



KANTEY & TEMPLER
CONSULTING ENGINEERS

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**TRAFFIC IMPACT ASSESSMENT
IN RESPECT OF THE ST HELENA BAY RETAIL
DEVELOPMENT: PHASE 1A, PORTION OF
PORTION 4 OF FARM DUYKER EILAND NO. 6,
STOMPNEUS BAY, SALDANHA BAY
MUNICIPALITY**

OCEANA GROUP (PTY) LTD

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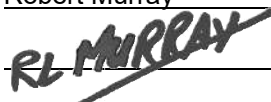
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For and on behalf of Kantey & Templer (Pty) Ltd

For and on behalf of	
Kantey & Templer (Pty) Ltd	
Approved by:	<u>Robert Murray</u>
Signed:	<u></u>
Position:	<u>Associate Director</u>
Date:	<u>14/04/2026</u>

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1. INTRODUCTION

This chapter discusses the purpose of the traffic impact assessment, identifies the study area and criteria used to identify significant project impacts.

Kantey & Templer was appointed by Oceana Group (Pty) Ltd (herein referred to as “the Client”) to prepare a Traffic Impact Assessment (TIA) in respect of Phase 1 of the St Helena Bay mixed use development to be situated on Portion 4 of Farm Duyker Eiland No. 6 located at Stompneus Bay, St Helena Bay (herein referred to as “the site”).

Refer to Figure 1 for the site locality plan.

This report is prepared in accordance with standards set by the South African Committee of Transport Officials¹ (COTO) and the Saldanha Bay Municipality Integrated Zoning Scheme By-law. The specific objectives of the report are to:

- (i) Describe the extent of the proposed development.
- (ii) Assess the existing traffic operations on the road network in the vicinity of the site.
- (iii) Predict the extent of the traffic generated by the proposed development and estimate the distribution of that new traffic.
- (iv) Evaluate the potential traffic impact of the proposed development on the surrounding road network.
- (v) Determine if improvements to the existing road network are required as a result of the additional site traffic.
- (vi) Evaluate public transport and non-motorised transport surrounding the site.
- (vii) Determine the minimum off-street parking requirements.

¹ COTO, TMH16, Traffic Impact and Site Traffic Assessment Manual & TMH17 Trip Data Manual

Figure 1: Site locality plan



© Cape Farm Mapper

2. LAND USE

The site, namely Portion 4 of Farm Duyker Eiland No. 6, located at Stompneus Bay in St Helena Bay, measures approximately 6 ha in extent and is currently zoned Agricultural.

The site will be developed for mixed use purposes, comprising residential, commercial, light industrial, medical, recreational and warehousing land uses. The proposed development will be developed in phases, with Phase 1A being the subject of this TIA. The Phase 1A retail-oriented development will occupy two portions, namely Portion 9A and a portion of Portion 10B, and shall comprise the following land uses:

Portion 9A:

- Retail Centre: 13 642.5m² GLA

Portion of Portion of 10B:

- Retail Shops: 900m² GLA
- Quick Service Restaurants: 500m² GLA
- Fuel Station: 500m² GLA
- Car Wash: 300m² GLA

Refer to Appendix A for a site layout plan of the Phase 1A development.

3. ROAD NETWORK

The site is well served by the existing road network. Primary access to the Phase 1A development will be achievable via Divisional Road 2160 (DR2160), which intersects Main Street, also referred to as Main Road 533 (MR533). Secondary accesses will be located on new roads intersecting with MR533 and DR2160, spaced approximately 295m and 145m away, respectively.

DR02160 measures approximately 18km in length and serves as a connection between Vredenburg to Stompneus Bay via the R45, another Main Road referred to as MR240. MR533 was recently upgraded from St Helena Bay to Stompneus Bay between km 13.19 and km 23.08. The road upgrades, which took place between May 2023 and February 2025, were divided into the following sections:

- Section 1 (km 13.19 to km 15.50): Class 2 cross-section
- Section 2 (km 15.50 to km 19.20): Class B(ii) urban cross-section
- Section 3 (km 19.20 to km 23.08): Class 3 cross-section (between Plover Street and Stompneus Street).

According to the Western Cape Government Department of Infrastructure (Chief Directorate: Road Planning), whilst MR533 has been reclassified as a Class 2 road, it has a functional classification of Class 3, and therefore, Class 3 access spacing requirements would be applicable along MR533. DR2160 is classified as a Class 3 road, but has the functional classification of Class 4, and therefore, Class 4 access spacing requirements will be applicable.

4. EXISTING & FUTURE TRAFFIC CONDITIONS

Background traffic information was obtained from traffic counts conducted on the road network on Wednesday, 19 February 2025 and Thursday, 20 February 2025. The traffic generated by the proposed development can be expected to influence the MR533 (Main Street) / DR2160 intersection and extended roadways. The surveys were undertaken during the following periods:

- Weekday AM Peak Period: 06:00 – 08:30
- Weekday PM Peak Period: 16:00 – 18:30

The 2025 traffic count data was projected to depict the 2026-year base traffic and 2031-year 5-year horizon traffic conditions by using growth factors from the WCG Road Network Information System (RNIS). The following growth rates were obtained from the Western Cape Government Road Network Information System (RNIS):

- MR533 : 5.7%
- DR2160 : 5.7%

A summary of the traffic count data is contained in Appendix B. The 2025 traffic count and 2026 base year traffic volumes are illustrated in Figures C1 & C2 contained in Appendix C.

The following key intersections were analysed in order to assess the existing and future traffic operations during the typical weekday peak commuter periods.

- Key Intersection 1: MR533 (Main Street) / DR2160
 - Key Intersection 2: MR533 / New Access Road 1
 - Key Intersection 3: DR2160 / Primary Access (9A & 10B)
 - Key Intersection 4: DR2160 / New Access Road 2
 - Key Intersection 5: New Access Road 1 / Secondary Access (9A)
 - Key Intersection 6: New Access Road 1 / New Access Road 2
- } Future Condition

Figure 2: Key Intersections



5. TRIP GENERATION

The trip generation requires an estimation of the additional traffic to be generated by the proposed Phase 1A development. The site traffic was calculated using trip rates from the COTO TMH17 Trip Data Manual and is tabulated below:

Table 1: Trip Generation Estimation: Portion 10B

Retail Shops (COTO Code: 820)				
GLA (m ²)	900			
Trip Generation Rate (TGR) / 100m ² GLA	AM Peak Hour		PM Peak Hour	
	0.60		3.40	
Trip Rate Adjustment Factor (Mixed Use)	10%		10%	
Size Adjustment Factor	5.80		5.80	
% Pass-by Trips	–		38%	
% Diverted Trips	–		29%	
Pass-by Trips	–		50	
Diverted Trips	–		38	
Trips Generated (TG)	28		160	
New Trips	28		72	
Directional Split & Vehicular Trips	IN	OUT	IN	OUT
	65%	35%	50%	50%
	18	10	80	80
Quick Service Restaurants (COTO Code: 933)				
GLA (m ²)	500			
Trip Generation Rate (TGR) / 100m ² GLA	AM Peak Hour		PM Peak Hour	
	45.00		50.00	
Trip Rate Adjustment Factor (Mixed Use)	10%		10%	
% Pass-by Trips	–		52%	
% Diverted Trips	–		25%	
Pass-by Trips	–		68	
Diverted Trips	–		34	
Trips Generated (TG)	203		225	
New Trips	203		123	
Directional Split & Vehicular Trips	IN	OUT	IN	OUT
	55%	45%	55%	45%
	112	91	124	101
Fuel Station (COTO Code: 946)				
Station	1			
Trip Generation Rate (TGR) / Station	AM Peak Hour		PM Peak Hour	
	60.00		60.00	
Trips Generated (TG)	60		60	
New Trips	60		60	
Directional Split & Vehicular Trips	IN	OUT	IN	OUT
	50%	50%	50%	50%
	30	30	30	30
Total Additional (New) Vehicular Trips	AM Peak Hour		PM Peak Hour	
	291		255	
	IN	OUT	IN	OUT
	160	131	134	121

Based on the above table, the Portion 10B development can be expected to generate 291 (160 in / 131 out) additional/new trips during the weekday AM peak hour and 255 (134 in / 121 out) additional/new trips during the PM peak hour.

Table 2: Trip Generation Estimation: Portion 9A

Retail Centre (COTO Code: 820)				
GLA (m ²)	13 642.5			
Trip Generation Rate (TGR) / 100m ² GLA	AM Peak Hour		PM Peak Hour	
	0.60		3.40	
Size Adjustment Factor	2.22		2.22	
% Pass-by Trips	–		33%	
% Diverted Trips	–		29%	
Pass-by Trips	–		44	
Diverted Trips	–		38	
Trips Generated (TG)	183		1032	
New Trips	183		950	
Directional Split & Vehicular Trips	IN	OUT	IN	OUT
	65%	35%	50%	50%
	120	64	516	516
Total Additional (New) Vehicular Trips	AM Peak Hour		PM Peak Hour	
	185		950	
	IN	OUT	IN	OUT
	119	65	475	475

Based on the above table, the Portion 9A development can be expected to generate 183 (119 in / 64 out) additional/new trips during the weekday AM peak hour and 950 (475 in / 475 out) additional/new trips during the PM peak hour.

Note:

1. The maximum percentage of background traffic which may be included in pass-by or diverted trips is 20%
2. Pass-by and diverted trips are only calculated for the PM peak hour and are subtracted from the Trips Generated to produce New Trips
3. 20% of the PM peak hour traffic (660) at the MR533 / DR2160 intersection is 132 vehicles

6. SITE TRAFFIC DISTRIBUTION

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

The trip distribution is based on the anticipation that:

- 50% of site traffic would originate from the east via MR533
- 10% of site traffic would originate from the west via MR533
- 40% of site traffic would originate from the south via DR2160

The trip distribution patterns and site traffic assignment are illustrated in Figures C3 – C8 in Appendix C.

7. POTENTIAL IMPACT

The traffic operations were analysed using Signalised and Unsignalised Intersection Design and Research Aid software package² (SIDRA). The software package determines the existing and future operational Levels of Service (LOS) and expected average delays at the key intersections in the study area with the additional traffic from the proposed liquor store.

ANALYSIS METHODOLOGY

Level of Service

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

Table 3 summarises the relationships between the average control delay per vehicle and LOS for signalized intersections, roundabouts and stop and yield controls.

For this study, the following scenarios were evaluated:

- ***Existing*** – Existing Conditions (2026)
- ***Future*** – Future Conditions “Five Year Horizon” (2031) – *excluding & including additional site traffic*

² SIDRA Version 9 Software, SidraSolutions, Australia

Table 3: Level-of-Service definitions based on delay (HCM method)

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

The traffic operations at the key intersections are summarised in Tables 4 – 15 in terms of LOS, Delay and V/C ratios (measures of effectiveness). More detailed Movement and LOS summaries are contained in Appendix D.

Summary of Existing (2026) and Future (2031) Traffic Conditions

Existing 2026 Conditions:

The analysis indicates that the existing road network operates efficiently during both the AM and PM peak periods. The key intersection of MR533 / DR2160 currently experiences low volume-to-capacity (v/c) ratios and minimal delays, with the majority of movements operating at Level of Service (LOS) A, and isolated movements at LOS B. Overall, the intersection operates well within acceptable limits, reflecting stable traffic flow conditions with sufficient available capacity and no evidence of congestion or operational deficiencies.

Future 2031 Conditions (excluding Site Traffic):

With the application of an annual growth rate of 5.7%, traffic volumes are expected to increase over the five-year horizon. Despite this growth, the MR533 / DR2160 intersection and surrounding road network continue to operate at acceptable levels. The intersection generally maintains LOS A to LOS B during both peak periods, with only marginal increases in delay and v/c ratios. The results indicate that the existing road infrastructure is adequately robust to accommodate background traffic growth without significant deterioration in operational performance.

Future 2031 Conditions (including Site Traffic):

When the additional traffic generated by the proposed Phase 1A development is included, there is a noticeable but manageable increase in traffic demand across the study network. The MR533 / DR2160 intersection shows an increase in delays and v/c ratios, particularly on the minor road (DR2160) approaches, where operations shift to LOS B in the AM peak and up to LOS C in the PM peak for certain movements.

The newly introduced access intersections and internal road network elements are expected to operate efficiently, with most movements achieving LOS A or LOS B, and isolated cases of LOS C during the PM peak period at higher-demand access points. Roundabouts within the development network perform well, maintaining LOS A with low delays and reserve capacity.

Overall, the future network, inclusive of site traffic, continues to function within acceptable operational standards, with moderate increases in delay primarily confined to minor approaches and access points. Therefore, the Phase 1A development was found to have a low impact on the surrounding road network.

