthWest: Protea Street | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,030 | 8,1 | LOS A | 0,1 | 0,7 | 0,19 | 0,94 | 0,19 | 51,8 |
| 11 | T1 | 17 | 0,0 | 0,030 | 8,1 | LOS A | 0,1 | 0,7 | 0,19 | 0,94 | 0,19 | 51,6 |
| 12 | R2 | 11 | 0,0 | 0,030 | 8,5 | LOS A | 0,1 | 0,7 | 0,19 | 0,94 | 0,19 | 51,3 |
| Approach | | 30 | 0,0 | 0,030 | 8,3 | LOS A | 0,1 | 0,7 | 0,19 | 0,94 | 0,19 | 51,5 |
| SouthWest: Bauhinia Street | | | | | | | | | | | | |
| 1 | L2 | 6 | 0,0 | 0,035 | 5,6 | LOS A | 0,1 | 1,0 | 0,10 | 0,31 | 0,10 | 55,3 |
| 2 | T1 | 29 | 0,0 | 0,035 | 0,1 | LOS A | 0,1 | 1,0 | 0,10 | 0,31 | 0,10 | 56,8 |
| 3 | R2 | 29 | 0,0 | 0,035 | 5,6 | LOS A | 0,1 | 1,0 | 0,10 | 0,31 | 0,10 | 54,8 |
| Approach | | 64 | 0,0 | 0,035 | 3,1 | NA | 0,1 | 1,0 | 0,10 | 0,31 | 0,10 | 55,7 |
| All Vehicles | | 238 | 0,0 | 0,081 | 5,5 | NA | 0,3 | 2,2 | 0,11 | 0,62 | 0,11 | 53,9 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# SITE LAYOUT

## Site: 101 [Lobelia Erica AM Status Quo]

New Site
Site Category: (None)
Stop (Two-Way)





Organisation: URBAN ENGINEERING | Created: Monday, 25 April 2022 10:22:54
Project: C:\Users\Frans2\Urban Engineering (Pty) Ltd\UE - UrbanCloud\Projects\22-019 TIA Riversdal Lot 21\3_Working\SIDRA\3 Lobelia Erica.sip8

