



SHOPPING CENTRE DEVELOPMENT ON ERF 6018 VRYHEID, ABAQULUSI LOCAL MUNICIPALITY, KWAZULU-NATAL

TRAFFIC IMPACT ASSMENT

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SHOPPING CENTRE DEVELOPMENT ERF 6018 VRYHEID, ABAQULUSI LOCAL MUNICIPALITY, KWAZULU-NATAL

TRAFFIC IMPACT ASSESSMENT

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1 PROJECT OVERVIEW

1.1 INTRODUCTION

Designed Engineering Solutions (Pty) Ltd (DES) was appointed by **Princess Mkabayi City (Pty) Ltd** to conduct a Traffic Impact Assessment (TIA) in support of the proposed development of Erf 6018 Vryheid, AbaQulusi Local Municipality.

The TIA was prepared in accordance with the requirements of the South African Traffic Impact and Site Traffic Assessment Manual (COTO, 2012), as well as other relevant guidelines.

1.2 OBJECTIVES

The objective of this TIA is to illustrate the proposed Shopping Centre development's impact on the surrounding road and transport infrastructure, to discuss the proposed access positions and configurations, as well as to identify possible mitigation measures if required.

1.3 SCOPE OF WORK

The scope of the TIA study considers inter alia the following aspects:

- Development particulars;
- Transport elements / aspects within study area;
- Site accesses;
- External roads;
- Public transportation;
- Non-motorised transport facilities;
- Traffic demand estimation;
- Traffic impact assessment; and
- Proposed improvements.

2 DEVELOPMENT PARTICULARS

2.1 LOCALITY

The proposed Shopping Centre development is located on Erf 6018 Vryheid. The development site is in AbaQulusi Local Municipality, Zululand District Municipality, KwaZulu-Natal Province.

A locality of the development site is shown on the following figures:

- Figure 2-1: Municipal Map;
- Figure 2-2: Aerial View; and
- Figure 2-3: GIS Map.

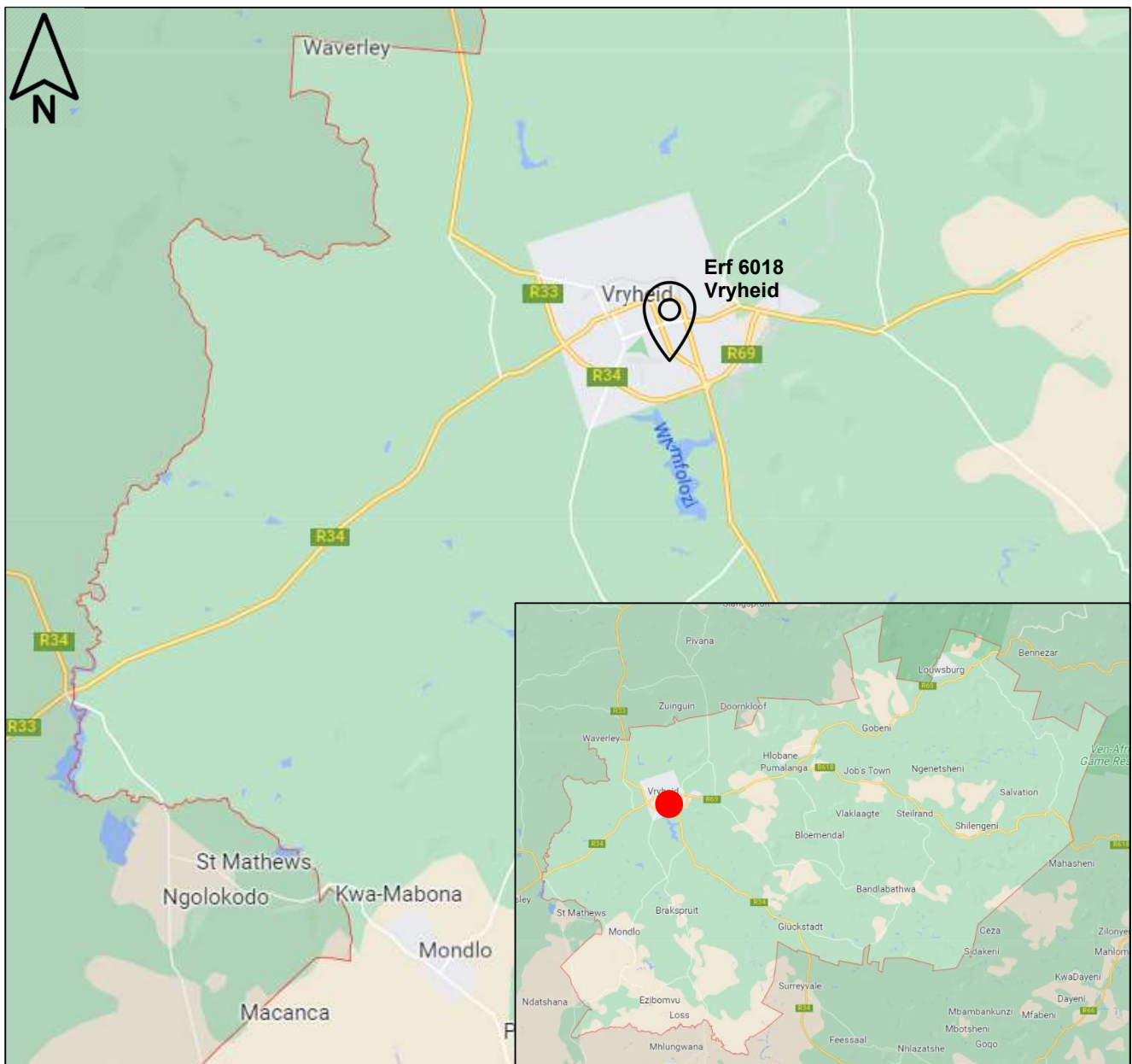


Figure 2-1: Municipal Map, AbaQulusi Local Municipality

Source: Google Maps, 2022



Figure 2-2: Aerial View, Site

Source: Google Earth, 2022

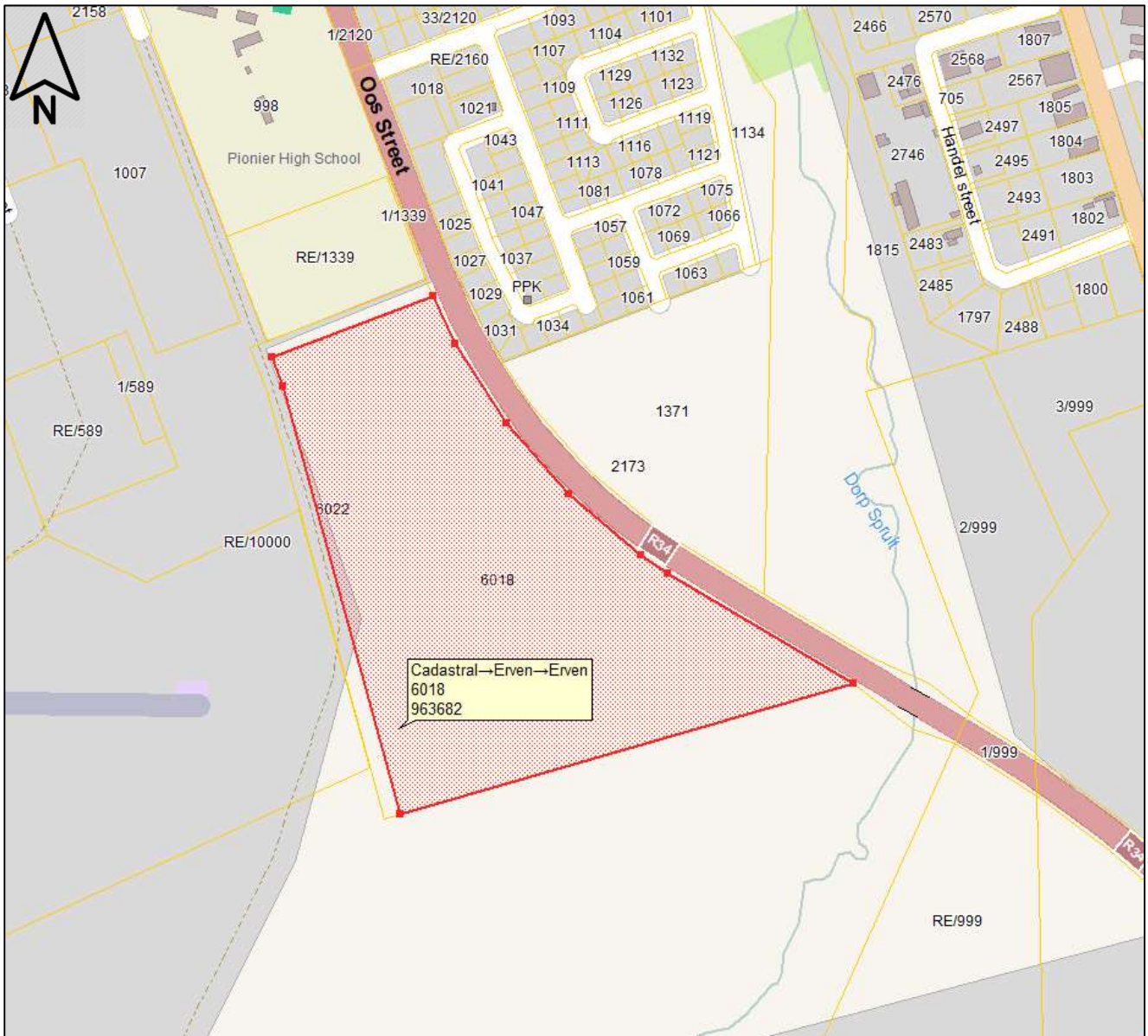


Figure 2-3: GIS Map, Site

Source: PlanetGIS Explorer 5.2, 2020

2.2 PROPERTY DESCRIPTION

The property description is indicated in **Table 2-1**. The S.G. Diagram is included in **Appendix A**.

Table 2-1: Property Description

Erf numbers and township / farm names	Erf 6018 Vryheid
Site Area	231 104.12 m ²

2.3 LAND-USE RIGHTS

This TIA will only address the shopping centre land use and no other land use will be discussed in the TIA.

The schedule of rights is indicated in **Table 2-2**. The Zoning Certificate and Site Development Plan (SDP) is included in **Appendix B** and **Appendix C**, respectively.

Table 2-2: Schedule of Rights

Zoning	Special Zone 2 (Erf 6018 Vryheid Regional Mall)
Building Lines	Street front Space: 15 m Side and Rear Space: 2m
Height	1 Storey
Coverage	45%
FAR	0.60
GLA	30 521 m ²
Parking	1030 parking bays, plus 30 taxi bays

3 STUDY AREA

3.1 SITE ACCESS

The access is as prepared in accordance with the requirements of the South African Road Classification and Access Management Manual (COTO, 2012). The accesses to the proposed shopping centre will be gained off Oos Street (R34), as well as off the Unnamed Road to the northern side of the development site. The accesses will be used as follows:

- Access off Oos Street (R34): Access to the centre, except for deliveries.
- Access off the Unnamed Road: Access for deliveries only.

3.2 EXTERNAL ROADS

The surrounding road network is classified as follows:

- **Class 2:** Oos Street (R34) and R69.
- **Class 3:** Stretch Crescent.
- **Class 4:** Main Street and Suid Street.

3.3 INTERSECTIONS

The following key intersections are under consideration for this study (see **Figure 3-1**):

- i. Oos Street (R34) and Suid Street;
- ii. Oos Street (R34) and Unnamed Road;
- iii. Oos Street (R34) and Stretch Crescent/ Main Street; and
- iv. Oos Street (R34) and R69.



Figure 3-1: Traffic Count Intersections

4 TRAFFIC DEMAND ESTIMATION

Where elements of the transportation system within the study area have been identified that may be affected by traffic demand and may not meet capacity requirements, including environmental capacity requirements for residential and other sensitive areas, as specified in the Traffic Assessment Standards and Requirements Manual (COTO, 2012), traffic demand must be estimated for such elements.

The South African Traffic Impact and Site Traffic Assessment Manual (COTO, 2012) stipulates that where a development generates more than 50 trips in the peak hour, the base year and 5 years after the base year should be analysed.

4.1 EXISTING TRAFFIC VOLUMES (2022)

Traffic count surveys were conducted on Tuesday, 17 May 2022 from 06h00 to 18h00. The peak hours based on the traffic counts are as follows:

- AM Peak: 06h30 – 07h30
- FRI PM Peak: 13h45 – 14h45
- SAT Peak: 12h00 – 13h00

The existing 2022 weekday AM, FRI PM and SAT peak hour traffic volumes are shown in **Appendix D-1**.

4.2 PROJECTED FUTURE TRAFFIC VOLUMES (2027)

It was assumed that the existing background traffic volumes would increase at a rate of 3% annual growth rate over the next 5 years to the future 2027 horizon year.

The 2027 horizon weekday AM, FRI PM and SAT peak hour traffic volumes are shown in **Appendix D-2**.

4.3 DEVELOPMENT TRIP GENERATION (SHOPPING CENTRE, LAND-USE 820)

Facilities that sell take-away food. Table services are not normally provided, but limited facilities are sometimes available. Include drive-through facilities. The weekday AM, Friday PM peak and Saturday peak hour trip generations are shown in **Tables 4-1 to 4-3**.

Trip generation rates (TGR) for “shopping centre” were used for calculating the number of trips for the proposed development, weekday AM, FRI PM and SAT peak hours. The trip generation rates are as follows:

$$\text{Size adjustment factor} = 1 + \frac{A}{1 + \frac{\text{sqm Size}}{B}}$$

A = 6.0; B = 3 500

$$\text{Size adjustment factor} = 1 + \frac{6.0}{1 + \frac{30\,521}{3\,500}}$$

$$\text{Size adjustment factor} = \underline{1.617}$$

AM Peak

- $TGR_{AM} = 0.60 / 100 \text{ m}^2 \text{ GLA}$
- Directional split is 65:35 (In:Out)

FRI PM Peak

- $TGR_{PM} = 3.40 / 100 \text{ m}^2 \text{ GLA}$
- Directional split is 50:50 (In:Out)

SAT Peak

- $TGR = 4.50 / 100 \text{ m}^2 \text{ GLA}$
- Directional split is 50:50 (In:Out)

Table 4-1: Weekday AM Peak Hour Trip Generation

LAND USE	GLA (m ²)	TRIP GENERATION RATE	SIZE ADJUSTMENT FACTOR	ADJUSTED TRIP GENERATION RATE	DIRECTIONAL SPLIT		PEAK HOUR TRIPS		TOTAL TRIPS	
					IN	OUT	IN	OUT		
Shopping Centre	820	30 521	0.60/ 100 m ² GLA	1.617	0.97/ 100 m ² GLA	65%	35%	193	104	296
Total								193	104	296

Table 4-2: FRI PM Peak Hour Trip Generation

LAND USE	GLA (m ²)	TRIP GENERATION RATE	SIZE ADJUSTMENT FACTOR	ADJUSTED TRIP GENERATION RATE	DIRECTIONAL SPLIT		PEAK HOUR TRIPS		TOTAL TRIPS	
					IN	OUT	IN	OUT		
Shopping Centre	820	30 521	3.40/ 100 m ² GLA	1.617	5.50/ 100 m ² GLA	50%	50%	839	839	1 678
Total								839	839	1 678

Table 4-3: SAT Peak Hour Trip Generation

LAND USE	GLA (m ²)	TRIP GENERATION RATE	SIZE ADJUSTMENT FACTOR	ADJUSTED TRIP GENERATION RATE	DIRECTIONAL SPLIT		PEAK HOUR TRIPS		TOTAL TRIPS	
					IN	OUT	IN	OUT		
Shopping Centre	820	30 521	4.50/ 100 m ² GLA	1.617	7.28/ 100 m ² GLA	50%	50%	1 111	1 111	2 221
Total								1 111	1 111	2 221

4.4 TRIP DISTRIBUTION AND ASSIGNMENT

The expected trip distribution for the development site was based on the accessibility to the development site, and the existing traffic volumes and patterns.

The trip distributions and assignments for the proposed development is shown in **Appendix D-3**.

4.5 DEVELOPMENT TRIPS: SHOPPING CENTRE

The development trips on the adjacent network were obtained by multiplying the estimated/calculated shopping centre trips by the trip distribution/assignment. The weekday AM, FRI PM and SAT peak hour trips for the shopping centre and creche are shown in **Appendix D-4**.

4.6 TOTAL TRAFFIC VOLUMES (2027 BACKGROUND TRAFFIC + TOTAL DEVELOPMENT TRIPS)

The development trips were added to the 2027 projected future peak hour traffic to obtain the 2027 total future (design) traffic volumes. The weekday AM, FRI PM and SAT peak hour total future (design) traffic volumes are shown in **Appendix B-5**.

5 TRAFFIC IMPACT ASSESSMENT (CAPACITY ANALYSIS)

The following key intersections and accesses were analysed using Sidra Intersection 8 and AutoJ:

- i. Oos Street (R34) and Suid Street;
- ii. Oos Street (R34) and Unnamed Road;
- iii. Oos Street (R34) and Stretch Crescent/ Main Street;
- iv. Oos Street (R34) and R69.
- v. Access off Oos Street (R34); and

The following scenarios were analysed for the key intersections:

- 2022 existing traffic volumes (as per **Appendix D-1**);
- 2027 projected future traffic volumes (as per **Appendix D-2**); and
- 2027 projected future traffic volumes + development trips (as per **Appendix D-5**).

5.1 OOS STREET (R34) AND SUID STREET

The performance summary of the intersection is shown in **Table 5-1**. The schematic layout of the existing and proposed intersection is indicated on **Figure 5-1** and **5-2**, respectively.

The improvement proposed from the 2022 background traffic scenario indicated on **Figure 5-2**, to be carried out by **the Council** includes the following:

- Signalization of the intersection.