Table 4: AM Peak Hour Traffic Operations at Intersection of MR533 / DR2160

Approach	Movement	Intersection Type: T-Junction								
		Existing 2026 Scenario			Future 2031 Scenario					
		Background Traffic			Excluding Site Traffic			Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.098	8.8	LOS A	0.144	9.1	LOS A	0.403	10.2	LOS B
	Right	0.098	10.1	LOS B	0.144	11.6	LOS B	0.403	14.5	LOS B
	Approach	0.098	9.2	LOS A	0.144	9.9	LOS A	0.403	12.7	LOS B
East: MR533	Left	0.117	5.6	LOS A	0.155	5.6	LOS A	0.228	5.6	LOS A
	Through	0.117	0.0	LOS A	0.155	0.0	LOS A	0.228	0.1	LOS A
	Approach	0.117	1.0	NA	0.155	1.0	NA	0.228	2.5	NA
West: MR533	Through	0.150	0.4	LOS A	0.205	0.7	LOS A	0.250	1.4	LOS A
	Right	0.150	6.3	LOS A	0.205	6.7	LOS A	0.250	7.5	LOS A
	Approach	0.150	2.4	NA	0.205	2.7	NA	0.250	3.8	NA
All Vehicles		0.150	3.0	NA	0.205	3.2	NA	0.403	5.5	NA

Table 5: PM Peak Hour Traffic Operations at Intersection of MR533 / DR2160

Approach	Movement	Intersection Type: T-Junction								
		Existing 2026 Scenario			Future 2031 Scenario					
		Background Traffic			Excluding Site Traffic			Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.130	9.0	LOS A	0.198	9.4	LOS A	0.607	12.2	LOS B
	Right	0.130	10.6	LOS B	0.198	12.4	LOS B	0.607	18.5	LOS C
	Approach	0.130	9.5	LOS A	0.198	10.4	LOS B	0.607	15.3	LOS C
East: MR533	Left	0.134	5.6	LOS A	0.177	5.6	LOS A	0.248	5.6	LOS A
	Through	0.134	0.0	LOS A	0.177	0.0	LOS A	0.248	0.1	LOS A
	Approach	0.134	0.9	NA	0.177	1.0	NA	0.248	2.6	NA
West: MR533	Through	0.154	0.3	LOS A	0.208	0.5	LOS A	0.284	1.5	LOS A
	Right	0.154	6.4	LOS A	0.208	6.9	LOS A	0.284	7.8	LOS A
	Approach	0.154	1.6	NA	0.208	1.8	NA	0.284	3.9	NA
All Vehicles		0.154	2.8	NA	0.208	3.1	NA	0.607	7.0	NA

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.

Figure 3: Existing Intersection Geometry of MR533 / DR2160

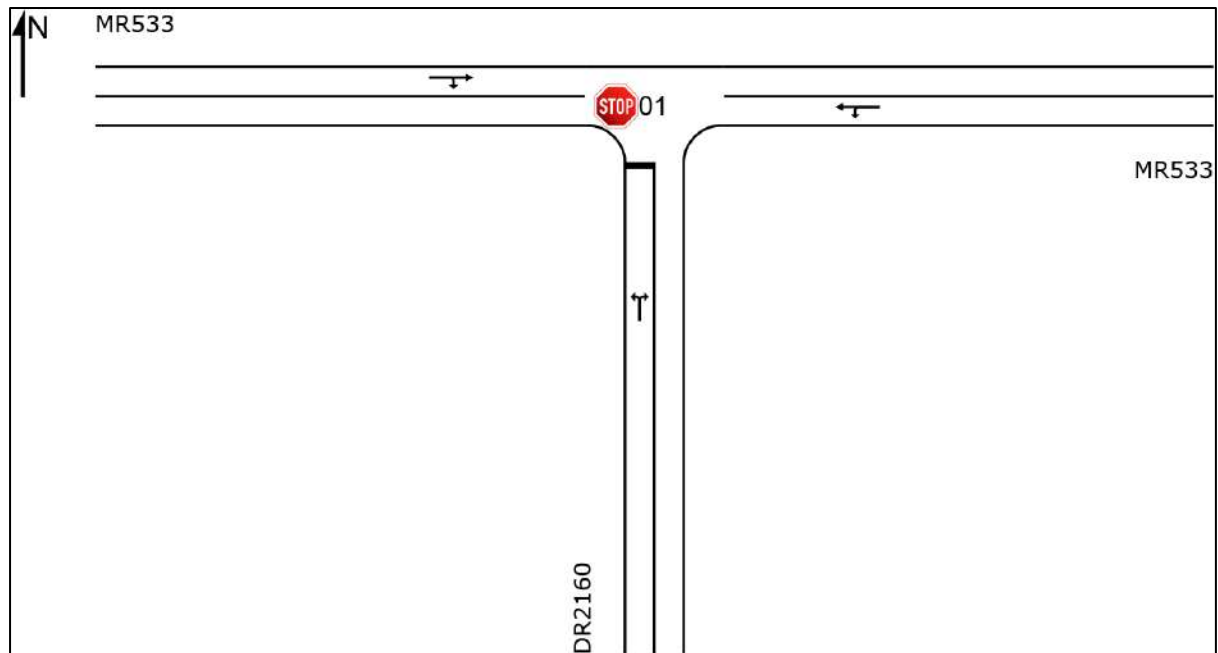


Table 6: AM Peak Hour Traffic Operations at Intersection of MR533 / New Access Road 1

Approach	Movement	Intersection Type: T-Junction		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: New Access Road 1	Left	0.054	10.1	LOS B
	Right	0.054	13.6	LOS B
	Approach	0.054	13.4	LOS B
East: MR533	Left	0.247	5.6	LOS A
	Through	0.247	0.1	LOS A
	Approach	0.247	0.6	NA
West: MR533	Through	0.198	0.0	LOS A
	Right	0.198	7.8	LOS A
	Approach	0.198	0.0	NA
All Vehicles		0.247	0.7	NA

Table 7: PM Peak Hour Traffic Operations at Intersection of MR533 / New Access Road 1

Approach	Movement	Intersection Type: T-Junction		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: New Access Road 1	Left	0.553	14.6	LOS B
	Right	0.553	22.5	LOS C
	Approach	0.553	22.4	LOS C
East: MR533	Left	0.339	5.6	LOS A
	Through	0.339	0.1	LOS A
	Approach	0.339	1.6	NA
West: MR533	Through	0.241	0.0	LOS A
	Right	0.241	9.4	LOS A
	Approach	0.241	0.0	NA
All Vehicles		0.553	3.9	NA