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica AM Status Quo]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 14 | 0,0 | 0,079 | 8,1 | LOS A | 0,3 | 1,9 | 0,15 | 0,93 | 0,15 | 51,7 |
| 2 | T1 | 3 | 0,0 | 0,079 | 8,2 | LOS A | 0,3 | 1,9 | 0,15 | 0,93 | 0,15 | 51,4 |
| 3 | R2 | 57 | 0,0 | 0,079 | 8,4 | LOS A | 0,3 | 1,9 | 0,15 | 0,93 | 0,15 | 51,2 |
| Approach | | 74 | 0,0 | 0,079 | 8,3 | LOS A | 0,3 | 1,9 | 0,15 | 0,93 | 0,15 | 51,3 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 43 | 0,0 | 0,047 | 5,6 | LOS A | 0,1 | 1,0 | 0,08 | 0,41 | 0,08 | 54,6 |
| 5 | T1 | 23 | 0,0 | 0,047 | 0,1 | LOS A | 0,1 | 1,0 | 0,08 | 0,41 | 0,08 | 56,0 |
| 6 | R2 | 21 | 0,0 | 0,047 | 5,6 | LOS A | 0,1 | 1,0 | 0,08 | 0,41 | 0,08 | 54,0 |
| Approach | | 87 | 0,0 | 0,047 | 4,1 | NA | 0,1 | 1,0 | 0,08 | 0,41 | 0,08 | 54,8 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 33 | 0,0 | 0,040 | 8,2 | LOS A | 0,2 | 1,1 | 0,12 | 0,94 | 0,12 | 51,8 |
| 8 | T1 | 13 | 0,0 | 0,040 | 8,3 | LOS A | 0,2 | 1,1 | 0,12 | 0,94 | 0,12 | 51,5 |
| 9 | R2 | 3 | 0,0 | 0,040 | 8,0 | LOS A | 0,2 | 1,1 | 0,12 | 0,94 | 0,12 | 51,3 |
| Approach | | 49 | 0,0 | 0,040 | 8,2 | LOS A | 0,2 | 1,1 | 0,12 | 0,94 | 0,12 | 51,7 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,026 | 5,7 | LOS A | 0,0 | 0,3 | 0,05 | 0,11 | 0,05 | 57,2 |
| 11 | T1 | 41 | 0,0 | 0,026 | 0,0 | LOS A | 0,0 | 0,3 | 0,05 | 0,11 | 0,05 | 58,8 |
| 12 | R2 | 7 | 0,0 | 0,026 | 5,6 | LOS A | 0,0 | 0,3 | 0,05 | 0,11 | 0,05 | 56,6 |
| Approach | | 50 | 0,0 | 0,026 | 1,0 | NA | 0,0 | 0,3 | 0,05 | 0,11 | 0,05 | 58,4 |
| All Vehicles | | 260 | 0,0 | 0,079 | 5,5 | NA | 0,3 | 1,9 | 0,10 | 0,60 | 0,10 | 53,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica PM Status Quo]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 5 | 0,0 | 0,031 | 8,2 | LOS A | 0,1 | 0,7 | 0,19 | 0,91 | 0,19 | 51,8 |
| 2 | T1 | 5 | 0,0 | 0,031 | 8,2 | LOS A | 0,1 | 0,7 | 0,19 | 0,91 | 0,19 | 51,6 |
| 3 | R2 | 20 | 0,0 | 0,031 | 8,3 | LOS A | 0,1 | 0,7 | 0,19 | 0,91 | 0,19 | 51,3 |
| Approach | | 30 | 0,0 | 0,031 | 8,2 | LOS A | 0,1 | 0,7 | 0,19 | 0,91 | 0,19 | 51,5 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 34 | 0,0 | 0,058 | 5,6 | LOS A | 0,2 | 1,4 | 0,07 | 0,34 | 0,07 | 55,2 |
| 5 | T1 | 42 | 0,0 | 0,058 | 0,0 | LOS A | 0,2 | 1,4 | 0,07 | 0,34 | 0,07 | 56,6 |
| 6 | R2 | 31 | 0,0 | 0,058 | 5,5 | LOS A | 0,2 | 1,4 | 0,07 | 0,34 | 0,07 | 54,6 |
| Approach | | 107 | 0,0 | 0,058 | 3,4 | NA | 0,2 | 1,4 | 0,07 | 0,34 | 0,07 | 55,6 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 17 | 0,0 | 0,021 | 8,1 | LOS A | 0,1 | 0,6 | 0,09 | 0,96 | 0,09 | 51,8 |
| 8 | T1 | 6 | 0,0 | 0,021 | 8,3 | LOS A | 0,1 | 0,6 | 0,09 | 0,96 | 0,09 | 51,5 |
| 9 | R2 | 3 | 0,0 | 0,021 | 8,1 | LOS A | 0,1 | 0,6 | 0,09 | 0,96 | 0,09 | 51,3 |
| Approach | | 26 | 0,0 | 0,021 | 8,1 | LOS A | 0,1 | 0,6 | 0,09 | 0,96 | 0,09 | 51,7 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,019 | 5,7 | LOS A | 0,0 | 0,3 | 0,07 | 0,13 | 0,07 | 57,0 |
| 11 | T1 | 28 | 0,0 | 0,019 | 0,1 | LOS A | 0,0 | 0,3 | 0,07 | 0,13 | 0,07 | 58,5 |
| 12 | R2 | 6 | 0,0 | 0,019 | 5,7 | LOS A | 0,0 | 0,3 | 0,07 | 0,13 | 0,07 | 56,4 |
| Approach | | 36 | 0,0 | 0,019 | 1,3 | NA | 0,0 | 0,3 | 0,07 | 0,13 | 0,07 | 58,1 |
| All Vehicles | | 199 | 0,0 | 0,058 | 4,4 | NA | 0,2 | 1,4 | 0,09 | 0,47 | 0,09 | 54,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica AM 2027]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 16 | 0,0 | 0,093 | 8,1 | LOS A | 0,3 | 2,3 | 0,17 | 0,93 | 0,17 | 51,6 |
| 2 | T1 | 3 | 0,0 | 0,093 | 8,3 | LOS A | 0,3 | 2,3 | 0,17 | 0,93 | 0,17 | 51,4 |
| 3 | R2 | 66 | 0,0 | 0,093 | 8,6 | LOS A | 0,3 | 2,3 | 0,17 | 0,93 | 0,17 | 51,1 |
| Approach | | 85 | 0,0 | 0,093 | 8,5 | LOS A | 0,3 | 2,3 | 0,17 | 0,93 | 0,17 | 51,2 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 50 | 0,0 | 0,055 | 5,6 | LOS A | 0,2 | 1,1 | 0,08 | 0,40 | 0,08 | 54,6 |
| 5 | T1 | 27 | 0,0 | 0,055 | 0,1 | LOS A | 0,2 | 1,1 | 0,08 | 0,40 | 0,08 | 56,0 |
| 6 | R2 | 24 | 0,0 | 0,055 | 5,6 | LOS A | 0,2 | 1,1 | 0,08 | 0,40 | 0,08 | 54,0 |
| Approach | | 101 | 0,0 | 0,055 | 4,1 | NA | 0,2 | 1,1 | 0,08 | 0,40 | 0,08 | 54,8 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 38 | 0,0 | 0,046 | 8,2 | LOS A | 0,2 | 1,2 | 0,14 | 0,94 | 0,14 | 51,8 |
| 8 | T1 | 15 | 0,0 | 0,046 | 8,4 | LOS A | 0,2 | 1,2 | 0,14 | 0,94 | 0,14 | 51,5 |
| 9 | R2 | 3 | 0,0 | 0,046 | 8,1 | LOS A | 0,2 | 1,2 | 0,14 | 0,94 | 0,14 | 51,3 |
| Approach | | 56 | 0,0 | 0,046 | 8,2 | LOS A | 0,2 | 1,2 | 0,14 | 0,94 | 0,14 | 51,7 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,031 | 5,7 | LOS A | 0,1 | 0,4 | 0,06 | 0,10 | 0,06 | 57,3 |
| 11 | T1 | 48 | 0,0 | 0,031 | 0,0 | LOS A | 0,1 | 0,4 | 0,06 | 0,10 | 0,06 | 58,8 |
| 12 | R2 | 8 | 0,0 | 0,031 | 5,7 | LOS A | 0,1 | 0,4 | 0,06 | 0,10 | 0,06 | 56,7 |
| Approach | | 58 | 0,0 | 0,031 | 1,0 | NA | 0,1 | 0,4 | 0,06 | 0,10 | 0,06 | 58,5 |
| All Vehicles | | 300 | 0,0 | 0,093 | 5,5 | NA | 0,3 | 2,3 | 0,11 | 0,59 | 0,11 | 53,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica PM 2027]