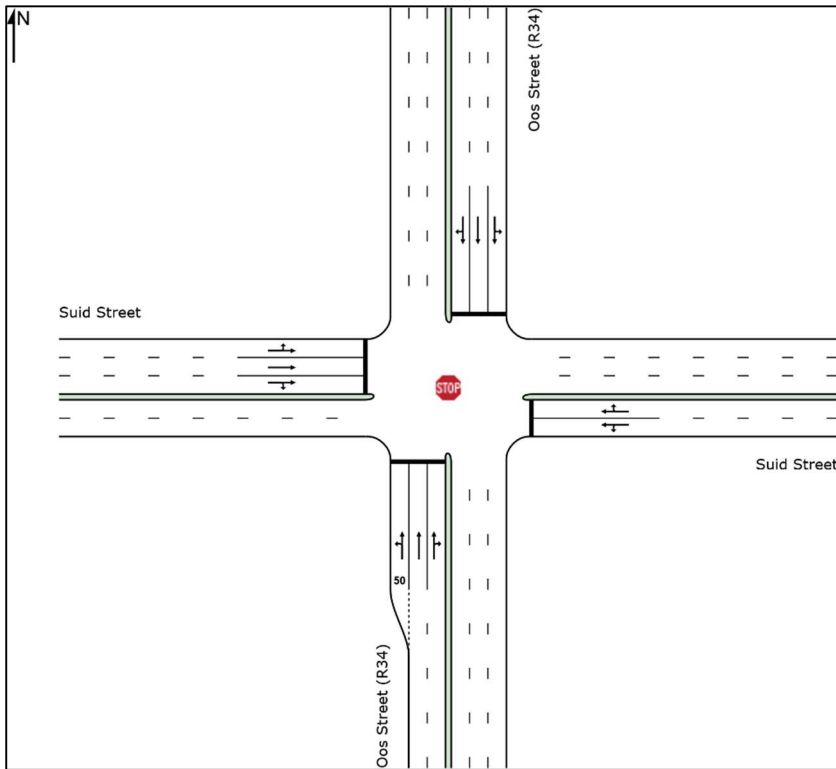


Figure 5-1: Oos Street (R34) and Suid Street - Existing Layout

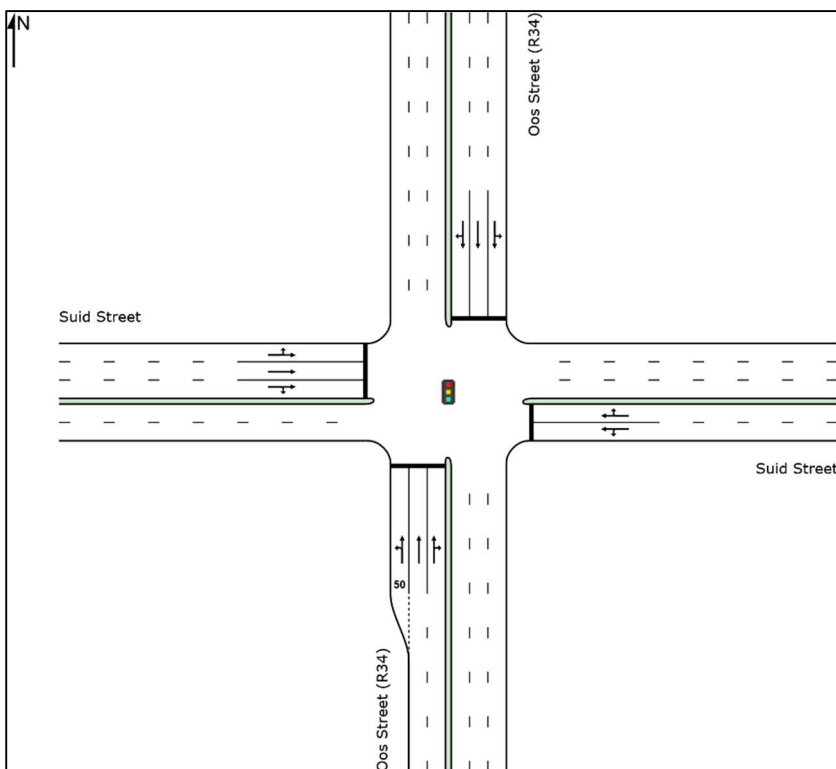


Figure 5-2: Oos Street (R34) and Suid Street - Proposed Layout (2022)

Table 5-1: Performance summary of Oos Street (R34) and Suid Street

SCENARIO	PEAK	V/C	AVERAGE DELAY (SEC.)	LOS	COMMENTS
2022 Existing Background Traffic (Fig. 5-1)	AM	0.649	28.5	D	The east approach is over capacity in all the peak hours.
	FRI PM	0.783	32.1	D	
	SAT	0.652	25.9	D	
2022 Existing Background Traffic (Fig. 5-2)	AM	0.316	15.5	B	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.290	14.6	B	
	SAT	0.189	14.1	B	
2027 Horizon Background Traffic (Fig. 5-2)	AM	0.376	15.8	B	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.305	14.8	B	
	SAT	0.189	14.1	B	
2027 Background Traffic + Dev. Trips (Fig. 5-2)	AM	0.483	16.4	B	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.848	19.0	B	
	SAT	0.892	20.7	C	

Based on the results above, the proposed signalization of the intersection is adequate for the proposed development. Therefore, good operations can be expected. Detailed capacity analysis results are shown in **Appendix E-1**.

5.2 OOS STREET (R34) AND UNNAMED ROAD

The performance summary of the intersection is shown in **Table 5-2**. The schematic layout of the existing intersection is indicated on **Figure 5-3**.

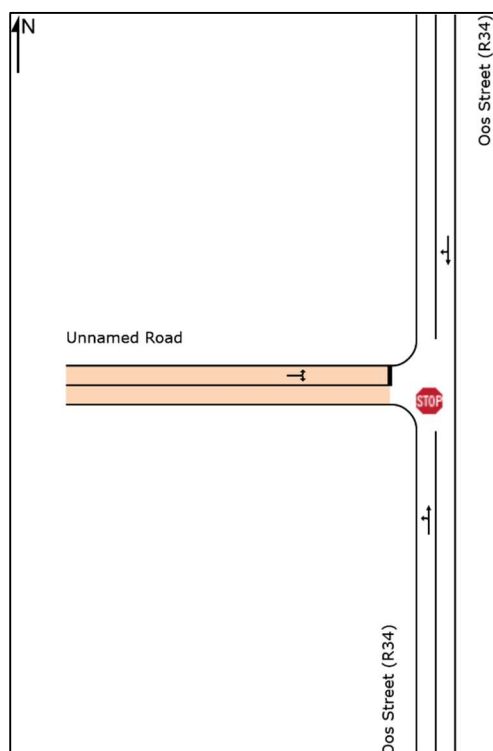
**Figure 5-3: Oos Street (R34) and Unnamed Road - Existing Layout**

Table 5-2: Performance summary of Oos Street (R34) and Unnamed Road

SCENARIO	PEAK	V/C	AVERAGE DELAY (SEC.)	LOS	COMMENTS
2027 Background Traffic + Dev. Trips (Fig. 5-3)	AM	0.284	0.1	N/A*	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.508	0.1	N/A*	
	SAT	0.551	0.1	N/A*	
* Note: 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.					

Based on the results above, the existing intersection geometry is adequate for the proposed development. Therefore, good operations can be expected. Detailed capacity analysis results are shown in **Appendix E-2**.

5.3 OOS STREET (R34) AND STRETCH CRESCENT/ MAIN STREET

The performance summary of the intersection is shown in **Table 5-3**. The schematic layout of the existing and proposed intersection is indicated on **Figure 5-4** and **5-5**, respectively.

The improvement proposed from the 2027 background traffic scenario indicated on **Figure 5-5**, to be carried out by **the Council** includes the following:

- Signalization of the intersection.

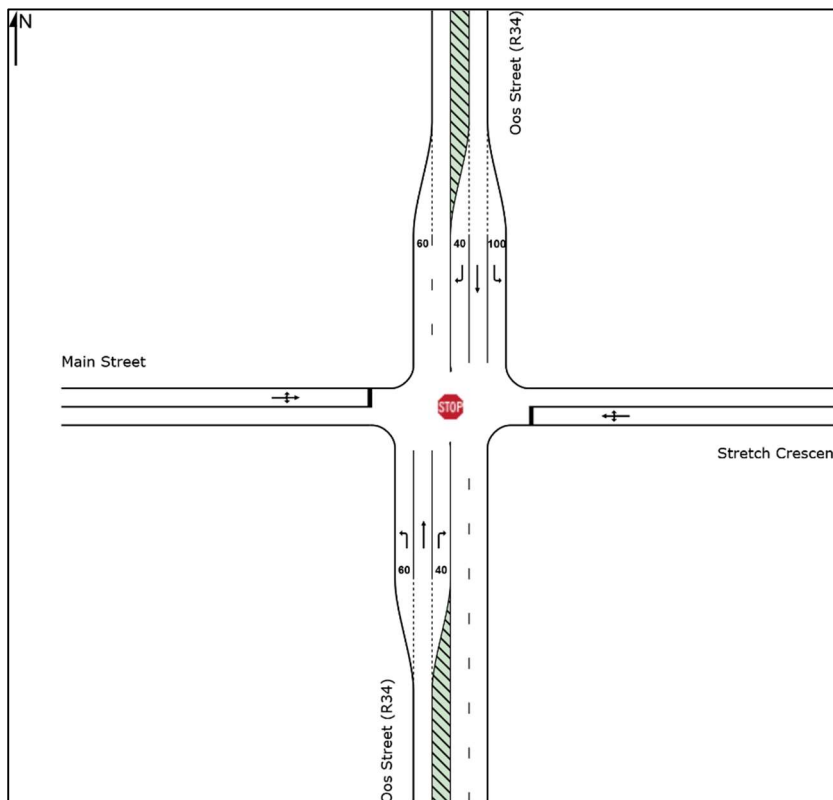


Figure 5-4: Oos Street (R34) and Stretch Crescent/ Main Street - Existing Layout

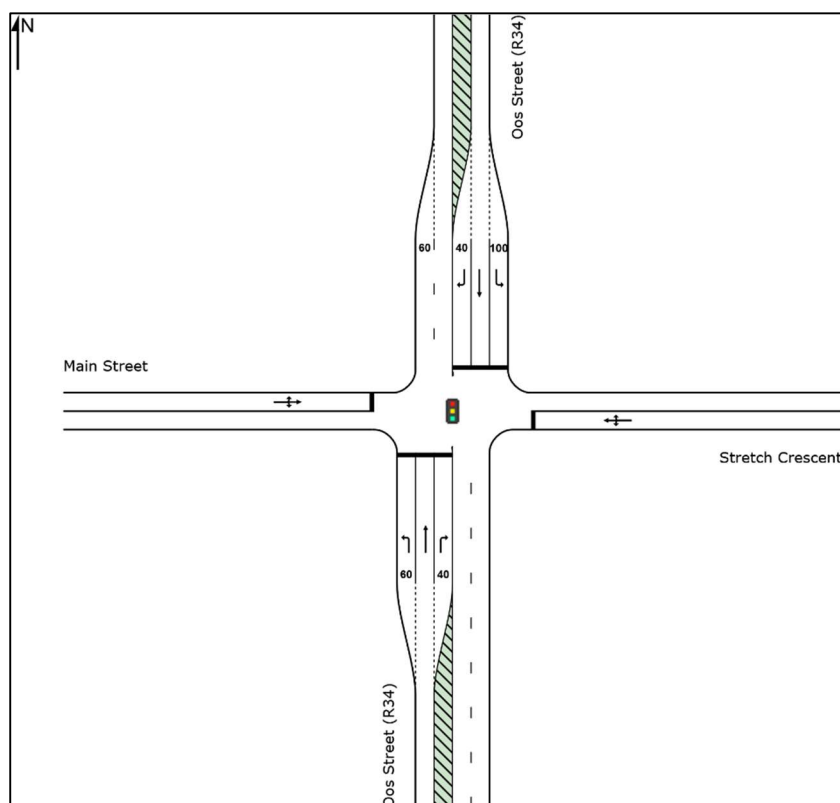


Figure 5-5: Oos Street (R34) and Stretch Crescent/ Main Street - Proposed Layout (2027)

Table 5-3: Performance summary of Oos Street (R34) and Stretch Crescent/ Main Street

SCENARIO	PEAK	V/C	AVERAGE DELAY (SEC.)	LOS	COMMENTS
2022 Existing Background Traffic (Fig. 5-4)	AM	0.522	9.6	N/A*	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.183	3.6	N/A*	
	SAT	0.206	4.7	N/A*	
2027 Horizon Background Traffic (Fig. 5-4)	AM	0.728	14.0	N/A*	The east and west approaches are over capacity in the AM peak hour.
	FRI PM	0.246	3.9	N/A*	
	SAT	0.269	5.1	N/A*	
2027 Horizon Background Traffic (Fig. 5-5)	AM	0.382	17.0	B	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.399	15.6	B	
	SAT	0.289	15.6	B	
2027 Background Traffic + Dev. Trips (Fig. 5-5)	AM	0.425	17.6	B	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.588	18.2	B	
	SAT	0.659	19.1	B	
* Note: 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.					

Based on the results above, the proposed signalization of the intersection is adequate for the proposed development. Therefore, good operations can be expected. Detailed capacity analysis results are shown in **Appendix E-3**.

5.4 OOS STREET (R34) AND R69

The performance summary of the intersection is shown in **Table 5-4**. The schematic layout of the existing intersection is indicated on **Figure 5-6**.

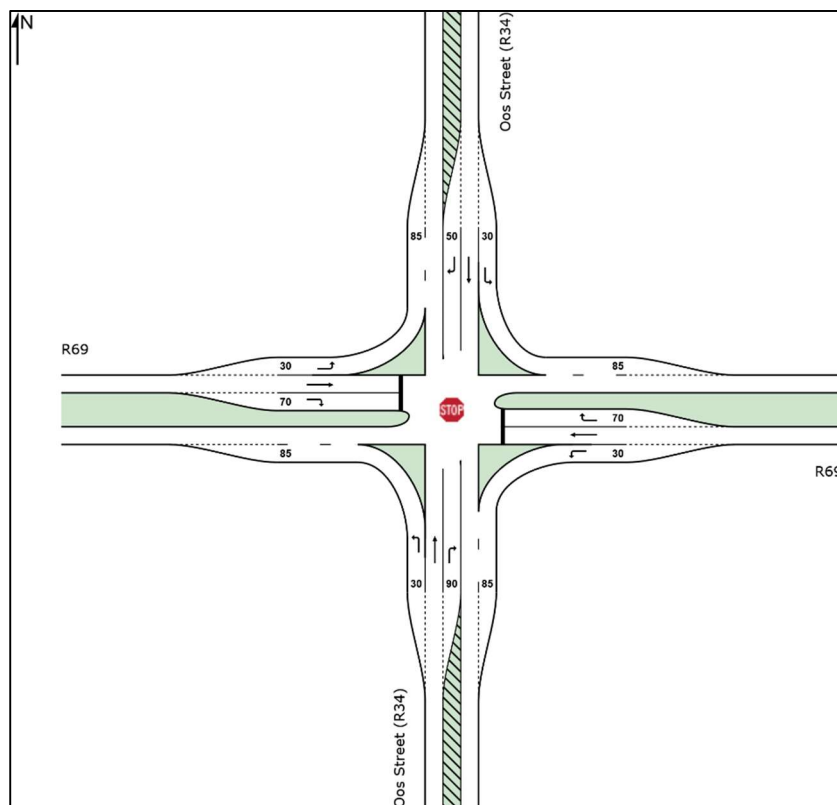


Figure 5-6: Oos Street (R34) and R69 - Existing Layout

Table 5-4: Performance summary of Oos Street (R34) and R69

SCENARIO	PEAK	V/C	AVERAGE DELAY (SEC.)	LOS	COMMENTS
2022 Existing Background Traffic (Fig. 5-6)	AM	0.161	3.9	N/A*	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.234	4.0	N/A*	
	SAT	0.120	2.8	N/A*	
2027 Horizon Background Traffic (Fig. 5-6)	AM	0.187	4.3	N/A*	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.341	4.8	N/A*	
	SAT	0.139	2.9	N/A*	
2027 Background Traffic + Dev. Trips (Fig. 5-5)	AM	0.193	4.7	N/A*	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.380	6.0	N/A*	
	SAT	0.244	4.6	N/A*	
* Note: 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.					

Based on the results above, the existing intersection geometry is adequate for the proposed development. Therefore, good operations can be expected. Detailed capacity analysis results are shown in **Appendix E-4**.

5.5 ACCESS OFF OOS STREET (R34)

The performance summary of the intersection is shown in **Table 5-5**. The schematic layout of the proposed access is indicated on **Figure 5-7**.

The improvement proposed for the development indicated on **Figure 5-7**, to be carried out by **the Developer** includes the following:

- Double-lane roundabout.

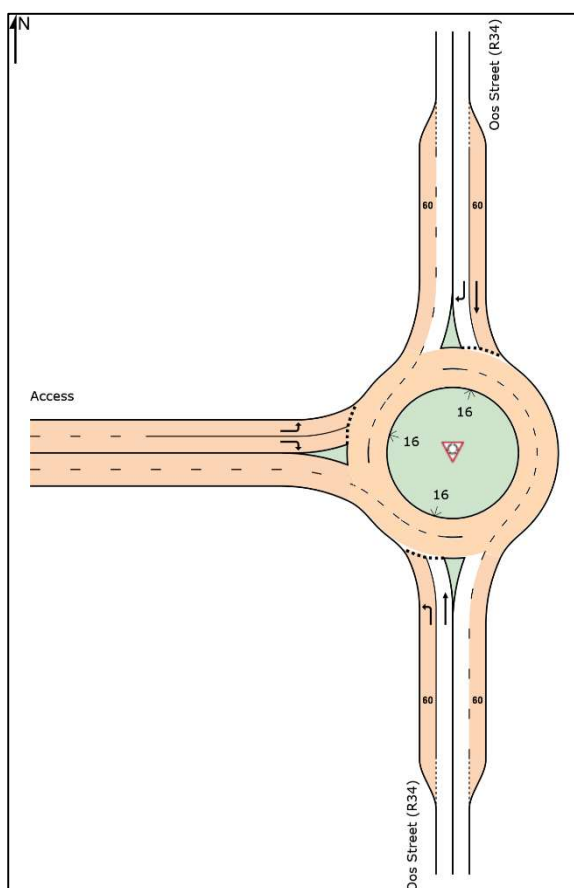


Figure 5-7: Access off Oos Street (R34) - Proposed Layout

Table 5-5: Performance summary of Access off Oos Street (R34)

SCENARIO	PEAK	V/C	AVERAGE DELAY (SEC.)	LOS	COMMENTS
2027 Background Traffic + Dev. Trips (Fig. 5-7)	AM	0.358	5.9	A	The AM, FRI PM and SAT peak hour performance of the intersection is satisfactory.
	FRI PM	0.551	9.1	A	
	SAT	0.815	13.7	B	

Based on the results above, the proposed access geometry is adequate for the proposed development. Therefore, good operations can be expected. Detailed capacity analysis results are shown in **Appendix E-5**.

It should be mentioned that if the Developer is unable to obtain this access point to the proposed Shopping Centre Development, the development will be considered non-feasible. The access point to the Shopping Centre is the most critical part to the development. Easy access ensures success of the proposed development.

6 PARKING REQUIREMENTS

6.1 ON-SITE PARKING REQUIREMENTS

Any person intending to erect, alter or extend a building or develop or use any erf, shall provide loading and parking accommodation within the boundaries of the erf and shall submit proposals thereof in accordance with the following requirements and the satisfaction of the Municipality. The minimum parking requirement for the proposed development is listed in **Table 6-1**.

Based on City of Johannesburg Land Use Scheme, 2018, retail shopping centres in excess of 5 000 m² floor area shall provide public transport facilities to the satisfaction of the Council.

For the purposes of calculating the number of parking that can be provided, should taxi bays be provided on-site, one (1) taxi bay shall be equivalent to eight (8) parking bays.

Table 6-1: On-site Parking Requirements

LAND USE		FLOOR AREA (m ²)	PARKING RATE	MINIMUM PARKING BAYS
Shopping Centre	Shops	30 521	1 bay per 20 m ² Gross Shop Area	1 526

6.2 PARKING PROVIDED

The parking provided on-site, as per the SDP included in **Appendix C**, is listed in **Table 6-2**. The development site provides a taxi facility on-site with 18 taxi bays.

— The taxi bays are equivalent to 30 taxi bays × 8 parking bays = 240 parking bays

Table 6-2: Parking Provided On-site

LAND USE		FLOOR AREA (m ²)	PARKING BAYS PROVIDED	
Shopping Centre	Shops	30 521	Bays	1030
			Taxi facility	240
			Total	1 270

The development site provides 1 204 parking bays, which are 453 parking bays (27%) short based on the parking requirement of 1 657 parking bays. The parking bays provided do not meet the minimum parking requirements, therefore, a relaxation in parking requirements is proposed.

A parking relaxation is proposed and discussed in the section to follow.

6.3 PARKING RELAXATION ASSESSMENT

The Municipality may relax, modify or waive the parking requirements if it is satisfied that:

- 1) By reason of limited vehicular access or the frontage, depth, area or shape of the erf or any existing development thereon, compliance with such provisions would render the site incapable of development or use for the purposes for which it is zoned in terms of this scheme; or
- 2) By reason of the situation of the site, such requirements are considered for any reason to be unnecessary or excessive; and

- 3) Such modification or waiver would not create insufficient public parking space in the area where it is granted.

The Municipality may call for the provision of a traffic engineers report to support any relaxations applied for.

6.3.1 FACTORS CONSIDERED FOR A RELAXATION IN PARKING REQUIREMENTS

A relaxation in parking requirements is motivated based on the following relevant factors:

- Accessibility of the property for private or public transport; and
- The provision of a formal taxi rank.