Figure 4: Future Intersection Geometry of MR533 / New Access Road 1

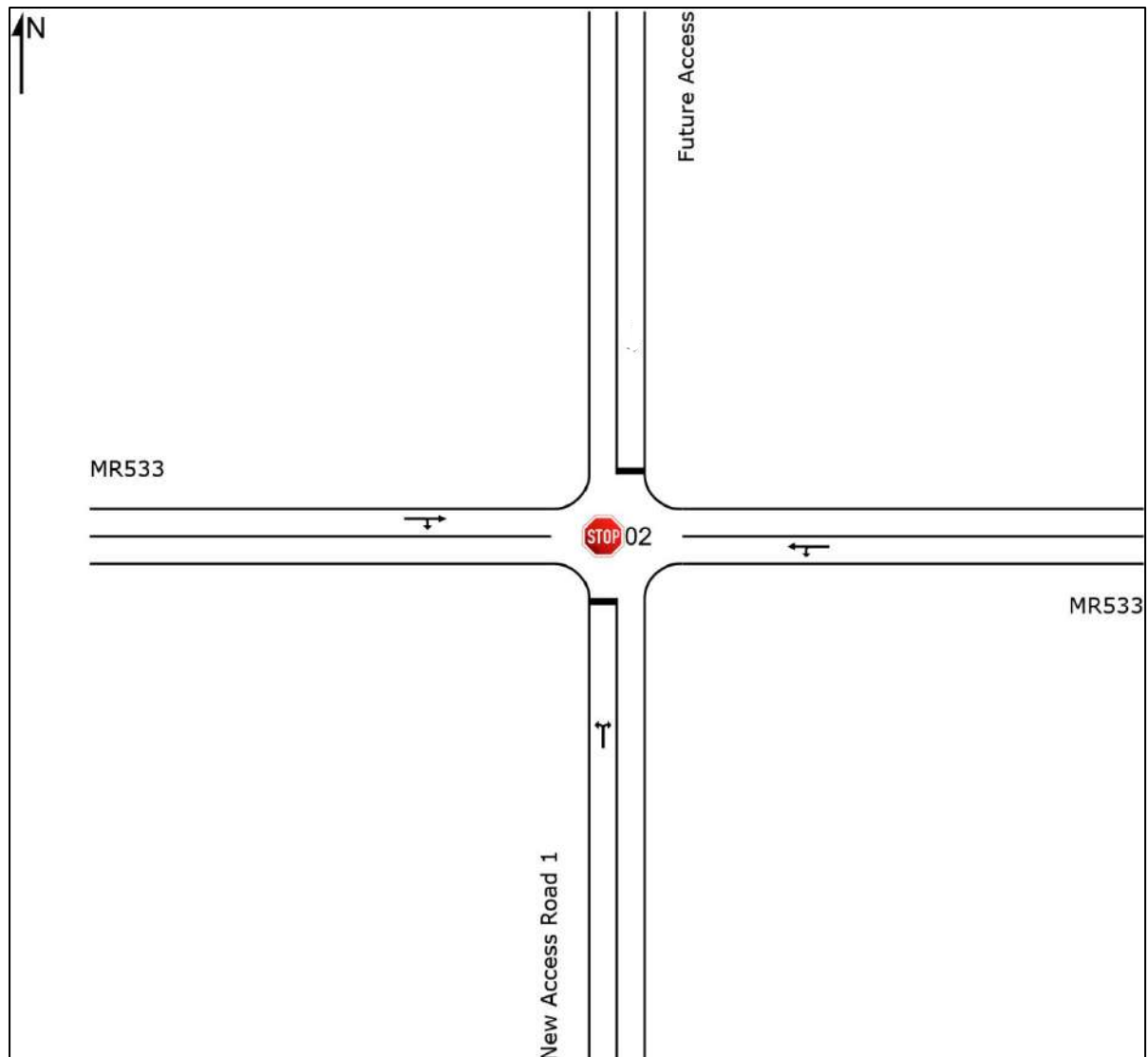


Table 8: AM Peak Hour Traffic Operations at Intersection of DR2160 / Primary Accesses

Approach	Movement	Intersection Type: Unsignalised Intersection		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.137	5.8	LOS A
	Through	0.137	0.3	LOS A
	Right	0.137	6.2	LOS A
	Approach	0.137	3.3	NA
East: Portion 9A Access	Left	0.060	8.7	LOS A
	Through	0.060	11.5	LOS B
	Right	0.060	12.8	LOS B
	Approach	0.060	10.5	LOS B
North: DR2160	Left	0.182	6.3	LOS A
	Through	0.182	0.6	LOS A
	Right	0.182	6.3	LOS A
	Approach	0.182	3.4	NA
West: Portion 10B Access	Left	0.266	8.6	LOS A
	Through	0.266	12.0	LOS B
	Right	0.266	13.0	LOS B
	Approach	0.266	10.4	LOS B
All Vehicles		0.266	5.5	NA

Table 9: PM Peak Hour Traffic Operations at Intersection of DR2160 / Primary Accesses

Approach	Movement	Intersection Type: Unsignalised Intersection		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.209	6.3	LOS A
	Through	0.209	0.8	LOS A
	Right	0.209	6.4	LOS A
	Approach	0.209	4.7	NA
East: Portion 9A Access	Left	0.511	10.5	LOS B
	Through	0.511	16.7	LOS C
	Right	0.511	19.3	LOS C
	Approach	0.511	14.5	LOS B
North: DR2160	Left	0.203	6.1	LOS A
	Through	0.203	0.6	LOS A
	Right	0.203	6.2	LOS A
	Approach	0.203	4.8	NA
West: Portion 10B Access	Left	0.313	8.7	LOS A
	Through	0.313	14.3	LOS B
	Right	0.313	16.6	LOS C
	Approach	0.313	11.6	LOS B
All Vehicles		0.511	8.3	NA