New Site
Site Category: (None)
Stop (Two-Way)

**Movement Performance - Vehicles**

| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 6 | 0,0 | 0,037 | 8,2 | LOS A | 0,1 | 0,9 | 0,21 | 0,91 | 0,21 | 51,8 |
| 2 | T1 | 6 | 0,0 | 0,037 | 8,3 | LOS A | 0,1 | 0,9 | 0,21 | 0,91 | 0,21 | 51,5 |
| 3 | R2 | 23 | 0,0 | 0,037 | 8,4 | LOS A | 0,1 | 0,9 | 0,21 | 0,91 | 0,21 | 51,3 |
| Approach | | 35 | 0,0 | 0,037 | 8,4 | LOS A | 0,1 | 0,9 | 0,21 | 0,91 | 0,21 | 51,4 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 39 | 0,0 | 0,067 | 5,6 | LOS A | 0,2 | 1,6 | 0,08 | 0,34 | 0,08 | 55,2 |
| 5 | T1 | 49 | 0,0 | 0,067 | 0,1 | LOS A | 0,2 | 1,6 | 0,08 | 0,34 | 0,08 | 56,6 |
| 6 | R2 | 36 | 0,0 | 0,067 | 5,5 | LOS A | 0,2 | 1,6 | 0,08 | 0,34 | 0,08 | 54,6 |
| Approach | | 124 | 0,0 | 0,067 | 3,4 | NA | 0,2 | 1,6 | 0,08 | 0,34 | 0,08 | 55,6 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 20 | 0,0 | 0,025 | 8,1 | LOS A | 0,1 | 0,6 | 0,10 | 0,95 | 0,10 | 51,8 |
| 8 | T1 | 7 | 0,0 | 0,025 | 8,4 | LOS A | 0,1 | 0,6 | 0,10 | 0,95 | 0,10 | 51,5 |
| 9 | R2 | 3 | 0,0 | 0,025 | 8,2 | LOS A | 0,1 | 0,6 | 0,10 | 0,95 | 0,10 | 51,3 |
| Approach | | 30 | 0,0 | 0,025 | 8,2 | LOS A | 0,1 | 0,6 | 0,10 | 0,95 | 0,10 | 51,6 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,022 | 5,7 | LOS A | 0,0 | 0,3 | 0,08 | 0,13 | 0,08 | 57,0 |
| 11 | T1 | 32 | 0,0 | 0,022 | 0,1 | LOS A | 0,0 | 0,3 | 0,08 | 0,13 | 0,08 | 58,5 |
| 12 | R2 | 7 | 0,0 | 0,022 | 5,7 | LOS A | 0,0 | 0,3 | 0,08 | 0,13 | 0,08 | 56,4 |
| Approach | | 41 | 0,0 | 0,022 | 1,3 | NA | 0,0 | 0,3 | 0,08 | 0,13 | 0,08 | 58,1 |
| All Vehicles | | 230 | 0,0 | 0,067 | 4,4 | NA | 0,2 | 1,6 | 0,10 | 0,47 | 0,10 | 54,8 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica AM 2027 + Dev Short]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 16 | 0,0 | 0,118 | 8,2 | LOS A | 0,4 | 2,9 | 0,25 | 0,95 | 0,25 | 50,7 |
| 2 | T1 | 3 | 0,0 | 0,118 | 9,0 | LOS A | 0,4 | 2,9 | 0,25 | 0,95 | 0,25 | 50,4 |
| 3 | R2 | 66 | 0,0 | 0,118 | 10,4 | LOS B | 0,4 | 2,9 | 0,25 | 0,95 | 0,25 | 50,2 |
| Approach | | 85 | 0,0 | 0,118 | 10,0 | LOS A | 0,4 | 2,9 | 0,25 | 0,95 | 0,25 | 50,3 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 50 | 0,0 | 0,102 | 5,7 | LOS A | 0,5 | 3,4 | 0,17 | 0,41 | 0,17 | 54,1 |
| 5 | T1 | 42 | 0,0 | 0,102 | 0,2 | LOS A | 0,5 | 3,4 | 0,17 | 0,41 | 0,17 | 55,5 |
| 6 | R2 | 90 | 0,0 | 0,102 | 5,7 | LOS A | 0,5 | 3,4 | 0,17 | 0,41 | 0,17 | 53,6 |
| Approach | | 182 | 0,0 | 0,102 | 4,4 | NA | 0,5 | 3,4 | 0,17 | 0,41 | 0,17 | 54,2 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 135 | 0,0 | 0,148 | 8,3 | LOS A | 0,6 | 4,3 | 0,19 | 0,92 | 0,19 | 51,7 |
| 8 | T1 | 39 | 0,0 | 0,148 | 9,2 | LOS A | 0,6 | 4,3 | 0,19 | 0,92 | 0,19 | 51,4 |
| 9 | R2 | 3 | 0,0 | 0,148 | 9,1 | LOS A | 0,6 | 4,3 | 0,19 | 0,92 | 0,19 | 51,2 |
| Approach | | 177 | 0,0 | 0,148 | 8,5 | LOS A | 0,6 | 4,3 | 0,19 | 0,92 | 0,19 | 51,6 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,046 | 5,8 | LOS A | 0,1 | 0,4 | 0,04 | 0,07 | 0,04 | 57,6 |
| 11 | T1 | 77 | 0,0 | 0,046 | 0,0 | LOS A | 0,1 | 0,4 | 0,04 | 0,07 | 0,04 | 59,2 |
| 12 | R2 | 8 | 0,0 | 0,046 | 5,7 | LOS A | 0,1 | 0,4 | 0,04 | 0,07 | 0,04 | 57,0 |
| Approach | | 87 | 0,0 | 0,046 | 0,7 | NA | 0,1 | 0,4 | 0,04 | 0,07 | 0,04 | 58,9 |
| All Vehicles | | 531 | 0,0 | 0,148 | 6,1 | NA | 0,6 | 4,3 | 0,17 | 0,61 | 0,17 | 53,3 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica PM 2027 + Dev Long]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 6 | 0,0 | 0,058 | 8,7 | LOS A | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 50,2 |