6.3.1.1 Accessibility of the Property for Private or Public Transport

Based on the traffic count surveys conducted Friday 29 July 2022 and Saturday 30 July 2022, Oos Street (R34), which lies directly east of the development site is a transit corridor for mini-bus taxis. The proposed shopping centre will have sufficient public transport to travel to and from the centre.

6.3.1.2 The Provision of a Formal Taxi Rank

The proposed shopping centre provides a taxi facility within the site. The taxi facility is located to the eastern side on the site, adjacent to the access off Oos Street (R34), which will be convenient for travelling to and from the centre.

6.4 PROPOSED PARKING RATE

Based on the availability public transport in the study area and the formal tax facility proposed within the centre an adjustment factor of 20% for 'transit nodes/ corridors' is applied to the standard parking rate of 1 bay per 20 m² Gross Shop Area. The proposed parking rate is calculated in **Table 6-3**.

Table 6-3: Proposed Parking Rate

LAND USE	GLA (m ²)	STANDARD PARKING RATE	ADJUSTMENT FACTOR		ADJUSTED PARKING RATE	REQUIRED PARKING BAYS	PARKING BAYS PROVIDED	
			Transit Nodes or Corridors	f				
Shopping Centre	820	30 521	1 bay/ 20 m ²	20%	0.80	0.80/ 20 m ²	1 221	1 270

Based on a relaxed/adjusted parking rate of **0.80 bay per 20 m² Gross Shop Area**, 1 221 parking bays are required. The development site provides 1 270 parking bays, which are 49 parking bays more that the required parking bay. The parking bays provided meet the required parking bays based on the adjusted parking rate. Therefore, the parking bays provided should be sufficient for the proposed shopping centre.

However, a further parking relaxation is requested from the AbaQulusi Local Municipality regarding the parking rate. The request is to lower the rate to **0.7 bays per 20 m²**. This is done with the sole purpose of maximising the opportunity of making the Shopping Centre profitable with the opportunity of future expansion on the current GLA.

7 LOADING REQUIREMENTS

7.1 ON-SITE LOADING REQUIREMENTS

Any person intending to erect, alter or extend a building or develop or use any erf, shall provide loading and parking accommodation within the boundaries of the erf and shall submit proposals thereof in accordance with the following requirements and the satisfaction of the Municipality. The minimum loading requirement for the proposed development is listed in **Table 7-1**.

Table 7-1: On-site Loading Requirements

LAND USE		FLOOR AREA (m ²)	LOADING RATE	MINIMUM LOADING
Shopping Centre	Shops	30 521	To the satisfaction of the Municipality	-

7.2 LOADING PROVIDED

The shopping centre provides a delivery yard on the northern and western side of the development site. The delivery area is large enough for the delivery vehicles to manoeuvre in and out of the site.

7.3 VEHICLE TRACKING

A site circulation assessment has been conducted using a 20.55-meter delivery vehicle. The design vehicle will function acceptably from a vehicle manoeuvring and site circulation perspective. The design vehicle dimensions are shown on **Figure 7-1**. The vehicle tracking assessment is included on the proposed upgrades layout in **Appendix F**.

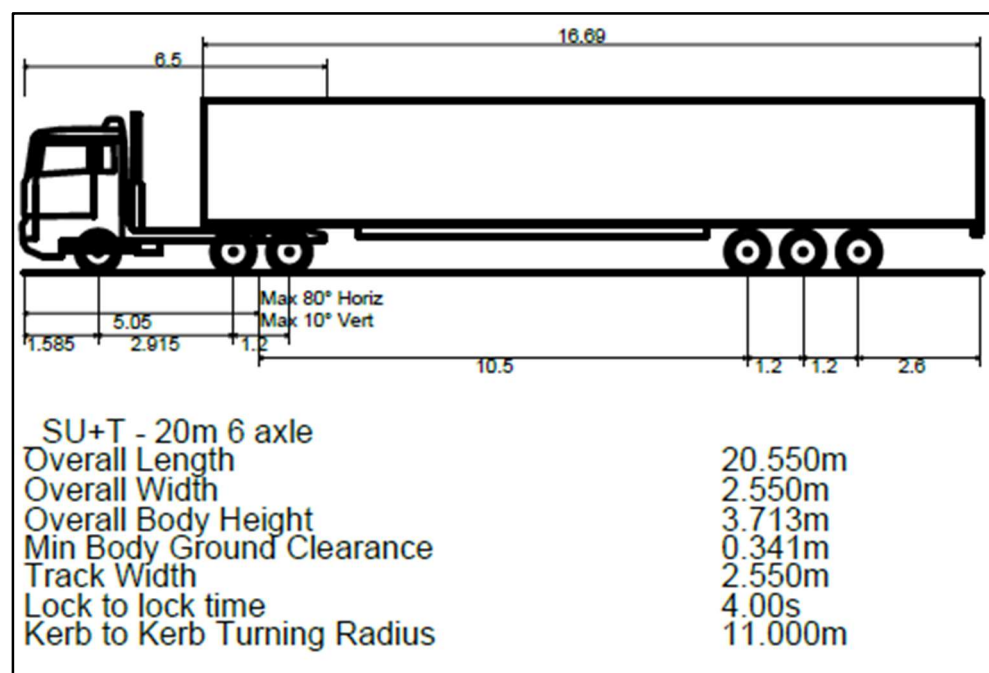


Figure 7-1: Design vehicle

8 PROPOSED IMPROVEMENTS AND RECOMMENDATIONS

The proposed upgrades layout is included in **Appendix F**. The upgrades proposed are discussed in the sub-sections to follow.

8.1 ROAD UPGRADES

8.1.1 OOS STREET (R34) AND SUID STREET

The improvement proposed from the 2022 background traffic scenario, to be carried out by **the Council** includes the following:

- Signalization of the intersection.

8.1.2 OOS STREET (R34) AND STRETCH CRESCENT/ MAIN STREET

The improvement proposed from the 2027 background traffic scenario, to be carried out by **the Council** includes the following:

- Signalization of the intersection.

8.1.3 ACCESS OFF OOS STREET (R34)

The improvement proposed for the development, to be carried out by **the Developer** includes the following:

- Double-lane roundabout.

It should be mentioned that if the Developer is unable to obtain this access point to the proposed Shopping Centre Development, the development will be considered non-feasible. The access point to the Shopping Centre is the most critical part to the development. Easy access ensures success of the proposed development.

8.1.4 THE UNNAMED GRAVEL ROAD

The improvement proposed for the shopping centre, to be carried out by **the Developer** includes the following:

- Paving of the gravel road to South African Road Classification and Access Management Manual (COTO, 2012) standards.

8.2 NON MOTORISED TRANSPORT FACILITIES

The following non-motorised transport (NMT) facility, to be carried out by **the Developer**, is recommended:

- A sidewalk is proposed along Oos Street (R34) and the Unnamed Road, on the frontage of the development site.

9 CONCLUSIONS AND RECOMMENDATIONS

Based on the contents of this document, the following key conclusions and recommendations are relevant:

1. The development site, Erf 6018 Vryheid, proposes a shopping centre with a GLA of 30 521m².
2. This TIA is only addressing the shopping centre land use.
3. The accesses to the proposed shopping centre will be gained off Oos Street (R34), as well as off the Unnamed Road to the northern side of the development site, for deliveries only.
4. The weekday AM, FRI PM and SAT peak hour trip generations for the proposed development are as follows:

LAND USE	AM PEAK			FRI PM PEAK			SAT		
	IN	OUT	TOTAL TRIPS	IN	OUT	TOTAL TRIPS	IN	OUT	TOTAL TRIPS
Shopping Centre	193	104	296	839	839	1 678	1 111	1 111	2 221

5. Capacity Analysis:
 - 5.1. Oos Street (R34) and Suid Street: the proposed signalization of the intersection is adequate for the proposed development.
 - 5.2. Oos Street (R34) and Unnamed Road: the existing intersection geometry is adequate for the proposed development.
 - 5.3. Oos Street (R34) and Stretch Crescent/ Main Street: the proposed signalization of the intersection is adequate for the proposed development.
 - 5.4. Oos Street (R34) and R69: the existing intersection geometry is adequate for the proposed development.
 - 5.5. Access off Oos Street (R34): the proposed access geometry is adequate for the proposed development.
 - 5.6. Access off Unnamed Road: the proposed access geometry is adequate for the proposed development.
6. Parking Requirements:

Based on a relaxed/adjusted parking rate of 0.80 bay per 20 m² GLA, 1 221 parking bays are required. The development site provides 1 270 parking bays, which are 49 parking bays more than the required parking bay. The parking bays provided meet the required parking bays based on the adjusted parking rate. Therefore, the parking bays provided should be sufficient for the proposed shopping centre. However, a further reduction in the parking ratio is requested down to 0.70 bay per 20m² GLA.
7. Loading Requirements:

The shopping centre provides a delivery yard on the northern and western side of the development site. The delivery area is large enough for the delivery vehicles to manoeuvre in and out of the site.

A site circulation assessment has been conducted using a 20.55-meter delivery vehicle. The design vehicle will function acceptably from a vehicle manoeuvring and site circulation perspective.
8. Proposed Upgrades:
 - 8.1. Oos Street (R34) and Suid Street

The improvement proposed from the 2022 background traffic scenario, to be carried out by **the Council** includes the following:

 - Signalization of the intersection.

8.2. Oos Street (R34) and Stretch Crescent/ Main Street

The improvement proposed from the 2027 background traffic scenario, to be carried out by **the Council** includes the following:

- Signalization of the intersection.

8.3. ACCESS OFF OOS STREET (R34)

The improvement proposed for the development, to be carried out by **the Developer** includes the following:

- Double-lane roundabout.

8.4. The Unnamed Gravel Road

The improvement proposed for the shopping centre, to be carried out by **the Developer**, includes the following:

- Paving of the gravel road to South African Road Classification and Access Management Manual (COTO, 2012) standards.

8.5. Non-Motorised Transport Facilities

The following non-motorised transport (NMT) facility, to be carried out by **the Developer**, is recommended:

- A sidewalk is proposed along Oos Street (R34) and the Unnamed Road, on the frontage of the development site.

Conclusion:

From a traffic and transportation engineering point of view, the proposed development should be supported.

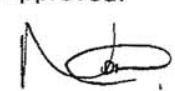
BIBLIOGRAPHY

- Committee of Transport Officials. August 2012. "TMH 16 - South African Traffic Impact and Site Traffic Assessment Manual." Version 1.0, Volume 1, Pretoria, South Africa.
- Committee of Transport Officials. February 2014. "TMH 16 - South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual." Version 1.01, Volume 2, Pretoria, South Africa.
- Committee of Transport Officials. September 2013. "TMH 17 - South African Trip Data Manual." Version 1.01, Pretoria, South Africa.
- Committee of Transport Officials. August 2012. "TRH 26 - South African Road Classification and Access Management Manual." Version 1.0, Pretoria, South Africa.
- Akcelik & Associates Pty Ltd. 2018. "SIDRA Intersection 8.0." Version 8.0.7.7948 Victoria, Australia.

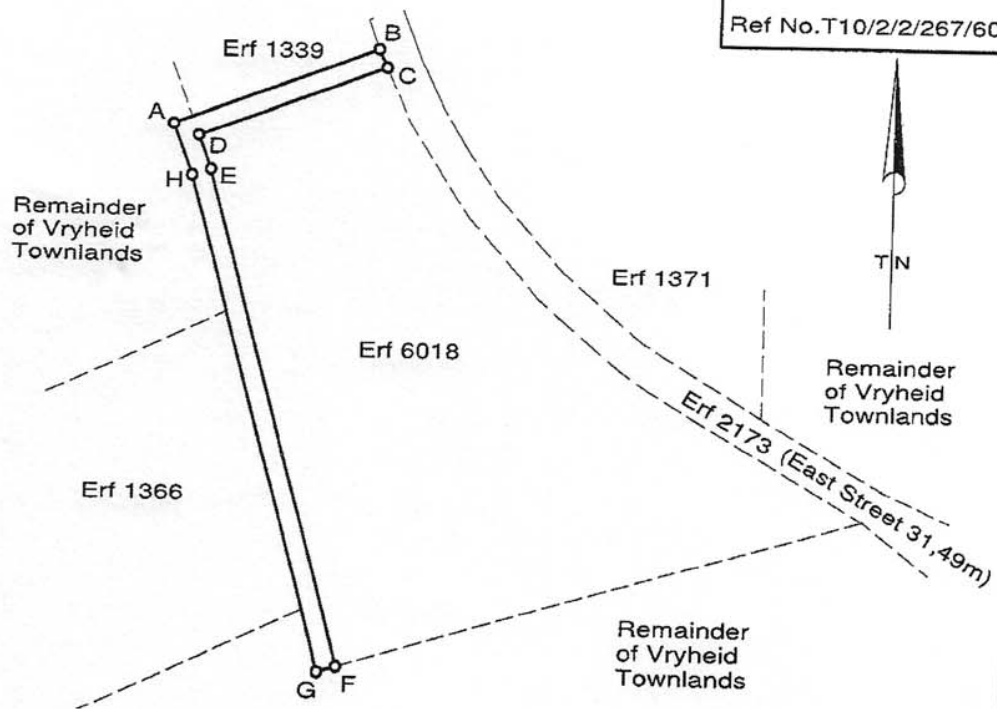
APPENDIX A

S.G. DIAGRAM

SUBDIVISIONAL DIAGRAM

SIDES Metres	DIRECTIONS	CO-ORDINATES System WG31°		S.G. No. 236/2017
		Y	X	
	Constants		+/- 0.00 + 3000000.00	Approved:  for Surveyor-General: 05 APR 2017
AB	244.79	249 07 00	A + 19 497.14 + 74 371.27	
BC	22.10	335 16 50	B + 19 268.42 + 74 284.03	
CD	224.24	69 07 00	C + 19 259.18 + 74 304.10	
DE	40.68	339 08 40	D + 19 468.69 + 74 384.02	
EF	577.18	344 33 20	E + 19 454.21 + 74 422.03	
FG	22.04	73 44 40	F + 19 300.51 + 74 978.37	
GH	576.45	164 33 20	G + 19 321.67 + 74 984.54	
HA	61.68	159 08 00	H + 19 475.17 + 74 428.90	
	(2730/M7)	137M7	⊕ + 19 715.91 + 73 768.38	
	(2730/M7)	138M7	⊕ + 19 945.99 + 73 856.05	

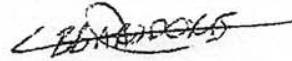
DESCRIPTION OF BEACONS:
 A C D E F G H - 12mm Iron Peg
 B - 20mm Iron Peg Near Concrete Marker



Scale 1:7 500

The figure **A B C D E F G H**
 Represents **1,9009 Hectares** of land being
Erf 6022 VRYHEID

Situate in the Abaqulusi Municipality, Registration Division HT
 Province of Kwazulu-Natal



Surveyed in February 2016
 By me

B.M. BARSDORF Professional Land Surveyor
 Registration Number PLS1119

This diagram relates to
 No. **18 39202**
 Registrar of Deeds
2018-11-30

The original Diagram is
 S.V. 171/2a
 Grant No.
 6711 Plan B24

File: /94 VOL 4
 S.R.No. 62/2017
 Comp. HTSP-33

APPENDIX B

ZONING CERTIFICATE

Table 4.27: AbaQulusi Urban Scheme Clauses: Special Zone 2 Zone Controls

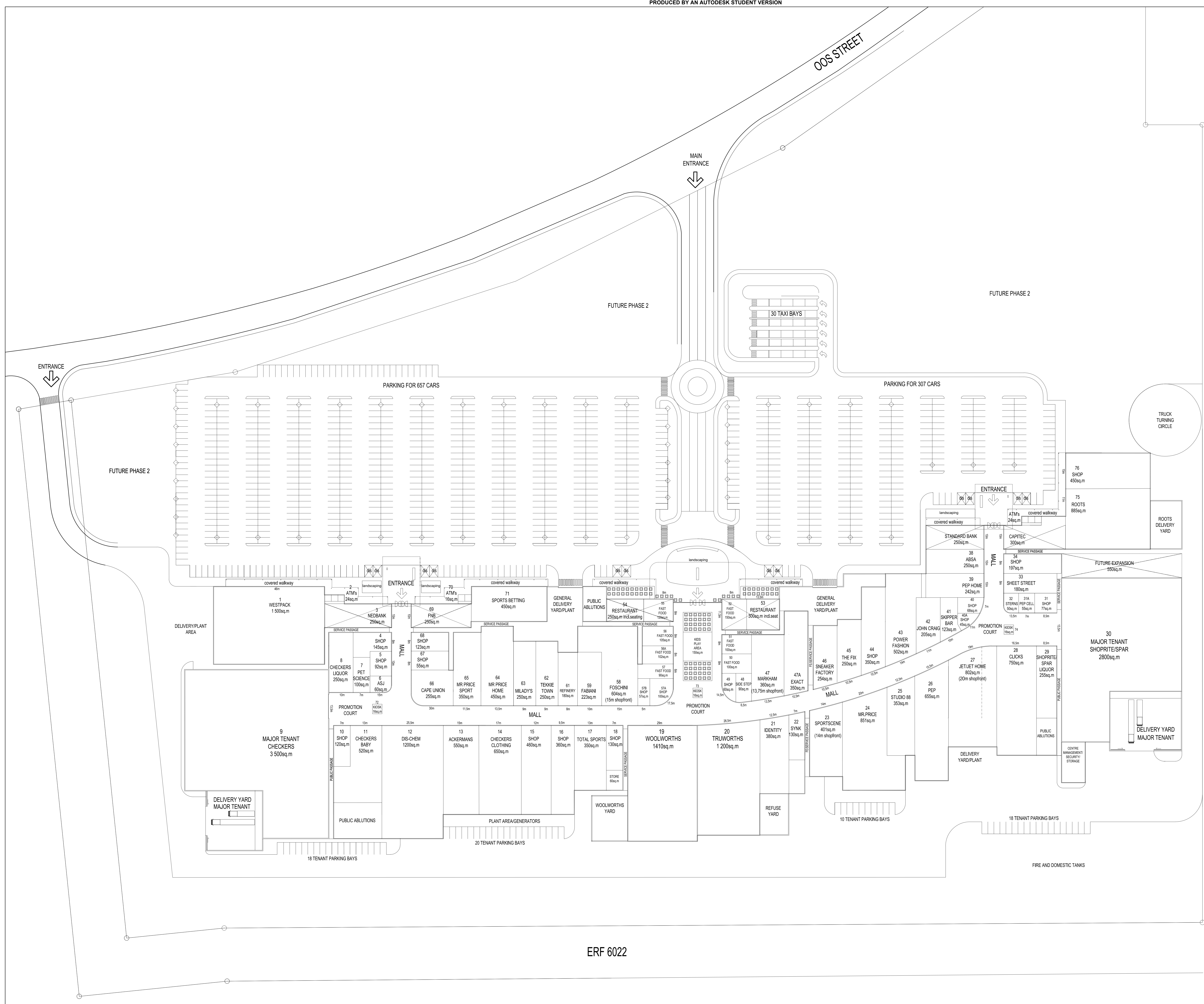
ZONE: SPECIAL ZONE 2 (Erf 6018 Vryheid Regional Mall)						
STATEMENT OF INTENT: This zone is intended for development as a Regional Mall with a special theme				MAP COLOUR REFERENCE: <div style="border: 2px solid black; padding: 5px; display: inline-block; margin: 5px;">SZ2</div>		
PRIMARY USES		CONSENT USES	PROHIBITED USES			
5 ATM 6 Betting Depot 22 Launderette 26 Motor Vehicle Showroom 27 Motor Workshop 29 Office Building 30 Parking Garage 31 Petrol Filling Station 36 Public Office 40 Restaurant 46 Shop 49 Transportation Terminal		16 Funeral Parlour 17 Garden Nursery 32 Place of Instruction 33 Place of Public Amusement 34 Place of Public Assembly 35 Private Recreation Area 37 Recreational Building 38 Recycling Centre 48 Tavern	1 Abattoir 2 Agricultural Industry 3 Agricultural Use 4 Animal Care Centre 7 Boarding House 8 Brick Making 9 Builders Yard 10 Chalet Development 11 Commercial Workshop 12 Crematorium 13 Day Care Centre 14 Dwelling House 15 Extractive Industrial Use 18 General Industrial Building 19 Home Business 20 Hospitality Facility 21 Institution	23 Light Industrial Building 24 Medium Density Housing 25 Mortuary 28 Nature and Resource Conservation 39 Residential Building 41 Restricted Building 42 Retirement Centre 43 Scrap-Yard 44 Service Industrial Building 45 Service Workshop 47 Special Industrial Building 50 Tuck Shop 51 Warehouse Any other use not stipulated under primary use or consent use		
ADDITIONAL CONTROLS						
1. The Erf shall not be further subdivided except with the Consent of the Municipality. 2. Accommodation for motor vehicles to be provided in terms of a site development plan for the entire property and is to be to the satisfaction of the Municipality. 3. No building, boundary wall and fences shall be erected between the building line and the street boundary. The area between such building line and street boundary is to be landscaped to the satisfaction of the municipality and may not be used for storage of goods, parking of motor vehicles, depositing of refuse or any other use which, in the opinion of the Municipality will detract from the visual amenities of the area. 4. Development shall be in terms of a site development plan, which shall have a central theme to it whereby all buildings resemble each other making a harmonious development. 5. Subject to the provision of servicing, traffic and pedestrian control measures to the satisfaction of the Municipality. 6. Reference should be made to the Controls for Petrol Filling Stations set in Clause 7.3						
DEVELOPMENT PARAMETERS						
BUILDING LINES		DWELLING UNITS PER HECTARE	MINIMUM ERF AREA	HEIGHT IN STOREYS	COVERAGE	FLOOR AREA RATIO
STREET FRONT SPACE	SIDE AND REAR SPACE					
15m	2m	N/A	N/A	1	45%	0.60

APPENDIX C

SITE DEVELOPMENT PLAN (SDP)

- NOTES:
- The design on this drawing is copyright and remains the property of Margoles Dukes & Smith Architects.
 - All work to be carried out in strict accordance with local authority requirements, National Building Regulations, and the S.A.B.S standards.
 - This drawing may not be scaled. Only figured dimensions and levels may be used.
 - All relevant details, levels, dimensions must be checked on site before commencement of work. Any discrepancies to be reported to the Architects office immediately.