Figure 5: Future Intersection Geometry of DR2160 / Primary Accesses

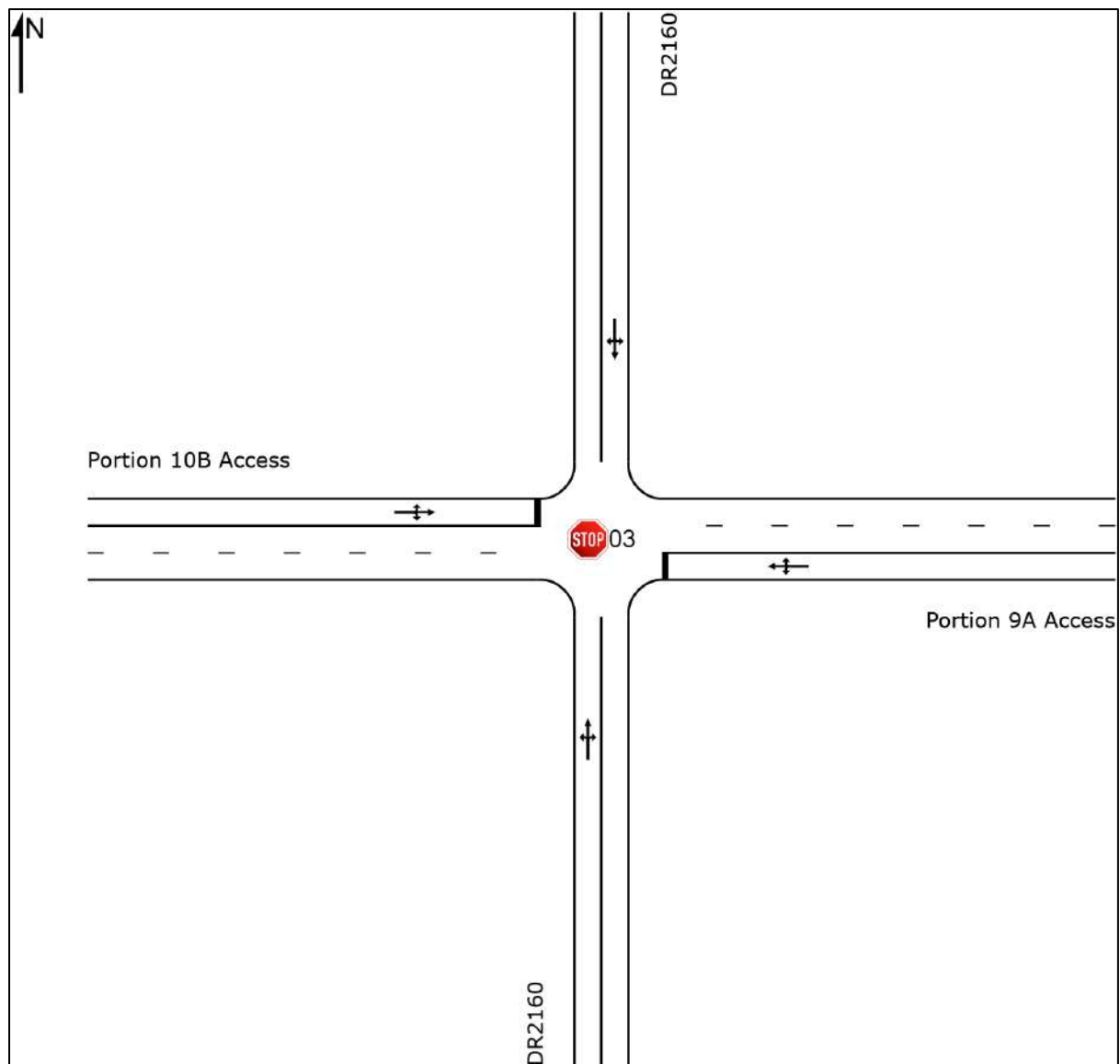


Table 10: AM Peak Hour Traffic Operations at Intersection of DR2160 / New Access Road 2

Approach	Movement	Intersection Type: Roundabout		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.152	3.4	LOS A
	Through	0.152	3.4	LOS A
	Right	0.152	9.1	LOS A
	Approach	0.152	3.6	LOS A
East: New Access Road 2	Left	0.004	4.4	LOS A
	Through	0.004	4.4	LOS A
	Right	0.004	10.2	LOS B
	Approach	0.004	5.6	LOS A
North: DR2160	Left	0.163	3.4	LOS A
	Through	0.163	3.4	LOS A
	Right	0.163	9.2	LOS A
	Approach	0.163	3.5	LOS A
West: New Access Road 2	Left	0.002	4.4	LOS A
	Through	0.002	4.4	LOS A
	Right	0.002	10.1	LOS B
	Approach	0.002	6.3	LOS A
All Vehicles		0.163	3.5	LOS A

Table 11: PM Peak Hour Traffic Operations at Intersection of DR2160 / New Access Road 2

Approach	Movement	Intersection Type: Roundabout		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.232	3.4	LOS A
	Through	0.232	3.4	LOS A
	Right	0.232	9.1	LOS A
	Approach	0.232	3.8	LOS A
East: New Access Road 2	Left	0.023	4.8	LOS A
	Through	0.023	4.8	LOS A
	Right	0.023	10.5	LOS B
	Approach	0.023	5.0	LOS A
North: DR2160	Left	0.218	3.5	LOS A
	Through	0.218	3.5	LOS A
	Right	0.218	9.2	LOS A
	Approach	0.218	3.5	LOS A
West: New Access Road 2	Left	0.003	5.0	LOS A
	Through	0.003	5.0	LOS A
	Right	0.003	10.7	LOS B
	Approach	0.003	6.9	LOS A
All Vehicles		0.232	3.7	LOS A