| 2 | T1 | 6 | 0,0 | 0,058 | 10,4 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,9 |
| 3 | R2 | 23 | 0,0 | 0,058 | 11,8 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,7 |
| Approach | | 35 | 0,0 | 0,058 | 11,0 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,8 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 39 | 0,0 | 0,196 | 6,0 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 55,1 |
| 5 | T1 | 170 | 0,0 | 0,196 | 0,3 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 56,6 |
| 6 | R2 | 139 | 0,0 | 0,196 | 5,9 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 54,5 |
| Approach | | 348 | 0,0 | 0,196 | 3,2 | NA | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 55,6 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 77 | 0,0 | 0,096 | 8,5 | LOS A | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,4 |
| 8 | T1 | 21 | 0,0 | 0,096 | 10,8 | LOS B | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,1 |
| 9 | R2 | 3 | 0,0 | 0,096 | 11,0 | LOS B | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 50,9 |
| Approach | | 101 | 0,0 | 0,096 | 9,1 | LOS A | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,3 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,072 | 6,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 57,9 |
| 11 | T1 | 128 | 0,0 | 0,072 | 0,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 59,5 |
| 12 | R2 | 7 | 0,0 | 0,072 | 6,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 57,2 |
| Approach | | 137 | 0,0 | 0,072 | 0,5 | NA | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 59,3 |
| All Vehicles | | 621 | 0,0 | 0,196 | 4,0 | NA | 0,9 | 6,4 | 0,20 | 0,37 | 0,20 | 55,2 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica AM 2027 + Dev Long]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 50 | 0,0 | 0,175 | 8,1 | LOS A | 0,7 | 4,9 | 0,14 | 0,97 | 0,14 | 51,4 |
| 2 | T1 | 66 | 0,0 | 0,175 | 8,5 | LOS A | 0,7 | 4,9 | 0,14 | 0,97 | 0,14 | 51,2 |
| 3 | R2 | 57 | 0,0 | 0,175 | 9,4 | LOS A | 0,7 | 4,9 | 0,14 | 0,97 | 0,14 | 51,0 |
| Approach | | 173 | 0,0 | 0,175 | 8,7 | LOS A | 0,7 | 4,9 | 0,14 | 0,97 | 0,14 | 51,2 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 87 | 0,0 | 0,062 | 5,5 | LOS A | 0,0 | 0,2 | 0,01 | 0,45 | 0,01 | 54,6 |
| 5 | T1 | 27 | 0,0 | 0,062 | 0,0 | LOS A | 0,0 | 0,2 | 0,01 | 0,45 | 0,01 | 56,1 |
| 6 | R2 | 3 | 0,0 | 0,062 | 5,5 | LOS A | 0,0 | 0,2 | 0,01 | 0,45 | 0,01 | 54,1 |
| Approach | | 117 | 0,0 | 0,062 | 4,3 | NA | 0,0 | 0,2 | 0,01 | 0,45 | 0,01 | 54,9 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 2 | 0,0 | 0,143 | 8,0 | LOS A | 0,6 | 3,9 | 0,19 | 1,00 | 0,19 | 51,5 |
| 8 | T1 | 129 | 0,0 | 0,143 | 8,7 | LOS A | 0,6 | 3,9 | 0,19 | 1,00 | 0,19 | 51,3 |
| 9 | R2 | 8 | 0,0 | 0,143 | 8,9 | LOS A | 0,6 | 3,9 | 0,19 | 1,00 | 0,19 | 51,0 |
| Approach | | 139 | 0,0 | 0,143 | 8,7 | LOS A | 0,6 | 3,9 | 0,19 | 1,00 | 0,19 | 51,2 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 16 | 0,0 | 0,051 | 5,9 | LOS A | 0,2 | 1,7 | 0,22 | 0,52 | 0,22 | 53,2 |
| 11 | T1 | 3 | 0,0 | 0,051 | 0,3 | LOS A | 0,2 | 1,7 | 0,22 | 0,52 | 0,22 | 54,5 |
| 12 | R2 | 66 | 0,0 | 0,051 | 5,8 | LOS A | 0,2 | 1,7 | 0,22 | 0,52 | 0,22 | 52,7 |
| Approach | | 85 | 0,0 | 0,051 | 5,6 | NA | 0,2 | 1,7 | 0,22 | 0,52 | 0,22 | 52,8 |
| All Vehicles | | 514 | 0,0 | 0,175 | 7,2 | NA | 0,7 | 4,9 | 0,14 | 0,79 | 0,14 | 52,3 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