Rev. Iss. Date Description of Revision
02 XXX 0000000 1



SHOPPING MALL GLA

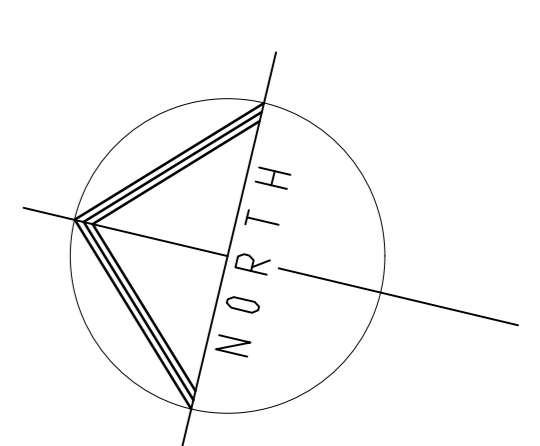
CHECKERS = 3 500sq.m
 SHOPRITE = 2 900sq.m
 TRUWORTHS = 1 400q.m
 FAST FOOD/RESTAURANTS = 1 200q.m
 CLICKS = 750sq.m
 DIS-CHEM = 1 200sq.m
 BANKS = 1 280sq.m
 8 x ATM's = 64sq.m
 LINE SHOPS = 15 575sq.m
 STRIP CENTRE GLA = 1 335sq.m
 2 x FAST FOOD DRIVE-THRU'S = 500sq.m

TOTAL RETAIL GLA = 31 021sq.m

PARKING REQUIRED @ 4/100sq.m = 1 241 bays

OPEN PARKING PROVIDED = 996 bays
 TENANT PARKING PROVIDED = 66 bays
 30 TAXI BAYS PROVIDED @ 8 BAYS PER TAXI = 240 BAYS

TOTAL PARKING PROVIDED = 1 302 BAYS



ERF 6022



**PRINCES MKABAYI
CITY MIXED-USE
DEVELOPMENT**

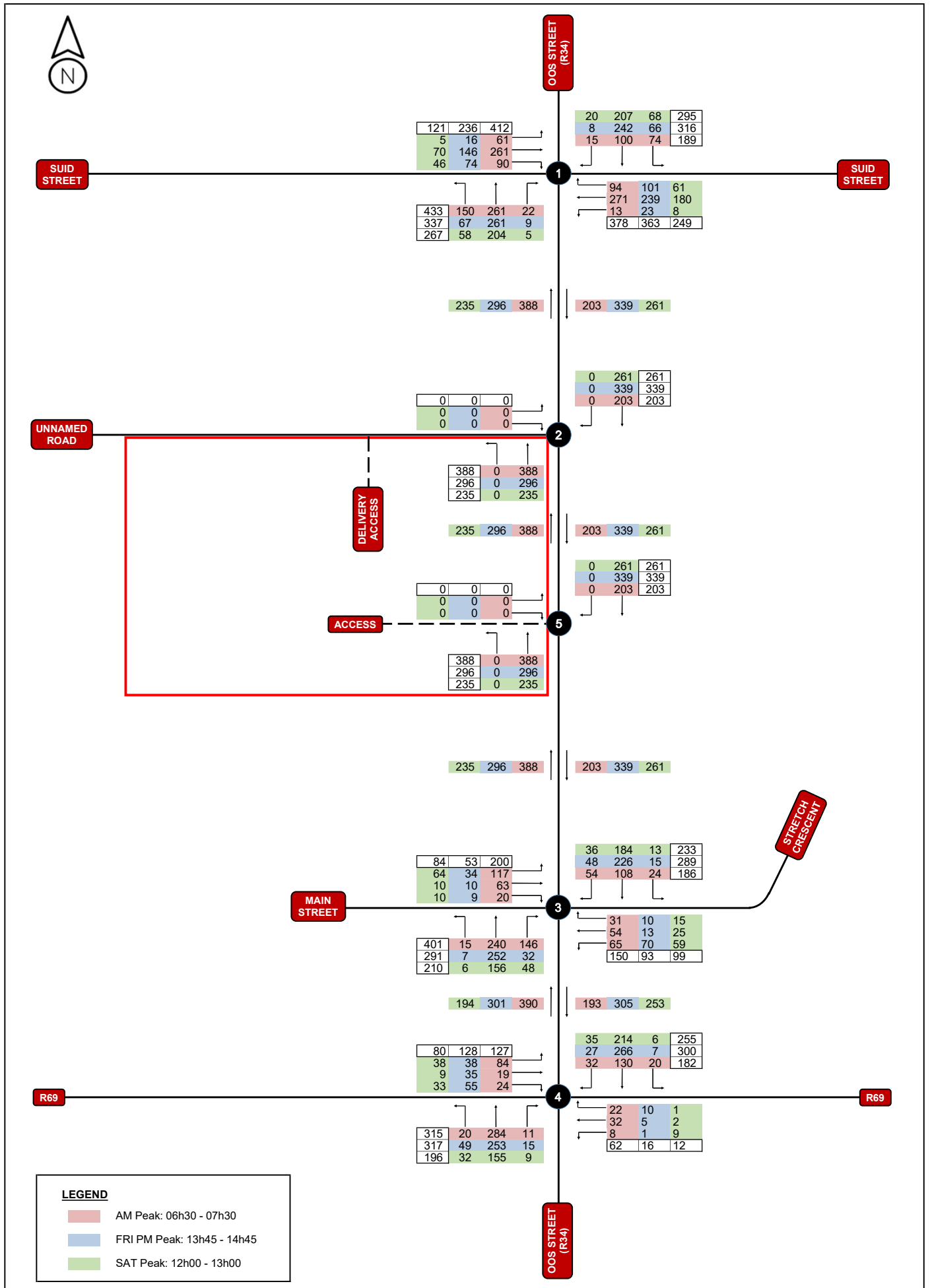
DRAWING DESCRIPTION
 Preliminary Drawing