Figure 6: Future Intersection Geometry of DR2160 / New Access Road 2

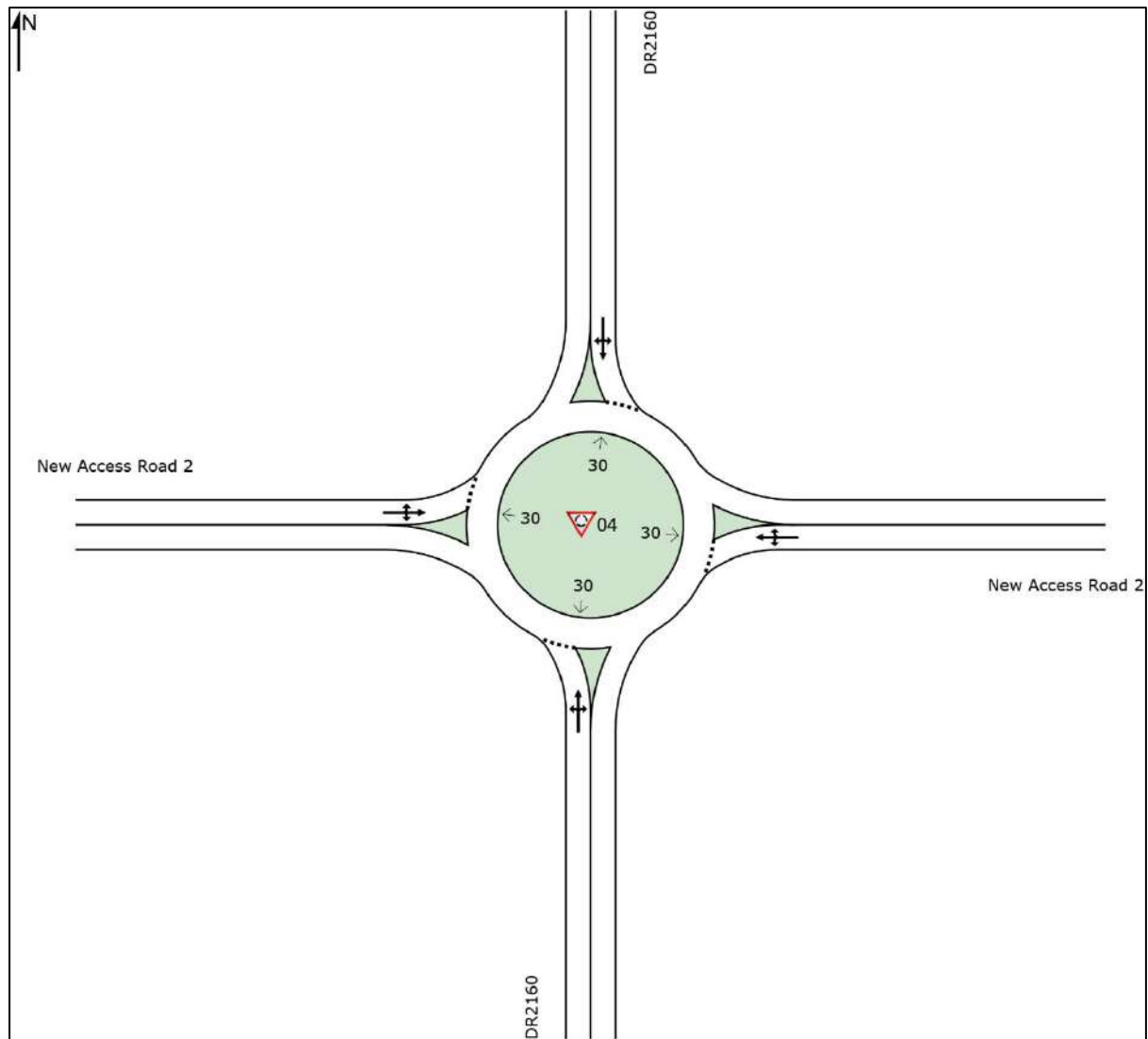


Table 12: AM Peak Hour Traffic Operations at Intersection of New Access Road 1 / Secondary Access

Approach	Movement	Intersection Type: T-Junction		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: New Access Road 1	Left	0.004	5.5	LOS A
	Right	0.004	0.0	LOS A
	Approach	0.004	4.7	NA
East: MR533	Left	0.026	0.0	LOS A
	Through	0.026	5.5	LOS A
	Approach	0.026	5.3	NA
West: MR533	Through	0.020	8.0	LOS A
	Right	0.020	7.6	LOS A
	Approach	0.020	8.0	LOS A
All Vehicles		0.026	6.2	NA

Table 13: PM Peak Hour Traffic Operations at Intersection of New Access Road 1 / Secondary Access

Approach	Movement	Intersection Type: T-Junction		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: New Access Road 1	Left	0.013	5.5	LOS A
	Right	0.013	0.0	LOS A
	Approach	0.013	5.3	NA
East: MR533	Left	0.107	0.1	LOS A
	Through	0.107	5.5	LOS A
	Approach	0.107	5.5	NA
West: MR533	Through	0.155	8.0	LOS A
	Right	0.155	8.5	LOS A
	Approach	0.155	8.1	LOS A
All Vehicles		0.155	6.8	NA