## Site: 101 [Lobelia Erica PM 2027 + Dev Long]

New Site
Site Category: (None)
Stop (Two-Way)

| Movement Performance - Vehicles | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mov ID | Turn | Demand Flows Total veh/h | HV % | Deg. Satn v/c | Average Delay sec | Level of Service | 95% Back of Queue Vehicles veh | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
| SouthEast: Erica | | | | | | | | | | | | |
| 1 | L2 | 6 | 0,0 | 0,058 | 8,7 | LOS A | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 50,2 |
| 2 | T1 | 6 | 0,0 | 0,058 | 10,4 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,9 |
| 3 | R2 | 23 | 0,0 | 0,058 | 11,8 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,7 |
| Approach | | 35 | 0,0 | 0,058 | 11,0 | LOS B | 0,2 | 1,4 | 0,44 | 0,93 | 0,44 | 49,8 |
| NorthEast: Lobelia | | | | | | | | | | | | |
| 4 | L2 | 39 | 0,0 | 0,196 | 6,0 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 55,1 |
| 5 | T1 | 170 | 0,0 | 0,196 | 0,3 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 56,6 |
| 6 | R2 | 139 | 0,0 | 0,196 | 5,9 | LOS A | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 54,5 |
| Approach | | 348 | 0,0 | 0,196 | 3,2 | NA | 0,9 | 6,4 | 0,22 | 0,29 | 0,22 | 55,6 |
| NorthWest: Erica | | | | | | | | | | | | |
| 7 | L2 | 77 | 0,0 | 0,096 | 8,5 | LOS A | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,4 |
| 8 | T1 | 21 | 0,0 | 0,096 | 10,8 | LOS B | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,1 |
| 9 | R2 | 3 | 0,0 | 0,096 | 11,0 | LOS B | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 50,9 |
| Approach | | 101 | 0,0 | 0,096 | 9,1 | LOS A | 0,4 | 2,6 | 0,26 | 0,91 | 0,26 | 51,3 |
| SouthWest: Lobelia | | | | | | | | | | | | |
| 10 | L2 | 2 | 0,0 | 0,072 | 6,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 57,9 |
| 11 | T1 | 128 | 0,0 | 0,072 | 0,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 59,5 |
| 12 | R2 | 7 | 0,0 | 0,072 | 6,1 | LOS A | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 57,2 |
| Approach | | 137 | 0,0 | 0,072 | 0,5 | NA | 0,1 | 0,4 | 0,04 | 0,04 | 0,04 | 59,3 |
| All Vehicles | | 621 | 0,0 | 0,196 | 4,0 | NA | 0,9 | 6,4 | 0,20 | 0,37 | 0,20 | 55,2 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

URBAN ENGINEERING
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

18 Varing Avenue, Dormehls Drift
**GEORGE**, 6529. Tel 044 874 4098
**Our Reference: 22-019_L1**

26 August 2024

Belladona (Pty) Ltd
P.O. Box 577
**RIVERSDALE**
6670

**PROPOSED REZONING AND SUBDIVISION OF LOT 21, RIVERSDALE, WESTERN CAPE**

1. Urban Engineering (Pty) Ltd was appointed on 17 November 2021 to undertake a Traffic Impact Assessment pertaining to the proposed rezoning and subdivision of Lot 21 in Riversdale.

1.1. The development consisted of the following (Refer to **ANNEXURE A** for the corresponding SDP)

| | No. of Stands | Erf No | Area (ha) | % of Area |
|---|---|---|---|---|
| Agricultural Stands | 27 | 1-27 | 28.5 | 50.5 |
| Single Residential Zone I | 155 | 32-186 | 10.5 | 18.6 |
| General Residential Zone II | 3 | 29-31 | 11.2 | 19.9 |
| Business Zone III | 1 | 188 | 0.5 | 0.9 |
| Open Space Zone I | 1 | 187 | 0.2 | 0.3 |
| Transport Zone II | 5 | 190-194 | 3.2 | 5.7 |
| Transport Zone III | 1 | 189 | 2.1 | 3.7 |
| Utility Zone | 1 | 28 | 0.2 | 0.4 |
| Total | 194 | | 56.4 | 100 |

1.2. The following assumptions were made with regards to the GZII and BZII erven:

1.2.1. **Erf 29** – 7.2ha. Assume future development density of 35 units per ha. Number of units therefore equals 252. Trip Generation potential = TMH 17 Code 251 (Retirement Village).