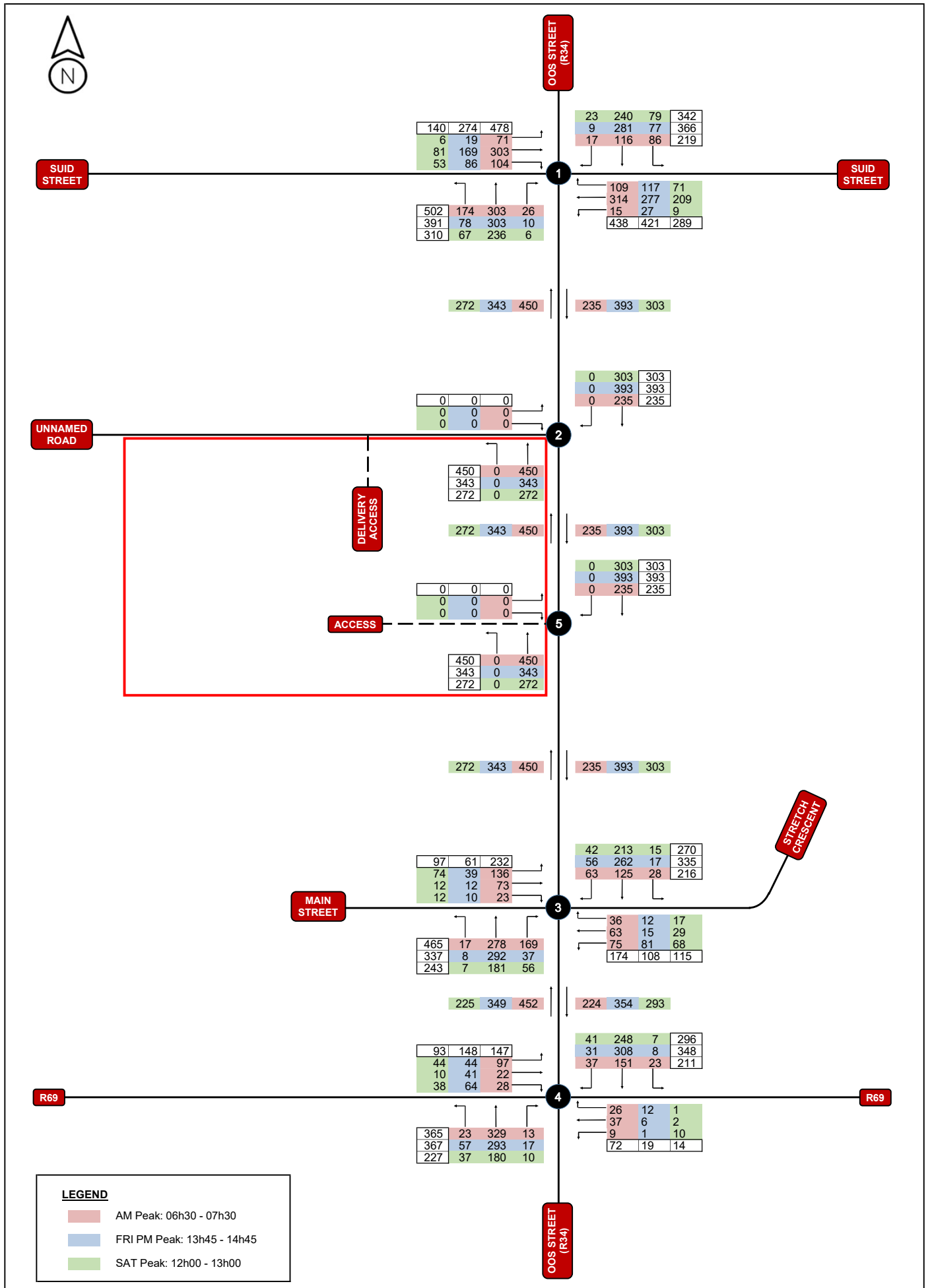
SHOPPING CENTRE SITE PLAN
 PHASE 1

SCALE	DATE	DRAWN	REVISION
1:500	July 2022	gms/af	
PROJECT No. - DRAWING NUMBER		2202-P017	

APPENDIX D

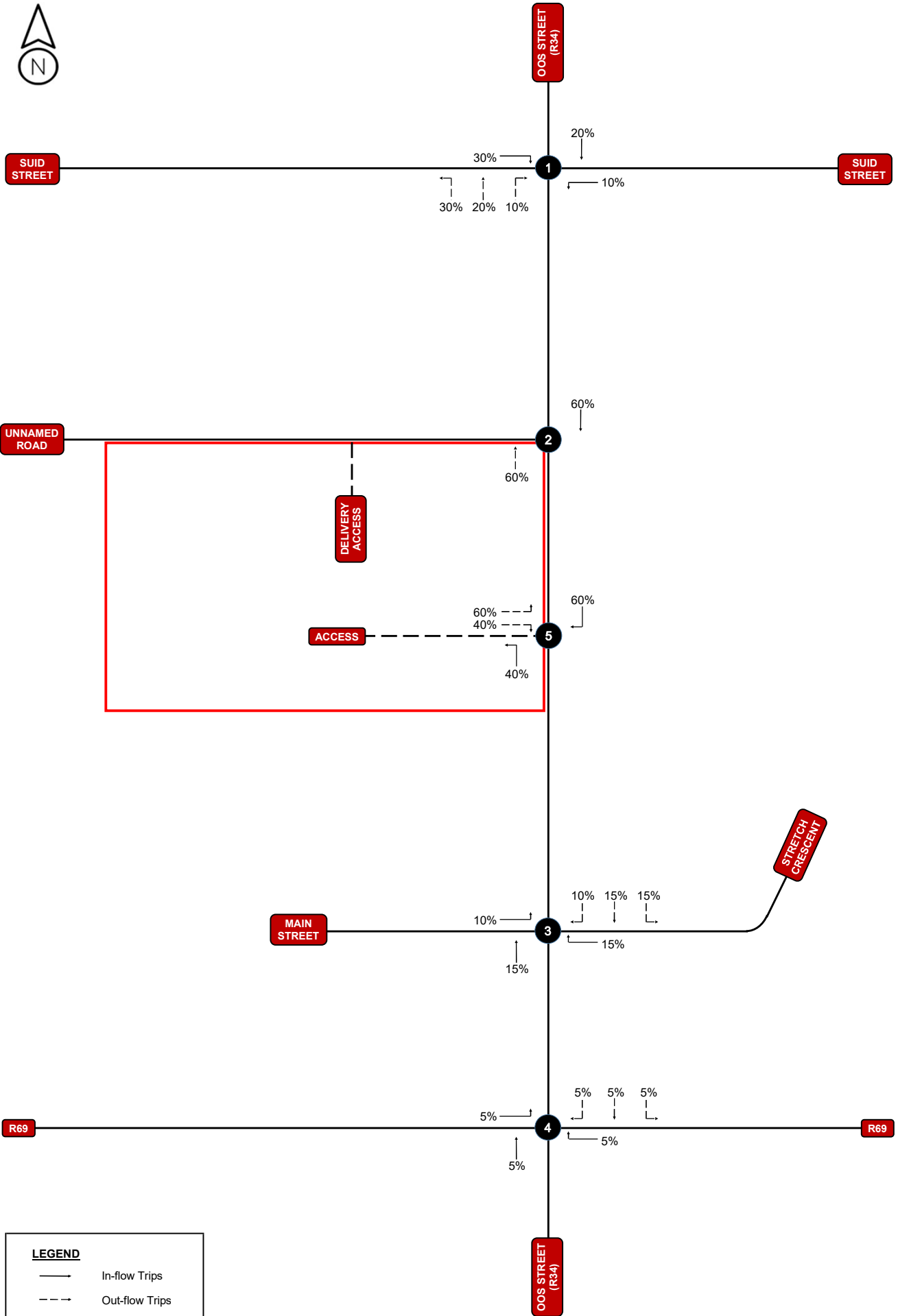
TRAFFIC DATA & ANALYSIS

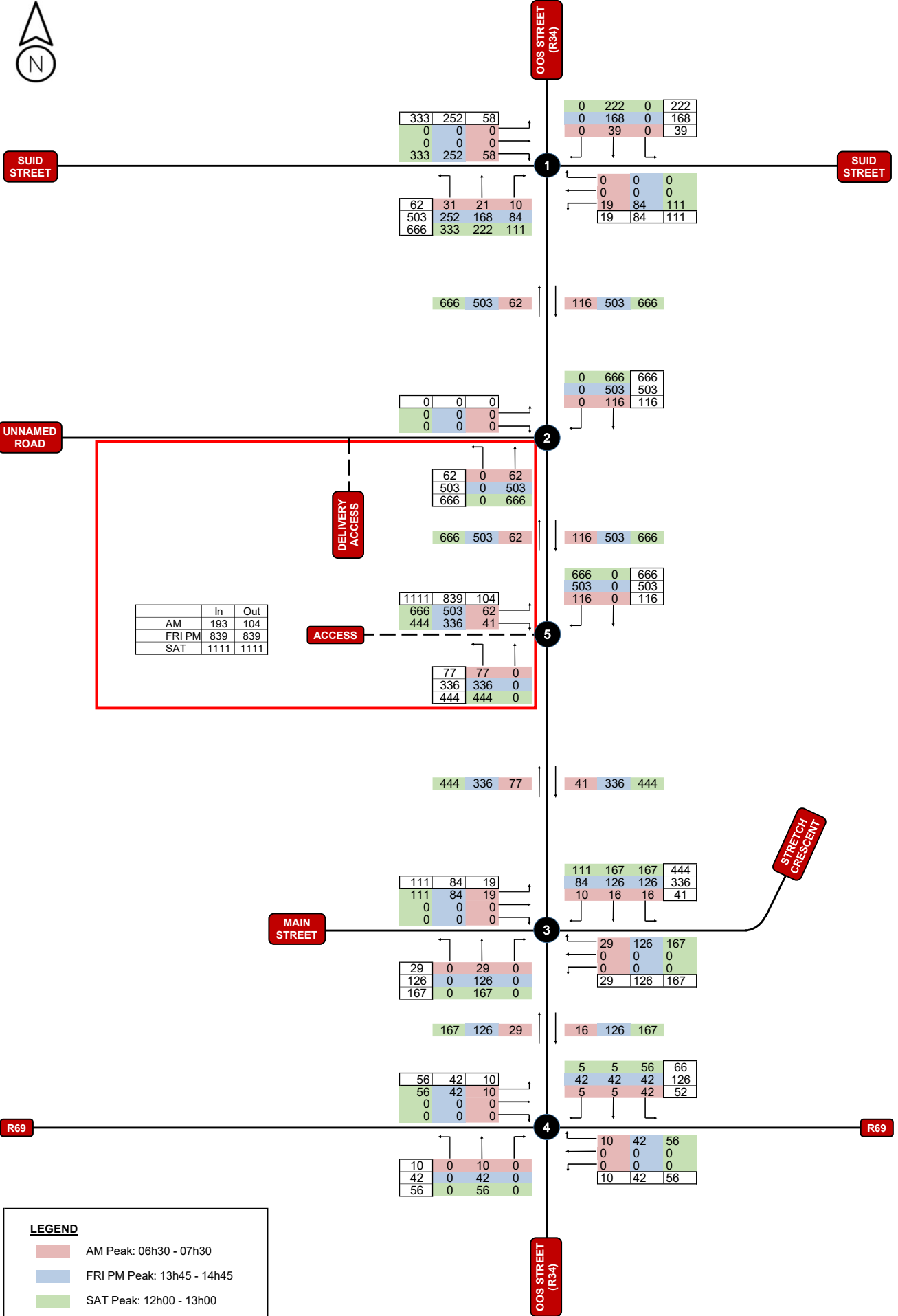


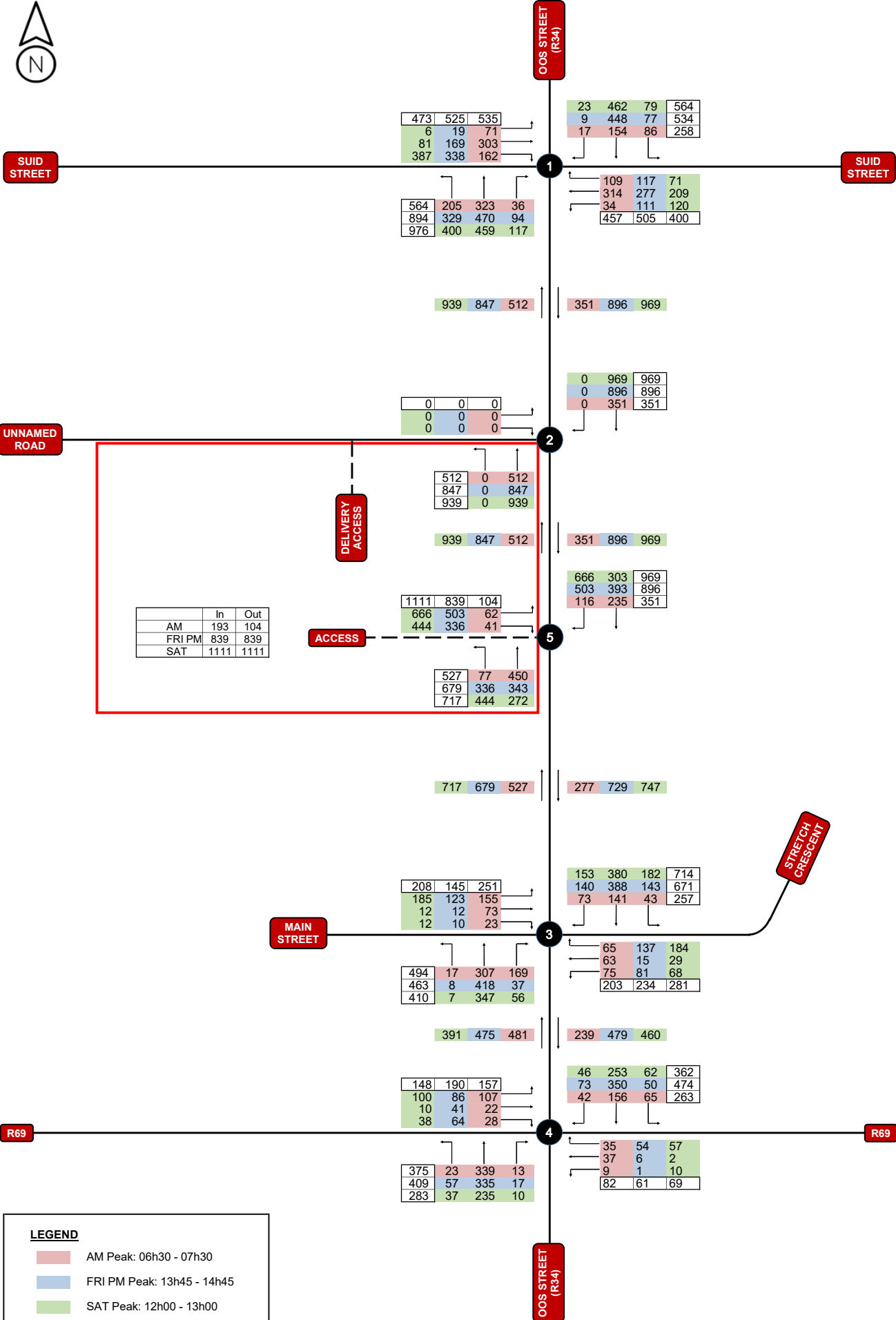


LEGEND

- AM Peak: 06h30 - 07h30
- FRI PM Peak: 13h45 - 14h45
- SAT Peak: 12h00 - 13h00







	In	Out
AM	193	104
FRI PM	839	839
SAT	1111	1111

APPENDIX E

DETAILED CAPACITY/SIDRA ANALYSIS RESULTS

APPENDIX E-1

OOS STREET (R34) AND SUID STREET

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Suid Street_2022 AM]

Oos Street (R34) and Suid Street
 Site Category: -
 Stop (All-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	158	3,0	0,649	34,3	LOS D	3,8	27,5	1,00	1,57	3,48	38,5
2	T1	275	4,0	0,649	37,2	LOS E	3,8	27,5	1,00	1,56	3,45	37,5
3	R2	23	0,0	0,649	36,8	LOS E	3,8	27,4	1,00	1,56	3,45	37,6
Approach		456	3,5	0,649	36,2	LOS E	3,8	27,5	1,00	1,57	3,46	37,9
East: Suid Street												
4	L2	14	8,0	0,645	30,2	LOS D	3,8	27,1	1,00	1,58	3,53	40,0
5	T1	285	1,0	0,645	31,4	LOS D	3,8	27,1	1,00	1,58	3,52	40,1
6	R2	99	2,0	0,645	32,3	LOS D	3,8	27,0	1,00	1,57	3,50	39,6
Approach		398	1,5	0,645	31,6	LOS D	3,8	27,1	1,00	1,57	3,52	40,0
North: Oos Street (R34)												
7	L2	78	5,0	0,334	19,4	LOS C	1,4	10,1	1,00	1,34	2,46	45,7
8	T1	105	9,0	0,298	19,8	LOS C	1,2	9,0	1,00	1,33	2,39	45,6
9	R2	16	20,0	0,298	20,3	LOS C	1,2	9,2	1,00	1,33	2,39	45,5
Approach		199	8,3	0,334	19,7	LOS C	1,4	10,1	1,00	1,33	2,42	45,6
West: Suid Street												
10	L2	64	2,0	0,485	20,2	LOS C	2,3	16,3	0,99	1,42	2,85	45,0
11	T1	275	0,0	0,485	21,8	LOS C	2,3	16,2	1,00	1,42	2,85	44,8
12	R2	95	0,0	0,485	21,5	LOS C	2,3	16,2	1,00	1,42	2,85	44,7
Approach		434	0,3	0,485	21,5	LOS C	2,3	16,3	1,00	1,42	2,85	44,8
All Vehicles		1486	2,7	0,649	28,5	LOS D	3,8	27,5	1,00	1,50	3,16	41,3

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: [Oos Street (R34) and Suid Street_2022 FRI PM]

Oos Street (R34) and Suid Street
 Site Category: -
 Stop (All-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	71	1,0	0,506	25,0	LOS D	2,5	17,7	1,00	1,44	2,91	42,6
2	T1	275	4,0	0,506	26,9	LOS D	2,5	17,7	1,00	1,44	2,90	42,0
3	R2	9	0,0	0,506	26,8	LOS D	2,5	17,9	1,00	1,44	2,89	41,9
Approach		355	3,3	0,506	26,5	LOS D	2,5	17,9	1,00	1,44	2,90	42,1
East: Suid Street												
4	L2	24	9,0	0,783	50,4	LOS F	5,8	41,4	1,00	1,77	4,35	32,8
5	T1	252	2,0	0,783	51,9	LOS F	5,8	41,4	1,00	1,76	4,32	32,8
6	R2	106	4,0	0,783	53,9	LOS F	5,7	40,8	1,00	1,75	4,27	32,1
Approach		382	3,0	0,783	52,4	LOS F	5,8	41,4	1,00	1,76	4,31	32,6
North: Oos Street (R34)												
7	L2	69	3,0	0,478	23,8	LOS C	2,3	16,2	1,00	1,42	2,82	43,2
8	T1	255	2,0	0,478	25,5	LOS D	2,3	16,2	1,00	1,41	2,81	42,7
9	R2	8	13,0	0,478	26,2	LOS D	2,3	16,2	1,00	1,42	2,81	42,4
Approach		333	2,5	0,478	25,1	LOS D	2,3	16,2	1,00	1,42	2,81	42,8
West: Suid Street												
10	L2	17	13,0	0,327	17,5	LOS C	1,3	9,7	0,98	1,34	2,44	46,3
11	T1	154	3,0	0,327	18,4	LOS C	1,3	9,6	0,99	1,33	2,44	46,6
12	R2	78	3,0	0,327	18,2	LOS C	1,3	9,6	1,00	1,33	2,45	46,7
Approach		248	3,7	0,327	18,3	LOS C	1,3	9,7	0,99	1,33	2,44	46,6
All Vehicles		1318	3,1	0,783	32,1	LOS D	5,8	41,4	1,00	1,51	3,20	39,6

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: [Oos Street (R34) and Suid Street_2022 SAT]

Oos Street (R34) and Suid Street
 Site Category: -
 Stop (All-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	61	0,0	0,376	18,7	LOS C	1,6	11,4	0,99	1,36	2,55	46,0
2	T1	215	4,0	0,376	20,1	LOS C	1,6	11,6	1,00	1,36	2,55	45,5
3	R2	5	0,0	0,376	19,8	LOS C	1,6	11,6	1,00	1,36	2,55	45,5
Approach		281	3,1	0,376	19,8	LOS C	1,6	11,6	1,00	1,36	2,55	45,6
East: Suid Street												
4	L2	8	0,0	0,652	42,0	LOS E	3,8	27,1	1,00	1,56	3,45	35,5
5	T1	189	2,0	0,652	43,9	LOS E	3,8	27,1	1,00	1,56	3,44	35,3
6	R2	64	2,0	0,652	45,4	LOS E	3,8	26,9	1,00	1,55	3,41	34,7
Approach		262	1,9	0,652	44,2	LOS E	3,8	27,1	1,00	1,56	3,43	35,2
North: Oos Street (R34)												
7	L2	72	4,0	0,403	19,4	LOS C	1,8	12,6	0,99	1,37	2,62	45,6
8	T1	218	1,0	0,403	20,5	LOS C	1,8	12,5	1,00	1,37	2,62	45,3
9	R2	21	10,0	0,403	21,0	LOS C	1,8	12,7	1,00	1,37	2,62	45,1
Approach		311	2,3	0,403	20,3	LOS C	1,8	12,7	1,00	1,37	2,62	45,3
West: Suid Street												
10	L2	5	20,0	0,178	15,5	LOS C	0,7	4,7	0,99	1,28	2,19	47,5
11	T1	74	0,0	0,178	15,5	LOS C	0,7	4,7	0,99	1,27	2,19	48,4
12	R2	48	0,0	0,190	14,7	LOS B	0,7	4,9	0,97	1,28	2,19	48,9
Approach		127	0,8	0,190	15,2	LOS C	0,7	4,9	0,98	1,28	2,19	48,5
All Vehicles		981	2,2	0,652	25,9	LOS D	3,8	27,1	1,00	1,40	2,76	42,5

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

MOVEMENT SUMMARY

 **Site: [Oos Street (R34) and Suid Street_2022 AM - Upgrades]**

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	158	3,0	0,217	18,5	LOS B	3,1	22,1	0,69	0,74	0,69	45,0
2	T1	275	4,0	0,206	12,8	LOS B	3,0	21,9	0,69	0,57	0,69	49,3
3	R2	23	0,0	0,206	18,4	LOS B	2,7	19,8	0,69	0,59	0,69	48,1
Approach		456	3,5	0,217	15,1	LOS B	3,1	22,1	0,69	0,63	0,69	47,7
East: Suid Street												
4	L2	14	8,0	0,316	19,1	LOS B	5,0	35,1	0,73	0,62	0,73	47,6
5	T1	285	1,0	0,316	13,8	LOS B	5,0	35,1	0,73	0,64	0,73	48,4
6	R2	99	2,0	0,316	20,8	LOS C	3,4	23,8	0,76	0,71	0,76	45,3
Approach		398	1,5	0,316	15,7	LOS B	5,0	35,1	0,74	0,65	0,74	47,5
North: Oos Street (R34)												
7	L2	78	5,0	0,109	17,8	LOS B	1,4	10,5	0,66	0,71	0,66	45,3
8	T1	105	9,0	0,095	12,4	LOS B	1,3	9,7	0,66	0,53	0,66	49,5
9	R2	16	20,0	0,095	18,8	LOS B	1,0	7,6	0,67	0,57	0,67	47,1
Approach		199	8,3	0,109	15,1	LOS B	1,4	10,5	0,66	0,60	0,66	47,6
West: Suid Street												
10	L2	64	2,0	0,220	18,5	LOS B	3,3	23,0	0,69	0,64	0,69	47,1
11	T1	275	0,0	0,220	12,9	LOS B	3,3	23,4	0,69	0,59	0,69	49,1
12	R2	95	0,0	0,235	22,5	LOS C	2,1	14,9	0,78	0,75	0,78	43,1
Approach		434	0,3	0,235	15,8	LOS B	3,3	23,4	0,71	0,63	0,71	47,4
All Vehicles		1486	2,7	0,316	15,5	LOS B	5,0	35,1	0,71	0,64	0,71	47,5

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

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

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

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

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

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

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Suid Street_2022 FRI PM - Upgrades]

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	71	1,0	0,160	18,1	LOS B	2,3	16,1	0,67	0,65	0,67	46,6
2	T1	275	4,0	0,160	12,5	LOS B	2,3	16,7	0,67	0,57	0,67	49,3
3	R2	9	0,0	0,160	18,1	LOS B	2,2	15,6	0,67	0,56	0,67	48,5
Approach		355	3,3	0,160	13,8	LOS B	2,3	16,7	0,67	0,58	0,67	48,7
East: Suid Street												
4	L2	24	9,0	0,290	19,0	LOS B	4,4	31,9	0,72	0,62	0,72	47,5
5	T1	252	2,0	0,290	13,4	LOS B	4,4	31,9	0,72	0,63	0,72	48,5
6	R2	106	4,0	0,290	19,1	LOS B	3,3	23,7	0,72	0,70	0,72	46,1
Approach		382	3,0	0,290	15,3	LOS B	4,4	31,9	0,72	0,65	0,72	47,7
North: Oos Street (R34)												
7	L2	69	3,0	0,150	18,0	LOS B	2,1	15,0	0,67	0,66	0,67	46,5
8	T1	255	2,0	0,150	12,5	LOS B	2,2	15,4	0,67	0,56	0,67	49,4
9	R2	8	13,0	0,150	18,2	LOS B	2,0	14,4	0,67	0,55	0,67	48,4
Approach		333	2,5	0,150	13,8	LOS B	2,2	15,4	0,67	0,58	0,67	48,7
West: Suid Street												
10	L2	17	13,0	0,113	17,9	LOS B	1,6	11,4	0,66	0,56	0,66	47,8
11	T1	154	3,0	0,113	12,2	LOS B	1,6	11,5	0,66	0,54	0,66	49,7
12	R2	78	3,0	0,189	21,5	LOS C	1,7	12,1	0,75	0,73	0,75	43,6
Approach		248	3,7	0,189	15,5	LOS B	1,7	12,1	0,69	0,60	0,69	47,5
All Vehicles		1318	3,1	0,290	14,6	LOS B	4,4	31,9	0,69	0,61	0,69	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: [Oos Street (R34) and Suid Street_2022 SAT - Upgrades]**

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	61	0,0	0,126	17,9	LOS B	1,8	12,4	0,66	0,65	0,66	46,5
2	T1	215	4,0	0,126	12,3	LOS B	1,8	12,9	0,66	0,55	0,66	49,5
3	R2	5	0,0	0,126	17,9	LOS B	1,7	12,3	0,66	0,54	0,66	48,8
Approach		281	3,1	0,126	13,6	LOS B	1,8	12,9	0,66	0,57	0,66	48,8
East: Suid Street												
4	L2	8	0,0	0,189	18,2	LOS B	2,8	19,9	0,68	0,57	0,68	48,4
5	T1	189	2,0	0,189	12,7	LOS B	2,8	19,9	0,68	0,59	0,68	49,0
6	R2	64	2,0	0,189	18,4	LOS B	2,3	16,1	0,68	0,65	0,68	46,9
Approach		262	1,9	0,189	14,3	LOS B	2,8	19,9	0,68	0,60	0,68	48,4
North: Oos Street (R34)												
7	L2	72	4,0	0,144	18,0	LOS B	2,0	14,3	0,67	0,66	0,67	46,3
8	T1	218	1,0	0,144	12,5	LOS B	2,1	14,8	0,67	0,57	0,67	49,2
9	R2	21	10,0	0,144	18,2	LOS B	1,8	12,6	0,67	0,57	0,67	48,0
Approach		311	2,3	0,144	14,1	LOS B	2,1	14,8	0,67	0,59	0,67	48,4
West: Suid Street												
10	L2	5	20,0	0,051	17,6	LOS B	0,7	5,0	0,64	0,51	0,64	48,0
11	T1	74	0,0	0,051	11,9	LOS B	0,7	5,0	0,64	0,49	0,64	50,1
12	R2	48	0,0	0,102	19,3	LOS B	1,0	6,7	0,69	0,71	0,69	44,8
Approach		127	0,8	0,102	14,9	LOS B	1,0	6,7	0,66	0,57	0,66	47,9
All Vehicles		981	2,2	0,189	14,1	LOS B	2,8	19,9	0,67	0,59	0,67	48,5

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

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


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

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

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

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

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Suid Street_2027 AM]

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	183	3,0	0,252	18,7	LOS B	3,6	26,0	0,71	0,75	0,71	44,9
2	T1	319	4,0	0,240	13,0	LOS B	3,6	26,0	0,70	0,59	0,70	49,2
3	R2	27	0,0	0,240	18,6	LOS B	3,2	23,3	0,70	0,60	0,70	47,9
Approach		529	3,4	0,252	15,3	LOS B	3,6	26,0	0,70	0,65	0,70	47,6
East: Suid Street												
4	L2	16	8,0	0,376	19,5	LOS B	6,1	43,0	0,75	0,64	0,75	47,4
5	T1	331	1,0	0,376	14,3	LOS B	6,1	43,0	0,76	0,66	0,76	48,1
6	R2	115	2,0	0,376	21,9	LOS C	3,9	27,7	0,79	0,74	0,79	44,5
Approach		461	1,5	0,376	16,4	LOS B	6,1	43,0	0,77	0,68	0,77	47,1
North: Oos Street (R34)												
7	L2	91	5,0	0,126	18,0	LOS B	1,7	12,3	0,66	0,72	0,66	45,2
8	T1	122	9,0	0,111	12,5	LOS B	1,5	11,4	0,66	0,54	0,66	49,5
9	R2	18	20,0	0,111	18,9	LOS B	1,1	8,7	0,67	0,58	0,67	47,1
Approach		231	8,3	0,126	15,2	LOS B	1,7	12,3	0,66	0,61	0,66	47,5
West: Suid Street												
10	L2	75	2,0	0,255	18,7	LOS B	3,8	27,1	0,71	0,65	0,71	46,9
11	T1	319	0,0	0,255	13,1	LOS B	3,9	27,6	0,71	0,61	0,71	48,9
12	R2	109	0,0	0,296	23,7	LOS C	2,6	18,0	0,81	0,76	0,81	42,5
Approach		503	0,3	0,296	16,2	LOS B	3,9	27,6	0,73	0,65	0,73	47,1
All Vehicles		1724	2,7	0,376	15,8	LOS B	6,1	43,0	0,72	0,65	0,72	47,3

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: [Oos Street (R34) and Suid Street_2027 FRI PM]**