Figure 7: Future Intersection Geometry of New Access Road 1 / Secondary Access

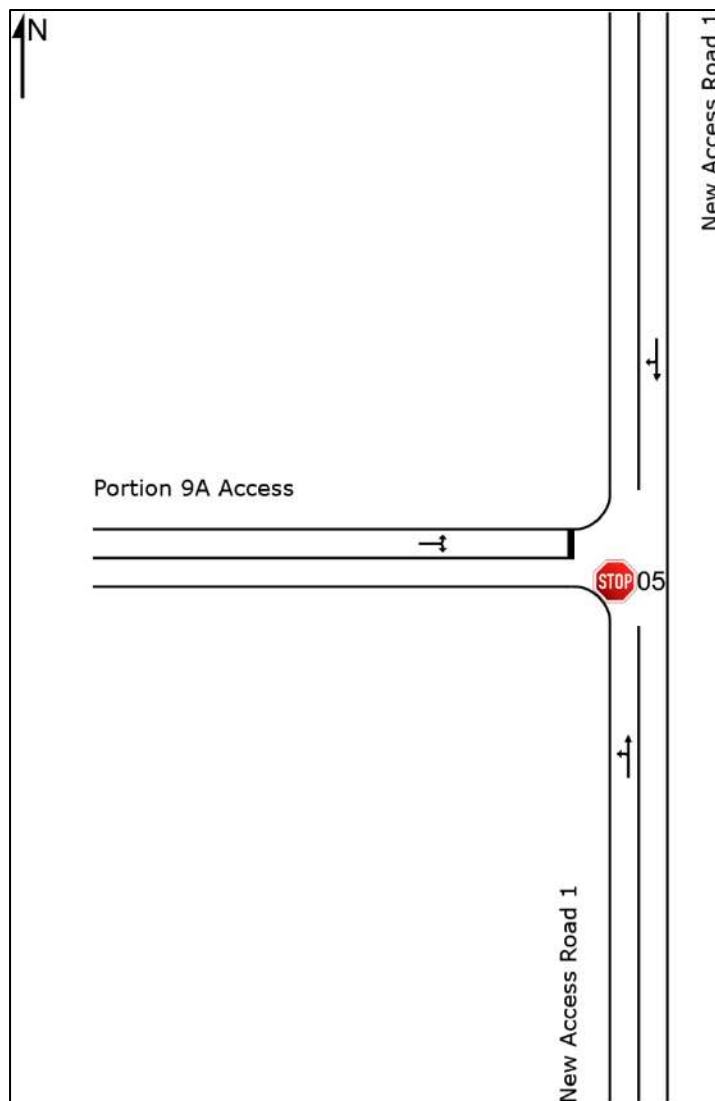


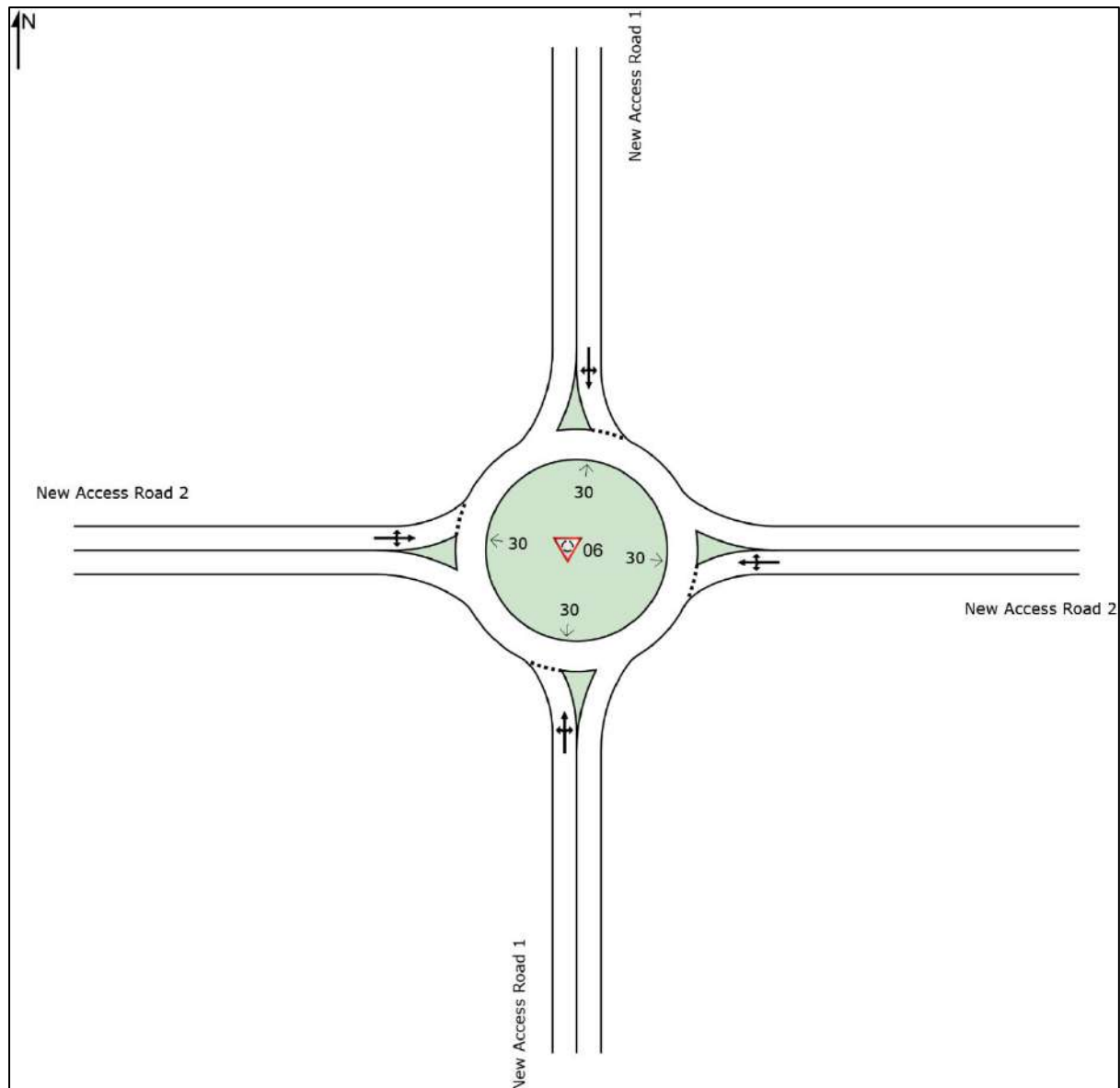
Table 14: AM Peak Hour Traffic Operations at Intersection of New Access Road 1 / New Access Road 2

Approach	Movement	Intersection Type: Roundabout		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.002	3.4	LOS A
	Through	0.002	3.4	LOS A
	Right	0.002	9.2	LOS A
	Approach	0.002	5.3	LOS A
East: New Access Road 2	Left	0.002	3.4	LOS A
	Through	0.002	3.4	LOS A
	Right	0.002	9.2	LOS A
	Approach	0.002	5.3	LOS A
North: DR2160	Left	0.003	3.4	LOS A
	Through	0.003	3.4	LOS A
	Right	0.003	9.1	LOS A
	Approach	0.003	6.9	LOS A
West: New Access Road 2	Left	0.005	3.4	LOS A
	Through	0.005	3.4	LOS A
	Right	0.005	9.1	LOS A
	Approach	0.005	4.1	LOS A
All Vehicles		0.005	5.2	LOS A

Table 15: PM Peak Hour Traffic Operations at Intersection of New Access Road 1 / New Access Road 2

Approach	Movement	Intersection Type: Roundabout		
		Future 2031 Scenario		
		Including Site Traffic		
		v/c	Ave. Delay (seconds)	LOS
South: DR2160	Left	0.002	3.5	LOS A
	Through	0.002	3.5	LOS A
	Right	0.002	9.2	LOS A
	Approach	0.002	5.4	LOS A
East: New Access Road 2	Left	0.002	3.5	LOS A
	Through	0.002	3.5	LOS A
	Right	0.002	9.2	LOS A
	Approach	0.002	5.4	LOS A
North: DR2160	Left	0.016	3.4	LOS A
	Through	0.016	3.4	LOS A
	Right	0.016	9.1	LOS A
	Approach	0.016	8.7	LOS A
West: New Access Road 2	Left	0.016	3.4	LOS A
	Through	0.016	3.4	LOS A
	Right	0.016	9.1	LOS A
	Approach	0.016	3.6	LOS A
All Vehicles		0.016	6.1	LOS A

Figure 8: Future Intersection Geometry of New Access Road 1 / New Access Road 2



8. PROPOSED IMPROVEMENTS

As previously discussed, the proposed development was found to have a low impact on the traffic operations at the key intersections. Therefore, no geometric improvements are required at any of the key intersections as a result of the proposed Phase 1A development.

The need to introduce left and right turn lanes on DR2160 was investigated in accordance with the Western Cape Government Access Management Guidelines (AMG). It is evident from Figures 9 and 10 that right turn lanes are warranted on DR2160 at the accesses to the Phase 9A and 10B developments.

It must be noted that the SIDRA analysis for the primary accesses, as summarised in Tables 8 and 9, indicates that the future year LOS is acceptable and thus, no right turn lanes are warranted in terms of LOS, delays and v/c ratios.

However, the right turn lanes would be warranted to improve safety and mobility at the access intersections.