1.2.2. **Erf 30** – 2.0 ha. Assume future development density of 35 units per ha. Number of units therefore equals 70. Trip Generation potential = TMH 17 Code 231 (Townhouses).

1.2.3. **Erf 31** – 1.9 ha. Assume future development density of 35 units per ha. Number of units therefore equals 67. Trip Generation potential = TMH 17 Code 231 (Townhouses).

1.2.4. **Erf 188** - 5,210m$^2$. Assume future development is for a shopping centre. Assume GLA of shopping centre is 45% of erf size, therefore future GLA equals 2,345m$^2$. Trip Generation potential of erf is equal to that of a TMH 17 Code 820 (Shopping Centre, with mixed use reduction factor due to inclusion in residential suburb).

1.3. The TMH 17 guidelines were used to estimate the trip generation potential of the site as indicated in the table below:

| Description | Size | | AM Peak | | | PM Peak | | | Saturday Peak | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Trip Gen | In | Out | Trip Gen | In | Out | In | Out |
| 210 Single Dwelling Unit | 182 | DU | 1 | 46 | 137 | 1 | 127 | 54,6 | 46 | 46 |
| 251 Retirement Village | 252 | DU | 0,35 | 35 | 53 | 0,35 | 44 | 44,1 | 25 | 25 |
| 231 Townhouses | 137 | DU | 0,85 | 29 | 87 | 0,85 | 82 | 34,9 | 31 | 31 |
| 820 Shopping Centre | 2345 | $m^2$ | | 38 | 20 | | 165 | 165 | 218 | 218 |
| | | | | 148 | 297 | | 418 | 299 | 320 | 320 |

The report included 12 hour classified traffic counts (recorded on February 2022) and the findings of the investigation were published in Urban Engineering Report Number 22-019_TIA (Rev 1) dated April 2022)

2. In order to reduce the visual impact of the site, the Site Development Plan was revised, and an updated SDP (Plan Number 217/LP11, dated 16 July 2024) was issued to Urban Engineering for comment.

2.1. The revised SDP (refer to **ANNEXURE B**) made provision for the following:

| | No. of Stands | Erf No | Area (ha) | % of Area |
|---|---|---|---|---|
| Agricultural Zone II | 27 | 1-27 | 27.5 | 48.8 |
| Single Residential Zone I | 159 | 32-190 | 10.4 | 18.4 |
| General Residential Zone II | 3 | 29-31 | 10.4 | 18.4 |
| Business Zone III | 1 | 191 | 0.7 | 1.2 |
| Transport Zone II | 7 | 196-202 | 3.8 | 6.7 |
| Transport Zone III | 1 | 195 | 1.9 | 3.4 |
| Utility Zone | 1 | 28 | 0.2 | 0.4 |
| Open Space Zone I | 3 | 192-194 | 1.5 | 2.7 |
| Total | 202 | | 56.4 | 100 |

2.2. Applying the same principles as previously , the following assumptions regarding with regards to the GZII and BZII erven can be made:

2.2.1. **Erf 29** – 6.5ha. Assume future development density of 35 units per ha. Number of units therefore equals 228. Trip Generation potential = TMH 17 Code 251 (Retirement Village).

2.2.2. **Erf 30** – 1.92ha. Assume future development density of 35 units per ha. Number of units therefore equals 67. Trip Generation potential = TMH 17 Code 231 (Townhouses).

2.2.3. **Erf 31** – 1.97ha. Assume future development density of 35 units per ha. Number of units therefore equals 69. Trip Generation potential = TMH 17 Code 231 (Townhouses).

2.2.4. **Erf 191** - 6,500$m^2$. Assume future development is for a shopping centre. Assume GLA of shopping centre is 45% of erf size, therefore future GLA equals 2,925$m^2$. Trip Generation potential of erf is equal to that of a TMH 17 Code 820 (Shopping Centre, with mixed use reduction factor due to inclusion in residential suburb).

2.3. The same TMH 17 guidelines were once again used to estimate the updated trip generation potential of the site as indicated in the table below:

| Description | Size | | AM Peak | | | PM Peak | | | Saturday Peak | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Trip Gen | In | Out | Trip Gen | In | Out | In | Out |
| 210 Single Dwelling Unit | 186 | DU | 1 | 47 | 140 | 1 | 130 | 55,8 | 47 | 47 |
| 251 Retirement Village | 228 | DU | 0,35 | 32 | 48 | 0,35 | 40 | 39,9 | 23 | 23 |
| 231 Townhouses | 136 | DU | 0,85 | 29 | 87 | 0,85 | 81 | 34,7 | 31 | 31 |
| 820 Shopping Centre | 2925 | $m^2$ | | 44 | 23 | | 191 | 191 | 253 | 253 |
| | | | | 151 | 298 | | 442 | 321 | 353 | 353 |

2.4. The impact of the revised SDP on the trip generation potential has been summarised in the table below:

| | AM PEAK | | PM PEAK | | Saturday Peak | |
|---|---|---|---|---|---|---|
| | IN | OUT | IN | OUT | IN | OUT |
| 2022 | 148 | 297 | 418 | 299 | 320 | 320 |
| 2024 | 151 | 298 | 442 | 321 | 353 | 353 |
| Difference | Increased by 3 trips | Increased by 1 trip | Increased by 24 trips | Increased by 22 trips | Increased by 33 trips | Increased by 33 trips |