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h	
South: Oos Street (R34)												
1	L2	82	1,0	0,186	18,2	LOS B	2,7	19,0	0,68	0,66	0,68	46,5
2	T1	319	4,0	0,186	12,7	LOS B	2,7	19,6	0,68	0,58	0,68	49,2
3	R2	11	0,0	0,186	18,3	LOS B	2,5	18,2	0,68	0,57	0,68	48,5
Approach		412	3,3	0,186	13,9	LOS B	2,7	19,6	0,68	0,60	0,68	48,6
East: Suid Street												
4	L2	28	9,0	0,305	19,1	LOS B	4,7	33,7	0,72	0,62	0,72	47,4
5	T1	239	2,0	0,305	13,5	LOS B	4,7	33,7	0,72	0,64	0,72	48,4
6	R2	123	4,0	0,305	19,3	LOS B	3,3	23,6	0,72	0,72	0,72	45,6
Approach		391	3,1	0,305	15,7	LOS B	4,7	33,7	0,72	0,66	0,72	47,4
North: Oos Street (R34)												
7	L2	81	3,0	0,174	18,2	LOS B	2,5	17,7	0,68	0,67	0,68	46,4
8	T1	296	2,0	0,174	12,6	LOS B	2,6	18,2	0,68	0,57	0,68	49,3
9	R2	9	13,0	0,174	18,4	LOS B	2,3	16,8	0,68	0,56	0,68	48,3
Approach		386	2,5	0,174	13,9	LOS B	2,6	18,2	0,68	0,59	0,68	48,6
West: Suid Street												
10	L2	20	13,0	0,131	18,1	LOS B	1,8	13,3	0,66	0,57	0,66	47,7
11	T1	178	3,0	0,131	12,4	LOS B	1,9	13,4	0,66	0,55	0,66	49,6
12	R2	91	3,0	0,221	22,4	LOS C	2,0	14,5	0,77	0,74	0,77	43,1
Approach		288	3,7	0,221	15,9	LOS B	2,0	14,5	0,70	0,61	0,70	47,3
All Vehicles		1477	3,1	0,305	14,8	LOS B	4,7	33,7	0,70	0,61	0,70	48,0

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

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


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: [Oos Street (R34) and Suid Street_2027 SAT]

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	61	0,0	0,126	17,9	LOS B	1,8	12,4	0,66	0,65	0,66	46,5
2	T1	215	4,0	0,126	12,3	LOS B	1,8	12,9	0,66	0,55	0,66	49,5
3	R2	5	0,0	0,126	17,9	LOS B	1,7	12,3	0,66	0,54	0,66	48,8
Approach		281	3,1	0,126	13,6	LOS B	1,8	12,9	0,66	0,57	0,66	48,8
East: Suid Street												
4	L2	8	0,0	0,189	18,2	LOS B	2,8	19,9	0,68	0,57	0,68	48,4
5	T1	189	2,0	0,189	12,7	LOS B	2,8	19,9	0,68	0,59	0,68	49,0
6	R2	64	2,0	0,189	18,4	LOS B	2,3	16,1	0,68	0,65	0,68	46,9
Approach		262	1,9	0,189	14,3	LOS B	2,8	19,9	0,68	0,60	0,68	48,4
North: Oos Street (R34)												
7	L2	72	4,0	0,144	18,0	LOS B	2,0	14,3	0,67	0,66	0,67	46,3
8	T1	218	1,0	0,144	12,5	LOS B	2,1	14,8	0,67	0,57	0,67	49,2
9	R2	21	10,0	0,144	18,2	LOS B	1,8	12,6	0,67	0,57	0,67	48,0
Approach		311	2,3	0,144	14,1	LOS B	2,1	14,8	0,67	0,59	0,67	48,4
West: Suid Street												
10	L2	5	20,0	0,051	17,6	LOS B	0,7	5,0	0,64	0,51	0,64	48,0
11	T1	74	0,0	0,051	11,9	LOS B	0,7	5,0	0,64	0,49	0,64	50,1
12	R2	48	0,0	0,102	19,3	LOS B	1,0	6,7	0,69	0,71	0,69	44,8
Approach		127	0,8	0,102	14,9	LOS B	1,0	6,7	0,66	0,57	0,66	47,9
All Vehicles		981	2,2	0,189	14,1	LOS B	2,8	19,9	0,67	0,59	0,67	48,5

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

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

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

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

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

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

MOVEMENT SUMMARY

 **Site: [Oos Street (R34) and Suid Street_2027+Dev trips AM]**

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	218	3,0	0,300	19,0	LOS B	4,4	31,7	0,72	0,76	0,72	44,7
2	T1	341	4,0	0,267	13,2	LOS B	4,0	29,3	0,71	0,60	0,71	49,0
3	R2	38	0,0	0,267	18,8	LOS B	3,5	25,3	0,71	0,62	0,71	47,6
Approach		597	3,4	0,300	15,7	LOS B	4,4	31,7	0,71	0,66	0,71	47,3
East: Suid Street												
4	L2	37	8,0	0,391	19,6	LOS B	6,3	45,0	0,76	0,66	0,76	47,1
5	T1	331	1,0	0,391	14,5	LOS B	6,3	45,0	0,76	0,67	0,76	47,8
6	R2	115	2,0	0,391	22,0	LOS C	4,2	29,7	0,80	0,74	0,80	44,6
Approach		482	1,8	0,391	16,7	LOS B	6,3	45,0	0,77	0,69	0,77	46,9
North: Oos Street (R34)												
7	L2	91	5,0	0,137	18,0	LOS B	1,8	13,5	0,67	0,71	0,67	45,5
8	T1	165	9,0	0,137	12,7	LOS B	1,9	14,3	0,67	0,56	0,67	49,3
9	R2	18	20,0	0,137	19,0	LOS B	1,4	11,1	0,68	0,58	0,68	47,2
Approach		274	8,4	0,137	14,9	LOS B	1,9	14,3	0,67	0,61	0,67	47,8
West: Suid Street												
10	L2	75	2,0	0,255	18,7	LOS B	3,8	27,1	0,71	0,65	0,71	46,9
11	T1	319	0,0	0,255	13,1	LOS B	3,9	27,6	0,71	0,61	0,71	48,9
12	R2	174	0,0	0,483	25,1	LOS C	4,4	30,7	0,87	0,80	0,87	41,9
Approach		567	0,3	0,483	17,5	LOS B	4,4	30,7	0,76	0,67	0,76	46,3
All Vehicles		1920	2,8	0,483	16,4	LOS B	6,3	45,0	0,73	0,66	0,73	47,0

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

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

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

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

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

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

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MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Suid Street_2027+Dev trips FRI PM]

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	362	1,0	0,491	20,3	LOS C	8,1	56,9	0,80	0,80	0,80	44,1
2	T1	505	4,0	0,487	15,1	LOS B	8,2	59,4	0,80	0,70	0,80	47,7
3	R2	104	0,0	0,487	21,9	LOS C	5,6	40,1	0,82	0,74	0,82	45,1
Approach		972	2,5	0,491	17,8	LOS B	8,2	59,4	0,80	0,74	0,80	46,0
East: Suid Street												
4	L2	121	9,0	0,374	19,5	LOS B	5,8	42,2	0,75	0,70	0,75	46,1
5	T1	239	2,0	0,374	14,0	LOS B	5,8	42,2	0,75	0,70	0,75	47,2
6	R2	123	4,0	0,374	19,7	LOS B	4,4	31,8	0,75	0,71	0,75	46,0
Approach		483	4,3	0,374	16,8	LOS B	5,8	42,2	0,75	0,70	0,75	46,6
North: Oos Street (R34)												
7	L2	81	3,0	0,260	18,7	LOS B	3,9	27,7	0,71	0,66	0,71	46,8
8	T1	482	2,0	0,260	13,4	LOS B	4,0	28,3	0,71	0,61	0,71	48,8
9	R2	9	13,0	0,260	19,6	LOS B	3,6	25,8	0,72	0,60	0,72	47,6
Approach		573	2,3	0,260	14,2	LOS B	4,0	28,3	0,71	0,62	0,71	48,5
West: Suid Street												
10	L2	20	13,0	0,131	18,1	LOS B	1,8	13,3	0,66	0,57	0,66	47,7
11	T1	178	3,0	0,131	12,4	LOS B	1,9	13,4	0,66	0,55	0,66	49,6
12	R2	371	3,0	0,848	35,5	LOS D	12,7	90,9	1,00	1,00	1,32	37,4
Approach		568	3,4	0,848	27,6	LOS C	12,7	90,9	0,88	0,84	1,09	40,8
All Vehicles		2596	3,0	0,848	19,0	LOS B	12,7	90,9	0,79	0,73	0,84	45,4

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

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

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

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

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

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

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MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Suid Street_2027+Dev trips SAT]

Oos Street (R34) and Suid Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	441	0,0	0,594	21,1	LOS C	10,4	72,6	0,84	0,82	0,84	43,7
2	T1	496	4,0	0,543	15,7	LOS B	9,4	68,3	0,83	0,72	0,83	47,4
3	R2	129	0,0	0,543	24,0	LOS C	5,3	37,8	0,86	0,78	0,86	43,5
Approach		1066	1,9	0,594	18,9	LOS B	10,4	72,6	0,84	0,77	0,84	45,3
East: Suid Street												
4	L2	134	0,0	0,306	19,0	LOS B	4,7	33,0	0,72	0,70	0,72	46,1
5	T1	220	2,0	0,306	13,5	LOS B	4,7	33,0	0,72	0,68	0,72	47,5
6	R2	75	2,0	0,306	19,1	LOS B	4,0	28,7	0,72	0,66	0,72	47,1
Approach		428	1,4	0,306	16,2	LOS B	4,7	33,0	0,72	0,68	0,72	47,0
North: Oos Street (R34)												
7	L2	83	4,0	0,295	18,9	LOS B	4,5	32,0	0,72	0,66	0,72	46,8
8	T1	500	1,0	0,295	14,1	LOS B	4,6	32,6	0,74	0,63	0,74	48,2
9	R2	24	10,0	0,295	22,1	LOS C	3,5	24,8	0,78	0,66	0,78	45,9
Approach		607	1,8	0,295	15,1	LOS B	4,6	32,6	0,74	0,64	0,74	47,9
West: Suid Street												
10	L2	6	20,0	0,060	17,7	LOS B	0,8	5,8	0,64	0,51	0,64	48,0
11	T1	85	0,0	0,060	11,9	LOS B	0,8	5,8	0,64	0,50	0,64	50,0
12	R2	426	0,0	0,892	39,4	LOS D	15,7	110,2	1,00	1,05	1,42	36,0
Approach		518	0,2	0,892	34,6	LOS C	15,7	110,2	0,94	0,95	1,28	37,9
All Vehicles		2620	1,4	0,892	20,7	LOS C	15,7	110,2	0,81	0,76	0,88	44,4

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

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

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

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

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

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

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APPENDIX E-2

OOS STREET (R34) AND UNNAMED ROAD

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Unnamed Road_2027+Dev trips AM]

Oos Street (R34) and Unnamed Road
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	1	0,0	0,284	5,6	LOS A	0,0	0,0	0,00	0,00	0,00	58,3
2	T1	542	3,0	0,284	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	59,9
Approach		543	3,0	0,284	0,0	NA	0,0	0,0	0,00	0,00	0,00	59,9
North: Oos Street (R34)												
8	T1	376	4,0	0,199	0,0	LOS A	0,0	0,1	0,00	0,00	0,00	60,0
9	R2	1	0,0	0,199	8,3	LOS A	0,0	0,1	0,00	0,00	0,00	57,7
Approach		377	4,0	0,199	0,0	NA	0,0	0,1	0,00	0,00	0,00	60,0
West: Unnamed Road												
10	L2	1	0,0	0,004	10,7	LOS B	0,0	0,1	0,59	0,85	0,59	49,3
12	R2	1	0,0	0,004	14,6	LOS B	0,0	0,1	0,59	0,85	0,59	48,8
Approach		2	0,0	0,004	12,7	LOS B	0,0	0,1	0,59	0,85	0,59	49,1
All Vehicles		922	3,4	0,284	0,1	NA	0,0	0,1	0,00	0,00	0,00	59,9

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.

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MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Unnamed Road_2027+Dev trips FRI PM]

Oos Street (R34) and Unnamed Road
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	1	0,0	0,482	5,6	LOS A	0,0	0,0	0,00	0,00	0,00	58,2
2	T1	921	3,0	0,482	0,1	LOS A	0,0	0,0	0,00	0,00	0,00	59,8
Approach		922	3,0	0,482	0,1	NA	0,0	0,0	0,00	0,00	0,00	59,8
North: Oos Street (R34)												
8	T1	974	2,0	0,508	0,0	LOS A	0,1	0,4	0,01	0,00	0,01	59,9
9	R2	1	0,0	0,508	18,6	LOS C	0,1	0,4	0,01	0,00	0,01	57,7
Approach		975	2,0	0,508	0,1	NA	0,1	0,4	0,01	0,00	0,01	59,9
West: Unnamed Road												
10	L2	1	0,0	0,012	15,8	LOS C	0,0	0,2	0,85	0,96	0,85	42,9
12	R2	1	0,0	0,012	32,6	LOS D	0,0	0,2	0,85	0,96	0,85	42,6
Approach		2	0,0	0,012	24,2	LOS C	0,0	0,2	0,85	0,96	0,85	42,7
All Vehicles		1899	2,5	0,508	0,1	NA	0,1	0,4	0,00	0,00	0,01	59,9

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.

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MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Unnamed Road_2027+Dev trips SAT]

Oos Street (R34) and Unnamed Road
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	1	0,0	0,538	5,6	LOS A	0,0	0,0	0,00	0,00	0,00	58,2
2	T1	1027	3,0	0,538	0,1	LOS A	0,0	0,0	0,00	0,00	0,00	59,8
Approach		1028	3,0	0,538	0,1	NA	0,0	0,0	0,00	0,00	0,00	59,8
North: Oos Street (R34)												
8	T1	1062	1,0	0,551	0,1	LOS A	0,1	0,6	0,01	0,00	0,01	59,9
9	R2	1	0,0	0,551	24,6	LOS C	0,1	0,6	0,01	0,00	0,01	57,7
Approach		1063	1,0	0,551	0,1	NA	0,1	0,6	0,01	0,00	0,01	59,9
West: Unnamed Road												
10	L2	1	0,0	0,013	18,7	LOS C	0,0	0,2	0,89	0,98	0,89	41,7
12	R2	1	0,0	0,013	34,8	LOS D	0,0	0,2	0,89	0,98	0,89	41,4
Approach		2	0,0	0,013	26,7	LOS D	0,0	0,2	0,89	0,98	0,89	41,5
All Vehicles		2094	2,0	0,551	0,1	NA	0,1	0,6	0,00	0,00	0,01	59,8

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.

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APPENDIX E-3

OOS STREET (R34) AND STRETCH CRESCENT/ MAIN STREET

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Stretch Crescent/ Main Street_2022 AM]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	16	0,0	0,009	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	253	3,0	0,133	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	154	10,0	0,129	6,3	LOS A	0,5	4,2	0,27	0,57	0,27	52,2
Approach		422	5,4	0,133	2,5	NA	0,5	4,2	0,10	0,23	0,10	56,6
East: Stretch Crescent												
4	L2	68	18,0	0,483	13,5	LOS B	2,6	19,5	0,51	1,03	0,81	43,0
5	T1	57	0,0	0,483	25,9	LOS D	2,6	19,5	0,51	1,03	0,81	43,6
6	R2	33	0,0	0,483	37,6	LOS E	2,6	19,5	0,51	1,03	0,81	43,5
Approach		158	7,8	0,483	22,9	LOS C	2,6	19,5	0,51	1,03	0,81	43,3
North: Oos Street (R34)												
7	L2	25	0,0	0,014	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	114	8,0	0,062	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	57	2,0	0,052	6,7	LOS A	0,2	1,5	0,36	0,60	0,36	52,2
Approach		196	5,2	0,062	2,7	NA	0,2	1,5	0,10	0,25	0,10	56,7
West: Main Street												
10	L2	123	4,0	0,522	13,6	LOS B	3,2	23,1	0,63	1,09	1,04	44,7
11	T1	66	6,0	0,522	28,0	LOS D	3,2	23,1	0,63	1,09	1,04	44,8
12	R2	21	5,0	0,522	36,6	LOS E	3,2	23,1	0,63	1,09	1,04	44,7
Approach		211	4,7	0,522	20,4	LOS C	3,2	23,1	0,63	1,09	1,04	44,8
All Vehicles		986	5,6	0,522	9,6	NA	3,2	23,1	0,28	0,54	0,41	51,2

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2022 FRI PM]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	7	0,0	0,004	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	265	2,0	0,139	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	34	19,0	0,034	7,0	LOS A	0,1	1,1	0,36	0,59	0,36	51,5
Approach		306	3,8	0,139	0,9	NA	0,1	1,1	0,04	0,08	0,04	58,7
East: Stretch Crescent												
4	L2	74	11,0	0,183	10,0	LOS A	0,7	5,0	0,47	0,92	0,47	48,9
5	T1	14	0,0	0,183	20,2	LOS C	0,7	5,0	0,47	0,92	0,47	49,4
6	R2	11	0,0	0,183	23,6	LOS C	0,7	5,0	0,47	0,92	0,47	49,3
Approach		98	8,3	0,183	12,9	LOS B	0,7	5,0	0,47	0,92	0,47	49,0
North: Oos Street (R34)												
7	L2	16	0,0	0,009	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	238	2,0	0,125	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	51	0,0	0,046	6,6	LOS A	0,2	1,3	0,36	0,60	0,36	52,3
Approach		304	1,6	0,125	1,4	NA	0,2	1,3	0,06	0,13	0,06	58,2
West: Main Street												
10	L2	36	0,0	0,125	9,5	LOS A	0,4	3,0	0,51	0,91	0,51	48,4
11	T1	11	0,0	0,125	19,7	LOS C	0,4	3,0	0,51	0,91	0,51	48,6
12	R2	9	0,0	0,125	24,3	LOS C	0,4	3,0	0,51	0,91	0,51	48,5
Approach		56	0,0	0,125	13,9	LOS B	0,4	3,0	0,51	0,91	0,51	48,5
All Vehicles		764	3,2	0,183	3,6	NA	0,7	5,0	0,14	0,27	0,14	56,2

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2022 SAT]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	6	0,0	0,003	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	164	4,0	0,087	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	51	23,0	0,049	6,8	LOS A	0,2	1,6	0,33	0,59	0,33	51,5
Approach		221	8,2	0,087	1,7	NA	0,2	1,6	0,07	0,15	0,07	57,6
East: Stretch Crescent												
4	L2	62	14,0	0,206	9,8	LOS A	0,8	5,8	0,46	0,93	0,46	48,5
5	T1	26	0,0	0,206	16,3	LOS C	0,8	5,8	0,46	0,93	0,46	49,2
6	R2	16	13,0	0,206	22,0	LOS C	0,8	5,8	0,46	0,93	0,46	48,6
Approach		104	10,3	0,206	13,3	LOS B	0,8	5,8	0,46	0,93	0,46	48,7
North: Oos Street (R34)												
7	L2	14	0,0	0,007	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	194	1,0	0,100	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	38	3,0	0,032	6,2	LOS A	0,1	0,9	0,28	0,56	0,28	52,4
Approach		245	1,3	0,100	1,3	NA	0,1	0,9	0,04	0,12	0,04	58,3
West: Main Street												
10	L2	67	0,0	0,139	8,9	LOS A	0,5	3,6	0,37	0,89	0,37	50,1
11	T1	11	0,0	0,139	16,1	LOS C	0,5	3,6	0,37	0,89	0,37	50,2
12	R2	11	10,0	0,139	21,3	LOS C	0,5	3,6	0,37	0,89	0,37	49,8
Approach		88	1,2	0,139	11,2	LOS B	0,5	3,6	0,37	0,89	0,37	50,0
All Vehicles		659	5,0	0,206	4,7	NA	0,8	5,8	0,16	0,36	0,16	55,1

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 AM]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	18	0,0	0,010	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	293	3,0	0,154	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	178	10,0	0,153	6,4	LOS A	0,7	5,0	0,30	0,59	0,30	52,1
Approach		488	5,4	0,154	2,6	NA	0,7	5,0	0,11	0,23	0,11	56,6
East: Stretch Crescent												
4	L2	79	18,0	0,699	22,5	LOS C	4,9	36,4	0,61	1,18	1,38	37,3
5	T1	66	0,0	0,699	39,7	LOS E	4,9	36,4	0,61	1,18	1,38	37,8
6	R2	38	0,0	0,699	58,2	LOS F	4,9	36,4	0,61	1,18	1,38	37,7
Approach		183	7,8	0,699	36,1	LOS E	4,9	36,4	0,61	1,18	1,38	37,5
North: Oos Street (R34)												
7	L2	29	0,0	0,016	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	132	8,0	0,072	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	66	2,0	0,064	6,9	LOS A	0,3	1,8	0,39	0,63	0,39	52,2
Approach		227	5,2	0,072	2,7	NA	0,3	1,8	0,12	0,26	0,12	56,6
West: Main Street												
10	L2	143	4,0	0,728	21,3	LOS C	5,9	42,6	0,73	1,32	1,73	39,7
11	T1	77	6,0	0,728	41,3	LOS E	5,9	42,6	0,73	1,32	1,73	39,8
12	R2	24	5,0	0,728	55,1	LOS F	5,9	42,6	0,73	1,32	1,73	39,7
Approach		244	4,7	0,728	31,0	LOS D	5,9	42,6	0,73	1,32	1,73	39,7
All Vehicles		1143	5,6	0,728	14,0	NA	5,9	42,6	0,32	0,62	0,66	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.

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 FRI PM]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	8	0,0	0,005	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	307	2,0	0,161	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	39	19,0	0,041	7,2	LOS A	0,2	1,3	0,39	0,61	0,39	51,4
Approach		355	3,8	0,161	0,9	NA	0,2	1,3	0,04	0,08	0,04	58,7
East: Stretch Crescent												
4	L2	85	11,0	0,246	10,3	LOS B	0,9	6,7	0,53	0,93	0,53	48,0
5	T1	16	0,0	0,246	24,2	LOS C	0,9	6,7	0,53	0,93	0,53	48,5
6	R2	13	0,0	0,246	29,4	LOS D	0,9	6,7	0,53	0,93	0,53	48,4
Approach		114	8,3	0,246	14,4	LOS B	0,9	6,7	0,53	0,93	0,53	48,1
North: Oos Street (R34)												
7	L2	18	0,0	0,010	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	276	2,0	0,145	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	59	0,0	0,057	6,9	LOS A	0,2	1,5	0,39	0,62	0,39	52,2
Approach		353	1,6	0,145	1,4	NA	0,2	1,5	0,07	0,13	0,07	58,2
West: Main Street												
10	L2	41	0,0	0,172	9,8	LOS A	0,6	4,1	0,57	0,93	0,57	47,3
11	T1	13	0,0	0,172	23,4	LOS C	0,6	4,1	0,57	0,93	0,57	47,5
12	R2	11	0,0	0,172	30,4	LOS D	0,6	4,1	0,57	0,93	0,57	47,4
Approach		64	0,0	0,172	15,8	LOS C	0,6	4,1	0,57	0,93	0,57	47,4
All Vehicles		885	3,2	0,246	3,9	NA	0,9	6,7	0,15	0,27	0,15	56,0

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

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

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

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

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

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

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

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 SAT]

Oos Street (R34) and Stretch Crescent/ Main Street
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	7	0,0	0,004	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
2	T1	191	4,0	0,101	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	59	23,0	0,060	7,0	LOS A	0,2	2,0	0,36	0,60	0,36	51,4
Approach		257	8,2	0,101	1,8	NA	0,2	2,0	0,08	0,15	0,08	57,6
East: Stretch Crescent												
4	L2	72	14,0	0,269	10,3	LOS B	1,0	8,0	0,52	0,95	0,55	47,6
5	T1	31	0,0	0,269	18,8	LOS C	1,0	8,0	0,52	0,95	0,55	48,2
6	R2	18	13,0	0,269	26,7	LOS D	1,0	8,0	0,52	0,95	0,55	47,7
Approach		120	10,3	0,269	14,9	LOS B	1,0	8,0	0,52	0,95	0,55	47,8
North: Oos Street (R34)												
7	L2	16	0,0	0,009	5,5	LOS A	0,0	0,0	0,00	0,58	0,00	53,6
8	T1	224	1,0	0,116	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	44	3,0	0,038	6,3	LOS A	0,1	1,1	0,30	0,57	0,30	52,4
Approach		284	1,3	0,116	1,3	NA	0,1	1,1	0,05	0,12	0,05	58,3
West: Main Street												
10	L2	78	0,0	0,183	9,1	LOS A	0,7	4,7	0,42	0,89	0,42	49,5
11	T1	13	0,0	0,183	18,3	LOS C	0,7	4,7	0,42	0,89	0,42	49,6
12	R2	13	10,0	0,183	25,5	LOS D	0,7	4,7	0,42	0,89	0,42	49,2
Approach		103	1,2	0,183	12,2	LOS B	0,7	4,7	0,42	0,89	0,42	49,5
All Vehicles		764	5,0	0,269	5,1	NA	1,0	8,0	0,18	0,37	0,19	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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 AM - Upgrades]**

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	18	0,0	0,024	17,2	LOS B	0,3	2,2	0,63	0,66	0,63	45,8
2	T1	293	3,0	0,382	13,9	LOS B	6,2	44,2	0,75	0,64	0,75	48,8
3	R2	178	10,0	0,380	21,2	LOS C	4,0	30,2	0,78	0,78	0,78	43,2
Approach		488	5,4	0,382	16,7	LOS B	6,2	44,2	0,76	0,69	0,76	46,5
East: Stretch Crescent												
4	L2	79	18,0	0,302	20,0	LOS B	3,8	28,6	0,74	0,71	0,74	45,0
5	T1	66	0,0	0,302	14,2	LOS B	3,8	28,6	0,74	0,71	0,74	46,6
6	R2	38	0,0	0,302	19,8	LOS B	3,8	28,6	0,74	0,71	0,74	45,6
Approach		183	7,8	0,302	17,8	LOS B	3,8	28,6	0,74	0,71	0,74	45,7
North: Oos Street (R34)												
7	L2	29	0,0	0,040	17,3	LOS B	0,5	3,7	0,63	0,68	0,63	45,7
8	T1	132	8,0	0,177	12,6	LOS B	2,5	18,8	0,68	0,55	0,68	49,6
9	R2	66	2,0	0,178	22,9	LOS C	1,5	10,6	0,77	0,74	0,77	42,5
Approach		227	5,2	0,178	16,2	LOS B	2,5	18,8	0,70	0,62	0,70	46,8
West: Main Street												
10	L2	143	4,0	0,355	19,4	LOS B	5,1	37,1	0,74	0,73	0,74	45,4
11	T1	77	6,0	0,355	13,8	LOS B	5,1	37,1	0,74	0,73	0,74	46,6
12	R2	24	5,0	0,355	19,4	LOS B	5,1	37,1	0,74	0,73	0,74	45,5
Approach		244	4,7	0,355	17,6	LOS B	5,1	37,1	0,74	0,73	0,74	45,8
All Vehicles		1143	5,6	0,382	17,0	LOS B	6,2	44,2	0,74	0,69	0,74	46,3

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 FRI PM - Upgrades]**

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	8	0,0	0,011	17,1	LOS B	0,1	1,0	0,62	0,64	0,62	45,8
2	T1	307	2,0	0,399	14,0	LOS B	6,5	46,5	0,76	0,64	0,76	48,7
3	R2	39	19,0	0,110	22,7	LOS C	0,9	7,0	0,75	0,72	0,75	42,2
Approach		355	3,8	0,399	15,1	LOS B	6,5	46,5	0,75	0,65	0,75	47,8
East: Stretch Crescent												
4	L2	85	11,0	0,168	18,3	LOS B	2,2	16,3	0,68	0,70	0,68	45,4
5	T1	16	0,0	0,168	12,6	LOS B	2,2	16,3	0,68	0,70	0,68	46,7
6	R2	13	0,0	0,168	18,2	LOS B	2,2	16,3	0,68	0,70	0,68	45,8
Approach		114	8,3	0,168	17,5	LOS B	2,2	16,3	0,68	0,70	0,68	45,6
North: Oos Street (R34)												
7	L2	18	0,0	0,024	17,2	LOS B	0,3	2,2	0,63	0,66	0,63	45,8
8	T1	276	2,0	0,358	13,8	LOS B	5,7	40,8	0,74	0,63	0,74	48,9
9	R2	59	0,0	0,160	22,8	LOS C	1,3	9,2	0,77	0,73	0,77	42,6
Approach		353	1,6	0,358	15,4	LOS B	5,7	40,8	0,74	0,65	0,74	47,6
West: Main Street												
10	L2	41	0,0	0,093	17,7	LOS B	1,2	8,3	0,65	0,67	0,65	46,1
11	T1	13	0,0	0,093	12,2	LOS B	1,2	8,3	0,65	0,67	0,65	47,2
12	R2	11	0,0	0,093	17,7	LOS B	1,2	8,3	0,65	0,67	0,65	46,2
Approach		64	0,0	0,093	16,6	LOS B	1,2	8,3	0,65	0,67	0,65	46,3
All Vehicles		885	3,2	0,399	15,6	LOS B	6,5	46,5	0,73	0,66	0,73	47,3

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027 SAT - Upgrades]**

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	7	0,0	0,010	17,1	LOS B	0,1	0,9	0,62	0,64	0,62	45,9
2	T1	191	4,0	0,251	13,1	LOS B	3,8	27,3	0,70	0,58	0,70	49,4
3	R2	59	23,0	0,154	21,5	LOS C	1,3	10,6	0,74	0,73	0,74	42,8
Approach		257	8,2	0,251	15,1	LOS B	3,8	27,3	0,71	0,62	0,71	47,6
East: Stretch Crescent												
4	L2	72	14,0	0,184	18,4	LOS B	2,3	17,6	0,68	0,69	0,68	45,6
5	T1	31	0,0	0,184	12,7	LOS B	2,3	17,6	0,68	0,69	0,68	47,1
6	R2	18	13,0	0,184	18,4	LOS B	2,3	17,6	0,68	0,69	0,68	45,7
Approach		120	10,3	0,184	17,0	LOS B	2,3	17,6	0,68	0,69	0,68	46,0
North: Oos Street (R34)												
7	L2	16	0,0	0,021	17,2	LOS B	0,3	1,9	0,63	0,66	0,63	45,8
8	T1	224	1,0	0,289	13,3	LOS B	4,5	31,8	0,72	0,60	0,72	49,2
9	R2	44	3,0	0,099	20,8	LOS C	0,9	6,6	0,72	0,71	0,72	43,6
Approach		284	1,3	0,289	14,7	LOS B	4,5	31,8	0,71	0,62	0,71	48,0
West: Main Street												
10	L2	78	0,0	0,148	18,0	LOS B	1,9	13,8	0,67	0,70	0,67	45,7
11	T1	13	0,0	0,148	12,5	LOS B	1,9	13,8	0,67	0,70	0,67	46,7
12	R2	13	10,0	0,148	18,2	LOS B	1,9	13,8	0,67	0,70	0,67	45,5
Approach		103	1,2	0,148	17,4	LOS B	1,9	13,8	0,67	0,70	0,67	45,8
All Vehicles		764	5,0	0,289	15,6	LOS B	4,5	31,8	0,70	0,64	0,70	47,2

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: [Oos Street (R34) and Stretch Crescent/ Main Street_2027+Dev trips AM]

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	18	0,0	0,024	17,2	LOS B	0,3	2,2	0,63	0,66	0,63	45,8
2	T1	325	3,0	0,425	14,2	LOS B	7,0	50,2	0,77	0,65	0,77	48,6
3	R2	178	10,0	0,397	22,1	LOS C	4,1	31,1	0,80	0,78	0,80	42,7
Approach		521	5,3	0,425	17,0	LOS B	7,0	50,2	0,77	0,70	0,77	46,3
East: Stretch Crescent												
4	L2	79	18,0	0,388	21,3	LOS C	4,8	35,4	0,78	0,74	0,78	44,1
5	T1	66	0,0	0,388	15,5	LOS B	4,8	35,4	0,78	0,74	0,78	45,6
6	R2	69	0,0	0,388	21,1	LOS C	4,8	35,4	0,78	0,74	0,78	44,7
Approach		215	6,6	0,388	19,5	LOS B	4,8	35,4	0,78	0,74	0,78	44,8
North: Oos Street (R34)												
7	L2	46	0,0	0,062	17,5	LOS B	0,8	5,9	0,64	0,69	0,64	45,6
8	T1	149	8,0	0,202	12,8	LOS B	2,9	21,6	0,69	0,56	0,69	49,5
9	R2	78	2,0	0,223	24,0	LOS C	1,8	13,0	0,80	0,75	0,80	42,0
Approach		274	4,9	0,223	16,8	LOS B	2,9	21,6	0,71	0,64	0,71	46,5
West: Main Street												
10	L2	164	4,0	0,383	19,6	LOS B	5,6	40,9	0,75	0,74	0,75	45,3
11	T1	77	6,0	0,383	14,0	LOS B	5,6	40,9	0,75	0,74	0,75	46,4
12	R2	24	5,0	0,383	19,6	LOS B	5,6	40,9	0,75	0,74	0,75	45,3
Approach		265	4,7	0,383	18,0	LOS B	5,6	40,9	0,75	0,74	0,75	45,6
All Vehicles		1275	5,3	0,425	17,6	LOS B	7,0	50,2	0,76	0,70	0,76	45,9

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

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

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

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

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

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

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MOVEMENT SUMMARY

 **Site: [Oos Street (R34) and Stretch Crescent/ Main Street_2027+ Dev trips FRI PM]**

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	8	0,0	0,011	17,1	LOS B	0,1	1,0	0,62	0,64	0,62	45,8
2	T1	447	2,0	0,588	15,4	LOS B	10,4	74,3	0,83	0,72	0,83	47,8
3	R2	39	19,0	0,161	25,8	LOS C	0,9	7,7	0,81	0,73	0,81	40,8
Approach		495	3,3	0,588	16,3	LOS B	10,4	74,3	0,83	0,72	0,83	47,1
East: Stretch Crescent												
4	L2	85	11,0	0,468	21,1	LOS C	5,8	41,6	0,80	0,79	0,80	43,6
5	T1	16	0,0	0,468	15,5	LOS B	5,8	41,6	0,80	0,79	0,80	44,8
6	R2	153	0,0	0,468	21,0	LOS C	5,8	41,6	0,80	0,79	0,80	44,0
Approach		254	3,7	0,468	20,7	LOS C	5,8	41,6	0,80	0,79	0,80	43,9
North: Oos Street (R34)												
7	L2	158	0,0	0,213	18,4	LOS B	3,1	21,5	0,69	0,74	0,69	45,1
8	T1	416	2,0	0,540	15,1	LOS B	9,5	67,5	0,82	0,71	0,82	48,0
9	R2	152	0,0	0,552	28,9	LOS C	4,2	29,3	0,93	0,81	0,94	39,8
Approach		725	1,1	0,552	18,7	LOS B	9,5	67,5	0,81	0,73	0,81	45,4
West: Main Street												
10	L2	135	0,0	0,219	18,5	LOS B	3,1	21,6	0,69	0,73	0,69	45,3
11	T1	13	0,0	0,219	12,9	LOS B	3,1	21,6	0,69	0,73	0,69	46,3
12	R2	11	0,0	0,219	18,5	LOS B	3,1	21,6	0,69	0,73	0,69	45,4
Approach		158	0,0	0,219	18,0	LOS B	3,1	21,6	0,69	0,73	0,69	45,4
All Vehicles		1632	2,1	0,588	18,2	LOS B	10,4	74,3	0,80	0,74	0,80	45,7

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

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

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

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

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

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

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MOVEMENT SUMMARY

 **Site: [Oos Street (R34) and Stretch Crescent/ Main Street_2027+Dev trips SAT]**

Oos Street (R34) and Stretch Crescent/ Main Street

Site Category: -

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

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	7	0,0	0,010	17,1	LOS B	0,1	0,9	0,62	0,64	0,62	45,9
2	T1	376	4,0	0,494	14,7	LOS B	8,4	60,6	0,80	0,68	0,80	48,3
3	R2	59	23,0	0,251	26,5	LOS C	1,5	12,4	0,84	0,75	0,84	40,4
Approach		442	6,5	0,494	16,4	LOS B	8,4	60,6	0,80	0,69	0,80	47,0
East: Stretch Crescent												
4	L2	72	14,0	0,659	25,0	LOS C	8,1	62,5	0,90	0,85	0,95	41,7
5	T1	31	0,0	0,659	19,3	LOS B	8,1	62,5	0,90	0,85	0,95	43,0
6	R2	203	13,0	0,659	25,0	LOS C	8,1	62,5	0,90	0,85	0,95	41,8
Approach		305	11,9	0,659	24,4	LOS C	8,1	62,5	0,90	0,85	0,95	41,9
North: Oos Street (R34)												
7	L2	201	0,0	0,271	18,8	LOS B	4,0	28,1	0,71	0,76	0,71	44,9
8	T1	409	1,0	0,528	15,0	LOS B	9,3	65,5	0,81	0,70	0,81	48,1
9	R2	167	3,0	0,534	27,1	LOS C	4,5	32,0	0,90	0,80	0,90	40,5
Approach		778	1,2	0,534	18,6	LOS B	9,3	65,5	0,81	0,74	0,81	45,4
West: Main Street												
10	L2	201	0,0	0,313	19,0	LOS B	4,6	32,5	0,73	0,76	0,73	44,9
11	T1	13	0,0	0,313	13,5	LOS B	4,6	32,5	0,73	0,76	0,73	45,9
12	R2	13	10,0	0,313	19,2	LOS B	4,6	32,5	0,73	0,76	0,73	44,7
Approach		226	0,6	0,313	18,7	LOS B	4,6	32,5	0,73	0,76	0,73	45,0
All Vehicles		1752	4,3	0,659	19,1	LOS B	9,3	65,5	0,81	0,75	0,82	45,1

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.