3. Even though the revised SDP will lead to an increase in the trip generation potential of the development, it is assumed that the increase will not influence or change the recommendations of Urban Engineering Report Number 22-019_TIA (Rev 1) dated April 2022 for the following reasons:
   3.1. The additional trips are distributed across an integrated road network consisting of various junctions and linkages.
   3.2. The SIDRA analysis of the 2022 SDP returned excellent Levels of Service with low levels of Saturation (v/c) at the analysed intersections. The intersections therefore have sufficient capacity to absorb the additional trips.
   3.3. The long-term road network improvements specified in the report are required to create a mobility corridor providing a direct link between the development and TR83/1.

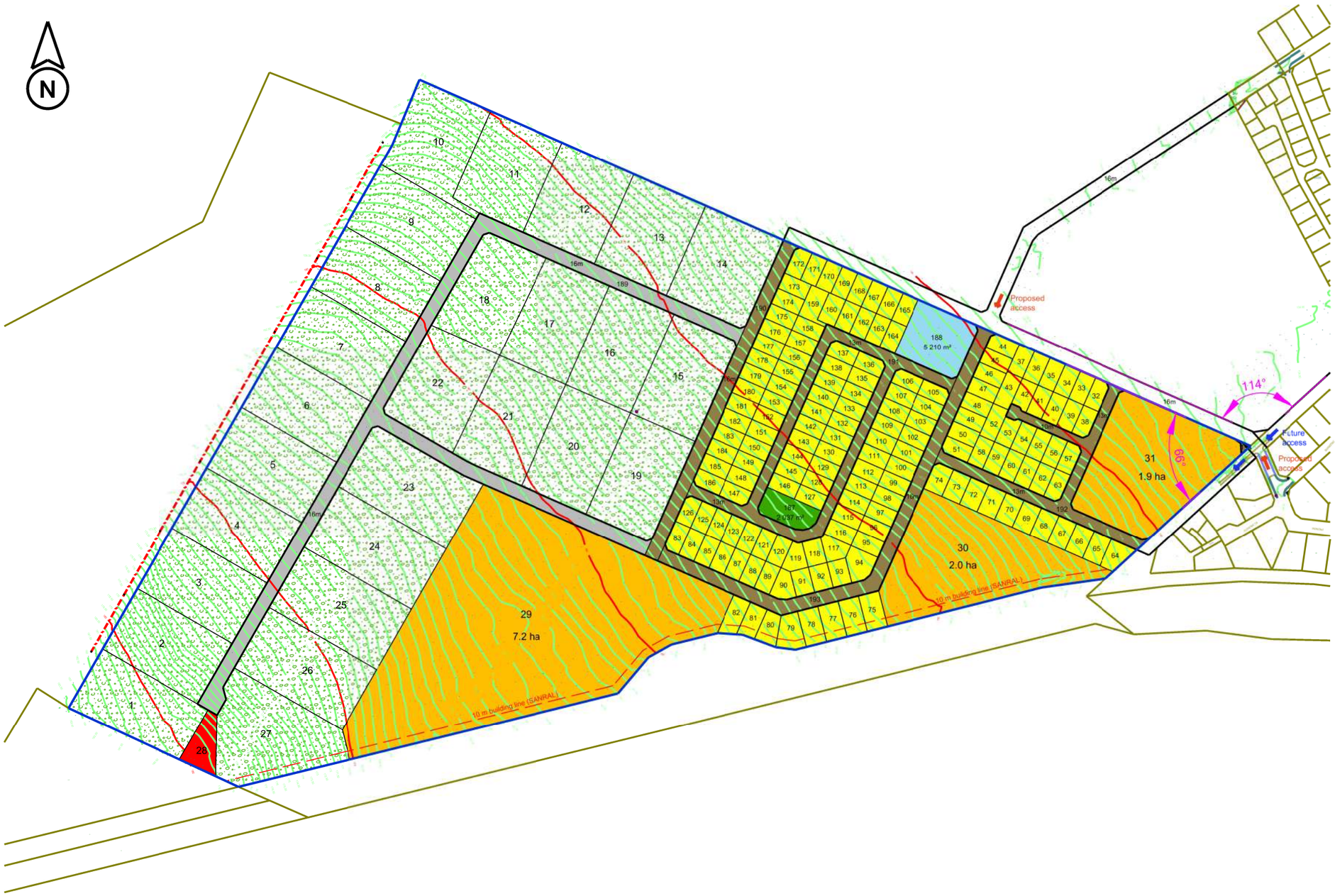
The findings and recommendations of the April 2022 TIA (Report Number 22-019_TIA Rev 1) is therefore still deemed relevant and applicable.

Kind Regards,

Digitally signed by Frans v Aardt
Date: 2024.08.29 07:33:14 +02'00'

**Frans van Aardt (Pr.Eng, B. Ing, M.Ing)**
On behalf of Urban Engineering (Pty) Ltd

# ANNEXURE A
# 2022 SITE DEVELOPMENT PLAN




# LAYOUT PLAN

PROPOSED DEVELOPMENT ON
LOT 266 & A PORTION OF
REMAINDER OF LOT 21,
RIVERSDALE SETTLEMENT,
HESSEQUA MUNICIPALITY,
WESTERN CAPE PROVINCE

## LEGEND

| ZONING | NO. OF STANDS | ERF NO. | AREA (ha) | % OF AREA |
|---|---|---|---|---|
| Agricultural Zone II | 27 | 1-27 | 28.5 | 50.5 |
| Single Residential Zone I | 155 | 32-186 | 10.5 | 18.6 |
| General Residential Zone II | 3 | 29-31 | 11.2 | 19.9 |
| Business Zone III | 1 | 188 | 0.5 | 0.9 |
| Open Space Zone I | 1 | 187 | 0.2 | 0.3 |
| Transport Zone II | 5 | 190-194 | 3.2 | 5.7 |
| Transport Zone III | 1 | 189 | 2.1 | 3.7 |
| Utility Zone | 1 | 28 | 0.2 | 0.4 |
| TOTAL | 194 | | 56.4 | 100 |

## PROFESSIONAL TEAM

| CONSULTANT | NAME | COMPANY | CONTACT |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

## GENERAL NOTES

1. All dimensions and areas are approximate and subject to final survey by a Professional Land Surveyor.
2. All cadastral dimensions to be confirmed by a Professional Land Surveyor prior to any detail designs being constructed.
3. Detail contour survey to be done prior to Engineering design and implimentation.
4. All calculations are to be confirmed.
5. All contours are based on 0.5 metre intervals.

| | |
|---|---|
| PROJECT NO.: 217 | PLAN NO.: 217/LP1 |
| SCALE: 1 : 5 000 | DATE: 02/03/2022 |



**CLIENT**

BELLADONNA (PTY) LTD
[REG. NO. 1965/003575/07]

**SCALE LINE**

0m 100m 200m 300m

PLANSERV

PLANSERV (PTY) LTD
Reg. No. 2013/191660/07

p: PO Box 64 Riversdale 6670
e: madie@planserv.co.za
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c: 082 923 6171

# ANNEXURE B
# 2024 SITE DEVELOPMENT PLAN

# LAYOUT PLAN

PROPOSED DEVELOPMENT ON
LOT 266 & A PORTION OF
REMAINDER OF LOT 21,
RIVERSDALE SETTLEMENT,
HESSEQUA MUNICIPALITY,
WESTERN CAPE PROVINCE

## LEGEND

| ZONING | NO. OF STANDS | ERF NO. | AREA (ha) | % OF AREA |
|---|---|---|---|---|
| Agricultural Zone II | 27 | 1-27 | 27.5 | 48.8 |
| Single Residential Zone I | 159 | 32-190 | 10.4 | 18.4 |
| General Residential Zone II | 3 | 29-31 | 10.4 | 18.4 |
| Business Zone III | 1 | 191 | 0.7 | 1.2 |
| Transport Zone II | 7 | 196-202 | 3.8 | 6.7 |
| Transport Zone III | 1 | 195 | 1.9 | 3.4 |
| Utility Zone | 1 | 28 | 0.2 | 0.4 |
| Open Space Zone I | 3 | 192-194 | 1.5 | 2.7 |
| **TOTAL** | 202 | | 56.4 | 100 |

## PROFESSIONAL TEAM

| CONSULTANT | NAME | COMPANY | CONTACT |
|---|---|---|---|
| Civil Engineer | G Pepler | Hessequa Consulting Engineers | 083 447 9297 |
| Electrical Engineer | J de Villiers | CMB | 082 331 4740 |
| Survey Technician | A la Cock | La Cock Surveying | 083 656 5464 |
| Land Surveyor | C de Jager | CDJ Land Surveyors | 076 735 4613 |
| Geotechnical Engineer | E van der Walt | Terra Geotechnical | 082 073 8566 |
| Environmental Consultant | R Kapp | Kapp Environmental Consultants | 082 675 5233 |
| VIA Consultant | FC Holm | FC Holm Architects | 044 874 1606 |
| HIA Consultant | J Orton | ASHA Consulting | 083 272 3225 |
| Traffic Engineer | F van Aardt | Urban Engineering | 082 923 6171 |
| Town Planner | M Coetzee | PLANSERV | 082 923 6171 |

| | |
|---|---|
| PROJECT NO.: 217 | PLAN NO.: 217/LP11 |
| SCALE: 1 : 5 000 | DATE: 16/07/2024 |

**SCALE LINE**

0m 100m 200m 300m 400m

## GENERAL NOTES

1. All dimensions and areas are approximate and subject to final survey by a Professional Land Surveyor.
2. All cadastral dimensions to be confirmed by a Professional Land Surveyor prior to any detail designs being constructed.
3. Detail contour survey to be done prior to Engineering design and implimentation.
4. All calculations are to be confirmed.
5. All contours are based on 0.5 metre intervals. Contours were surveyed by A. la Cock in December 2021.
6. The average size of the Single Residential Zone I erven is between 600 m² to 850 m².

**CLIENT**

BELLADONNA (PTY) LTD
[REG. NO. 1965/003575/07]



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