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APPENDIX E-4

OOS STREET (R34) AND R69

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and R69_2022 AM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	21	5,0	0,012	5,7	LOS A	0,0	0,0	0,00	0,53	0,00	54,8
2	T1	299	8,0	0,161	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	12	0,0	0,007	6,0	LOS A	0,0	0,2	0,24	0,52	0,24	53,0
Approach		332	7,5	0,161	0,6	NA	0,0	0,2	0,01	0,05	0,01	59,3
East: R69												
4	L2	8	13,0	0,005	5,7	LOS A	0,0	0,0	0,00	0,52	0,00	54,5
5	T1	34	0,0	0,074	14,6	LOS B	0,3	2,0	0,59	0,95	0,59	48,3
6	R2	23	5,0	0,075	18,2	LOS C	0,3	1,9	0,67	1,00	0,67	46,2
Approach		65	3,5	0,075	14,7	LOS B	0,3	2,0	0,54	0,92	0,54	48,2
North: Oos Street (R34)												
7	L2	21	15,0	0,013	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,4
8	T1	137	9,0	0,075	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	34	0,0	0,025	6,6	LOS A	0,1	0,7	0,38	0,57	0,38	52,6
Approach		192	8,1	0,075	1,8	NA	0,1	0,7	0,07	0,16	0,07	57,9
West: R69												
10	L2	89	0,0	0,048	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	20	0,0	0,044	14,4	LOS B	0,2	1,2	0,59	0,93	0,59	48,4
12	R2	25	33,0	0,095	21,1	LOS C	0,3	3,0	0,68	1,02	0,68	44,5
Approach		135	6,2	0,095	9,8	LOS A	0,3	3,0	0,21	0,68	0,21	51,6
All Vehicles		723	7,1	0,161	3,9	NA	0,3	3,0	0,11	0,27	0,11	56,2

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: [Oos Street (R34) and R69_2022 FRI PM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	52	18,0	0,031	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	266	8,0	0,144	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	16	27,0	0,014	7,0	LOS A	0,1	0,5	0,39	0,55	0,39	51,5
Approach		334	10,4	0,144	1,2	NA	0,1	0,5	0,02	0,11	0,02	58,6
East: R69												
4	L2	1	0,0	0,001	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
5	T1	5	0,0	0,014	16,6	LOS C	0,1	0,4	0,65	0,90	0,65	47,1
6	R2	11	30,0	0,051	25,1	LOS D	0,2	1,5	0,75	1,01	0,75	42,5
Approach		17	18,8	0,051	21,2	LOS C	0,2	1,5	0,67	0,95	0,67	44,5
North: Oos Street (R34)												
7	L2	7	0,0	0,004	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	280	6,0	0,150	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	28	4,0	0,021	6,5	LOS A	0,1	0,7	0,36	0,56	0,36	52,5
Approach		316	5,7	0,150	0,7	NA	0,1	0,7	0,03	0,06	0,03	59,1
West: R69												
10	L2	40	0,0	0,022	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	37	3,0	0,101	17,2	LOS C	0,4	2,7	0,66	1,00	0,66	46,8
12	R2	58	22,0	0,234	23,7	LOS C	0,9	7,4	0,75	1,03	0,82	43,2
Approach		135	10,3	0,234	16,5	LOS C	0,9	7,4	0,50	0,87	0,53	47,2
All Vehicles		801	8,7	0,234	4,0	NA	0,9	7,4	0,12	0,24	0,12	56,1

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: [Oos Street (R34) and R69_2022 SAT]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	34	19,0	0,021	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	163	6,0	0,087	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	9	22,0	0,007	6,7	LOS A	0,0	0,3	0,34	0,53	0,34	51,9
Approach		206	8,9	0,087	1,3	NA	0,0	0,3	0,02	0,11	0,02	58,5
East: R69												
4	L2	9	22,0	0,006	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,2
5	T1	2	0,0	0,004	13,3	LOS B	0,0	0,1	0,55	0,82	0,55	49,1
6	R2	1	0,0	0,003	14,1	LOS B	0,0	0,1	0,56	0,82	0,56	48,6
Approach		13	16,5	0,006	7,8	LOS A	0,0	0,1	0,14	0,59	0,14	52,8
North: Oos Street (R34)												
7	L2	6	0,0	0,003	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	225	5,0	0,120	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	37	9,0	0,025	6,2	LOS A	0,1	0,8	0,28	0,53	0,28	52,6
Approach		268	5,4	0,120	1,0	NA	0,1	0,8	0,04	0,09	0,04	58,7
West: R69												
10	L2	40	0,0	0,022	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	9	11,0	0,020	14,3	LOS B	0,1	0,6	0,56	0,88	0,56	48,3
12	R2	35	21,0	0,099	17,0	LOS C	0,4	3,0	0,59	1,00	0,59	46,7
Approach		84	9,9	0,099	11,3	LOS B	0,4	3,0	0,31	0,76	0,31	50,5
All Vehicles		572	7,6	0,120	2,8	NA	0,4	3,0	0,07	0,21	0,07	57,1

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: [Oos Street (R34) and R69_2027 AM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	24	5,0	0,014	5,7	LOS A	0,0	0,0	0,00	0,53	0,00	54,8
2	T1	346	8,0	0,187	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	14	0,0	0,009	6,0	LOS A	0,0	0,3	0,27	0,52	0,27	53,0
Approach		384	7,5	0,187	0,6	NA	0,0	0,3	0,01	0,05	0,01	59,3
East: R69												
4	L2	9	13,0	0,006	5,7	LOS A	0,0	0,0	0,00	0,52	0,00	54,5
5	T1	39	0,0	0,100	16,3	LOS C	0,4	2,6	0,64	1,00	0,64	47,3
6	R2	27	5,0	0,108	21,3	LOS C	0,4	2,7	0,74	1,00	0,74	44,6
Approach		76	3,4	0,108	16,8	LOS C	0,4	2,7	0,60	0,94	0,60	47,0
North: Oos Street (R34)												
7	L2	24	15,0	0,014	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,4
8	T1	159	9,0	0,087	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	39	0,0	0,031	6,8	LOS A	0,1	0,9	0,42	0,59	0,42	52,5
Approach		222	8,1	0,087	1,8	NA	0,1	0,9	0,07	0,16	0,07	57,9
West: R69												
10	L2	102	0,0	0,055	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	23	0,0	0,059	16,1	LOS C	0,2	1,5	0,64	0,97	0,64	47,4
12	R2	29	33,0	0,135	24,8	LOS C	0,5	4,2	0,75	1,01	0,75	42,6
Approach		155	6,3	0,135	10,9	LOS B	0,5	4,2	0,24	0,69	0,24	50,9
All Vehicles		837	7,1	0,187	4,3	NA	0,5	4,2	0,12	0,28	0,12	55,9

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

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

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

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

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

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

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

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and R69_2027 FRI PM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	60	18,0	0,036	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	308	8,0	0,168	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	18	27,0	0,016	7,3	LOS A	0,1	0,6	0,42	0,57	0,42	51,4
Approach		386	10,4	0,168	1,3	NA	0,1	0,6	0,02	0,11	0,02	58,6
East: R69												
4	L2	1	0,0	0,001	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
5	T1	6	0,0	0,021	19,1	LOS C	0,1	0,5	0,71	0,94	0,71	45,7
6	R2	13	30,0	0,079	30,9	LOS D	0,3	2,3	0,81	1,01	0,81	39,9
Approach		20	18,9	0,079	25,8	LOS D	0,3	2,3	0,74	0,96	0,74	42,2
North: Oos Street (R34)												
7	L2	8	0,0	0,005	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	324	6,0	0,174	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	33	4,0	0,025	6,7	LOS A	0,1	0,8	0,39	0,57	0,39	52,4
Approach		365	5,7	0,174	0,7	NA	0,1	0,8	0,04	0,06	0,04	59,1
West: R69												
10	L2	46	0,0	0,025	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	43	3,0	0,143	19,8	LOS C	0,5	3,8	0,73	1,00	0,73	45,3
12	R2	67	22,0	0,341	30,7	LOS D	1,4	11,4	0,83	1,06	1,02	40,0
Approach		157	10,3	0,341	20,3	LOS C	1,4	11,4	0,56	0,89	0,64	45,1
All Vehicles		928	8,7	0,341	4,8	NA	1,4	11,4	0,13	0,24	0,15	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: [Oos Street (R34) and R69_2027 SAT]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	39	19,0	0,024	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	189	6,0	0,101	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	11	22,0	0,009	6,8	LOS A	0,0	0,3	0,37	0,54	0,37	51,8
Approach		239	8,8	0,101	1,3	NA	0,0	0,3	0,02	0,11	0,02	58,6
East: R69												
4	L2	11	22,0	0,007	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,2
5	T1	2	0,0	0,005	14,5	LOS B	0,0	0,1	0,59	0,83	0,59	48,3
6	R2	1	0,0	0,003	15,7	LOS C	0,0	0,1	0,61	0,83	0,61	47,7
Approach		14	16,9	0,007	7,9	LOS A	0,0	0,1	0,14	0,59	0,14	52,7
North: Oos Street (R34)												
7	L2	7	0,0	0,004	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	261	5,0	0,139	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	43	9,0	0,030	6,3	LOS A	0,1	1,0	0,30	0,54	0,30	52,5
Approach		312	5,4	0,139	1,0	NA	0,1	1,0	0,04	0,09	0,04	58,7
West: R69												
10	L2	46	0,0	0,025	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	11	11,0	0,026	15,7	LOS C	0,1	0,7	0,60	0,91	0,60	47,5
12	R2	40	21,0	0,133	19,2	LOS C	0,5	3,9	0,66	1,01	0,66	45,5
Approach		97	9,9	0,133	12,3	LOS B	0,5	3,9	0,34	0,77	0,34	49,9
All Vehicles		661	7,5	0,139	2,9	NA	0,5	3,9	0,08	0,21	0,08	57,0

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

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

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

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

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

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

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

MOVEMENT SUMMARY

STOP Site: [Oos Street (R34) and R69_2027+Dev trips AM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	24	5,0	0,014	5,7	LOS A	0,0	0,0	0,00	0,53	0,00	54,8
2	T1	357	8,0	0,193	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	14	0,0	0,009	6,1	LOS A	0,0	0,3	0,27	0,52	0,27	53,0
Approach		395	7,5	0,193	0,6	NA	0,0	0,3	0,01	0,05	0,01	59,3
East: R69												
4	L2	9	13,0	0,006	5,7	LOS A	0,0	0,0	0,00	0,52	0,00	54,5
5	T1	39	0,0	0,109	17,4	LOS C	0,4	2,8	0,68	1,00	0,68	46,7
6	R2	38	5,0	0,170	23,8	LOS C	0,6	4,2	0,78	1,00	0,78	43,3
Approach		86	3,6	0,170	18,9	LOS C	0,6	4,2	0,65	0,95	0,65	45,8
North: Oos Street (R34)												
7	L2	71	15,0	0,042	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,4
8	T1	164	9,0	0,090	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	45	0,0	0,036	6,8	LOS A	0,2	1,1	0,42	0,60	0,42	52,5
Approach		280	9,1	0,090	2,6	NA	0,2	1,1	0,07	0,23	0,07	57,2
West: R69												
10	L2	114	0,0	0,061	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	23	0,0	0,067	17,7	LOS C	0,2	1,7	0,68	1,00	0,68	46,5
12	R2	29	33,0	0,143	25,9	LOS D	0,5	4,4	0,76	1,01	0,76	42,1
Approach		166	5,8	0,143	10,9	LOS B	0,5	4,4	0,23	0,68	0,23	50,9
All Vehicles		927	7,3	0,193	4,7	NA	0,6	4,4	0,13	0,30	0,13	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: [Oos Street (R34) and R69_2027+Dev trips FRI PM]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	60	18,0	0,036	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	356	8,0	0,192	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	18	27,0	0,017	7,6	LOS A	0,1	0,6	0,46	0,59	0,46	51,3
Approach		434	10,2	0,192	1,1	NA	0,1	0,6	0,02	0,10	0,02	58,7
East: R69												
4	L2	1	0,0	0,001	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
5	T1	6	0,0	0,029	24,3	LOS C	0,1	0,7	0,80	1,00	0,80	43,0
6	R2	59	30,0	0,380	34,9	LOS D	1,3	11,0	0,87	1,06	1,08	38,3
Approach		66	26,7	0,380	33,4	LOS D	1,3	11,0	0,85	1,05	1,04	38,9
North: Oos Street (R34)												
7	L2	55	0,0	0,029	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	372	6,0	0,199	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	80	4,0	0,065	7,0	LOS A	0,3	2,0	0,44	0,62	0,44	52,3
Approach		506	5,0	0,199	1,7	NA	0,3	2,0	0,07	0,15	0,07	58,0
West: R69												
10	L2	93	0,0	0,050	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	43	3,0	0,207	27,0	LOS D	0,7	5,3	0,83	1,01	0,87	41,7
12	R2	67	22,0	0,344	28,9	LOS D	1,2	10,0	0,83	1,06	1,02	40,8
Approach		203	7,9	0,344	17,9	LOS C	1,2	10,0	0,45	0,81	0,52	46,5
All Vehicles		1209	8,5	0,380	6,0	NA	1,3	11,0	0,16	0,29	0,18	54,5

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

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

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

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

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

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

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

MOVEMENT SUMMARY

 Site: [Oos Street (R34) and R69_2027+Dev trips SAT]

Oos Street (R34) and R69
 Site Category: -
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	39	19,0	0,024	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,3
2	T1	251	6,0	0,133	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
3	R2	11	22,0	0,009	6,9	LOS A	0,0	0,3	0,37	0,54	0,37	51,8
Approach		300	8,2	0,133	1,0	NA	0,0	0,3	0,01	0,09	0,01	58,8
East: R69												
4	L2	11	22,0	0,007	5,8	LOS A	0,0	0,0	0,00	0,52	0,00	54,2
5	T1	2	0,0	0,006	16,4	LOS C	0,0	0,1	0,65	0,85	0,65	47,2
6	R2	63	0,0	0,244	22,5	LOS C	0,9	6,5	0,77	1,02	0,85	44,0
Approach		76	3,1	0,244	20,0	LOS C	0,9	6,5	0,66	0,95	0,72	45,3
North: Oos Street (R34)												
7	L2	69	0,0	0,037	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
8	T1	267	5,0	0,142	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
9	R2	48	9,0	0,036	6,6	LOS A	0,2	1,2	0,36	0,56	0,36	52,3
Approach		385	4,6	0,142	1,8	NA	0,2	1,2	0,04	0,17	0,04	57,9
West: R69												
10	L2	108	0,0	0,058	5,6	LOS A	0,0	0,0	0,00	0,53	0,00	54,9
11	T1	11	11,0	0,033	18,6	LOS C	0,1	0,9	0,68	0,95	0,68	45,8
12	R2	40	21,0	0,154	21,6	LOS C	0,5	4,5	0,72	1,01	0,72	44,3
Approach		159	6,0	0,154	10,5	LOS B	0,5	4,5	0,23	0,68	0,23	51,2
All Vehicles		920	5,9	0,244	4,6	NA	0,9	6,5	0,12	0,29	0,12	55,7

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.

APPENDIX E-5

ACCESS OFF OOS STREET (R34)

MOVEMENT SUMMARY

 Site: [Access off Oos Street (R34)_2027+Dev trips AM]

Access off Oos Street (R34)
 Site Category: -
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Oos Street (R34)												
1	L2	85	0,0	0,108	5,6	LOS A	0,5	3,6	0,34	0,53	0,34	53,9
2	T1	474	3,0	0,358	5,2	LOS A	2,3	16,5	0,35	0,48	0,35	54,7
Approach		559	2,5	0,358	5,2	LOS A	2,3	16,5	0,35	0,48	0,35	54,6
North: Oos Street (R34)												
8	T1	247	2,0	0,171	4,6	LOS A	1,0	7,3	0,19	0,42	0,19	55,5
9	R2	128	0,0	0,108	8,9	LOS A	0,6	4,1	0,19	0,61	0,19	52,4
Approach		376	1,3	0,171	6,1	LOS A	1,0	7,3	0,19	0,48	0,19	54,4
West: Access												
10	L2	69	0,0	0,072	6,5	LOS A	0,4	2,7	0,56	0,62	0,56	53,2
12	R2	46	0,0	0,056	11,2	LOS B	0,3	2,0	0,56	0,70	0,56	51,1
Approach		116	0,0	0,072	8,4	LOS A	0,4	2,7	0,56	0,65	0,56	52,3
All Vehicles		1051	1,8	0,358	5,9	LOS A	2,3	16,5	0,32	0,50	0,32	54,3

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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.

Roundabout Capacity Model: SIDRA Standard.

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

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

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

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Project: C:\Users\pebet\OneDrive\DES Server\DES Projects\351 Vryheid\1. Enablement Studies and Wayleaves\2. Traffic Impact Assessment
 \Sidra analysis\Vryheid_v2.sip8

MOVEMENT SUMMARY

 Site: [Access off Oos Street (R34)_2027+Dev trips FRI PM]

Access off Oos Street (R34)
 Site Category: -
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	373	0,0	0,441	8,0	LOS A	3,3	23,3	0,80	0,82	0,81	52,1
2	T1	361	3,0	0,473	9,2	LOS A	3,7	26,6	0,82	0,86	0,88	52,6
Approach		734	1,5	0,473	8,6	LOS A	3,7	26,6	0,81	0,84	0,85	52,4
North: Oos Street (R34)												
8	T1	414	2,0	0,466	7,3	LOS A	3,4	24,0	0,71	0,72	0,71	53,2
9	R2	560	0,0	0,548	11,6	LOS B	4,7	32,9	0,74	0,79	0,78	50,8
Approach		974	0,8	0,548	9,7	LOS A	4,7	32,9	0,73	0,76	0,75	51,7
West: Access												
10	L2	560	0,0	0,551	7,2	LOS A	4,8	33,9	0,76	0,75	0,79	52,5
12	R2	373	0,0	0,428	11,3	LOS B	3,0	21,3	0,69	0,78	0,69	50,9
Approach		933	0,0	0,551	8,9	LOS A	4,8	33,9	0,73	0,76	0,75	51,9
All Vehicles		2640	0,7	0,551	9,1	LOS A	4,8	33,9	0,75	0,78	0,78	52,0

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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.

Roundabout Capacity Model: SIDRA Standard.

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

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

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

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Project: C:\Users\pebet\OneDrive\DES Server\DES Projects\351 Vryheid\1. Enablement Studies and Wayleaves\2. Traffic Impact Assessment
 \Sidra analysis\Vryheid_v2.sip8

MOVEMENT SUMMARY

 Site: [Access off Oos Street (R34)_2027+Dev trips SAT]

Access off Oos Street (R34)
 Site Category: -
 Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows 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
South: Oos Street (R34)												
1	L2	494	0,0	0,779	19,3	LOS B	10,7	75,0	1,00	1,22	1,56	44,9
2	T1	286	3,0	0,577	14,7	LOS B	5,1	36,7	0,96	1,07	1,20	48,8
Approach		780	1,1	0,779	17,6	LOS B	10,7	75,0	0,99	1,16	1,43	46,3
North: Oos Street (R34)												
8	T1	319	1,0	0,480	9,8	LOS A	3,5	24,9	0,79	0,86	0,87	52,2
9	R2	741	0,0	0,815	19,2	LOS B	13,0	91,0	1,00	1,12	1,47	46,2
Approach		1060	0,3	0,815	16,4	LOS B	13,0	91,0	0,94	1,04	1,29	47,8
West: Access												
10	L2	741	0,0	0,673	7,6	LOS A	7,7	53,7	0,81	0,75	0,88	52,4
12	R2	494	0,0	0,527	11,0	LOS B	4,3	29,9	0,71	0,75	0,71	50,8
Approach		1235	0,0	0,673	8,9	LOS A	7,7	53,7	0,77	0,75	0,81	51,7
All Vehicles		3075	0,4	0,815	13,7	LOS B	13,0	91,0	0,88	0,96	1,13	48,9

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

Roundabout LOS Method: SIDRA Roundabout LOS.

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.

Roundabout Capacity Model: SIDRA Standard.

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

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

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

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Project: C:\Users\pebet\OneDrive\DES Server\DES Projects\351 Vryheid\1. Enablement Studies and Wayleaves\2. Traffic Impact Assessment
 \Sidra analysis\Vryheid_v2.sip8

APPENDIX F

PROPOSED UPGRADES LAYOUT



SU+T - 20m 6 axle
 Overall Length 20.550m
 Overall Width 3.713m
 Overall Body Height 3.713m
 Min Body Ground Clearance 0.341m
 Track Width 2.550m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 11.000m

LEGEND

NEW ROAD SURFACE - ASPHALT

EXISTING ROAD AREA

REV	DATE	BY	DESCRIPTION	APPROVED
A	2022/09/02	TJ	INTERNAL LAYOUT AMENDED	EK
A	2022/08/31	TJ	ISSUED FOR INFORMATION	EK
				APD

DRAWING STATUS: FOR INFORMATION

CLIENT:

DESIGNED BY

DES

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PROJECT:

ERF 6018 VRYHEID

TITLE:

PROPOSED UPGRADES LAYOUT

SCALE:	1:1250	CHECKED:	E KRAUSE	APPROVED:	E KRAUSE
DESIGN:	T JOUBERT	DRAWN:	T JOUBERT	DATE:	2022-08-31
PROJECT No:	DES - 351	DRAWING No:	DRW004	REV:	B