Figure 9: Right Turn Lane Warrants: DR2160 – Portion 9A

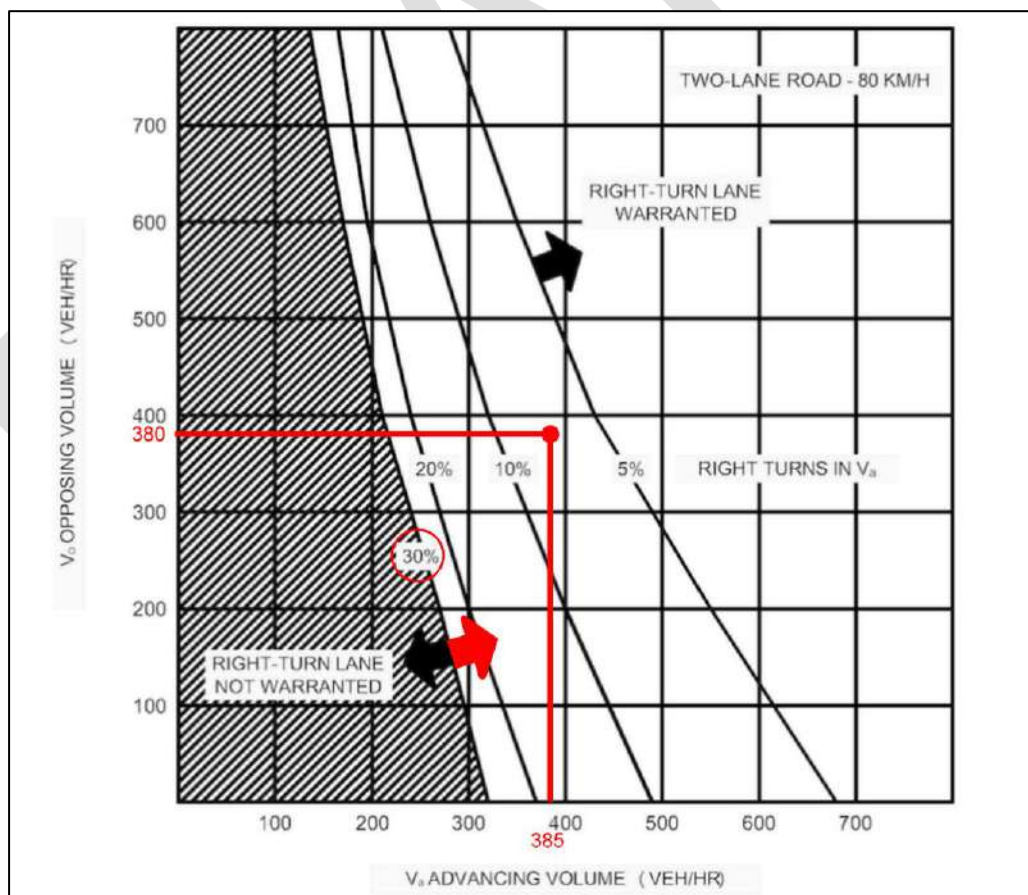
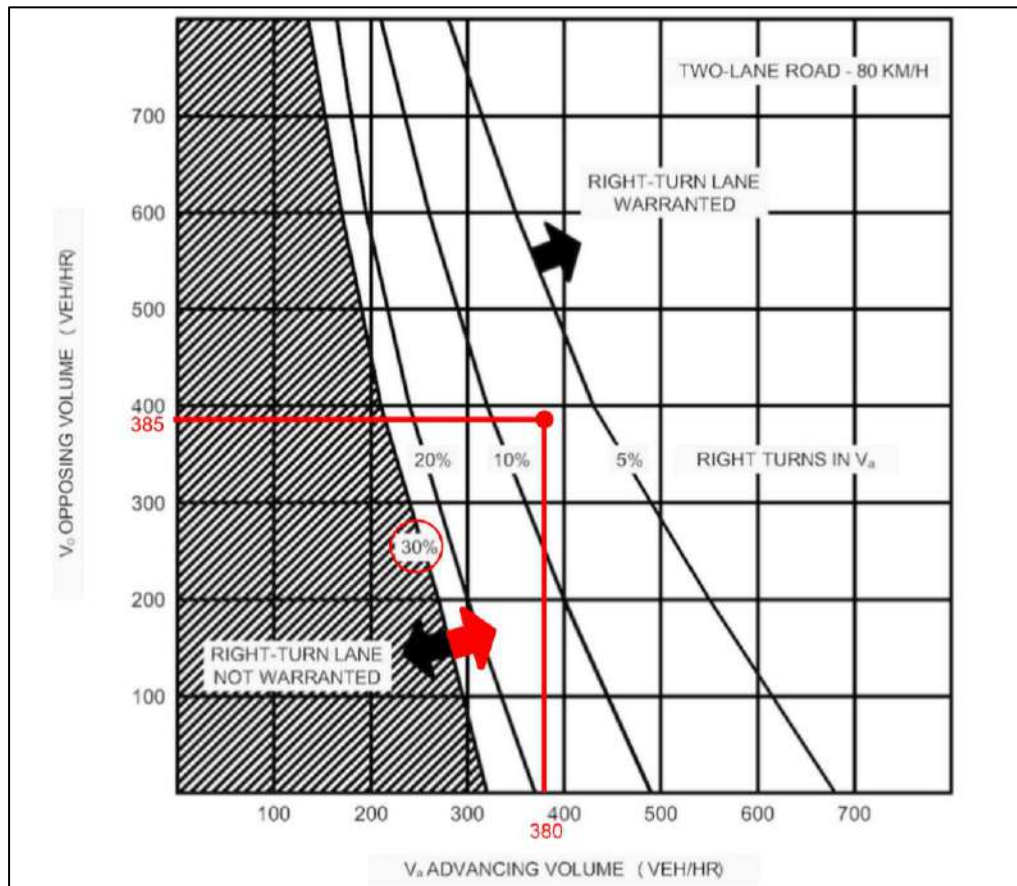


Figure 10: Right Turn Lane Warrants: DR2160 – Portion 10B



9. ACCESS TO SITE

Primary access to Portions 9A and 10B will be located on DR2160, spaced $\geq 145\text{m}$ from MR533. The primary accesses will also be spaced $\geq 135\text{m}$ from a new roundabout intersection to the south. In accordance with the Access Management Guidelines (AMG), the minimum spacing between two unsignalised intersections along a Class 4 road (functional classification) within an intermediate roadside development environment (RDE) is 145m and with a 7.5% reduction, the requirement can be reduced to 134m.

Secondary access to Portion 9A will be via a new access road on MR533, located approximately 295m from DR2160. In terms of AMG, the minimum spacing between an unsignalised intersection and a high-volume driveway along a Class 3 road (functional classification) within an intermediate roadside development environment (RDE) is 180m.

An intermediate RDE is characterised by areas with a Floor Area Ratio ($\text{FAR} = \text{m}^2$ of development per m^2 of land area) with a range of 0.3 – 1 and Bulk with a range of $3,000\text{m}^2$ – $10,000\text{m}^2/\text{ha}$. The FAR and the Bulk calculation for the Portion 9A and 10B developments are 0.31 and $3,120/\text{ha}$, respectively. Therefore, the access spacing provision on MR533 and DR2160 is deemed to be acceptable.

There will also be a third access to a delivery yard on the new internal access road, 30m upstream of the new roundabout intersection on DR2160.

Figure 11: Proposed Phase 1A Accesses



In terms of throat length and inbound lane requirements as illustrated in the figure below, the Portion 9A and 10B developments will require a throat length of 20m and 25m and 2 inbound lanes and 3 – 5 inbound lanes, respectively.

Figure 12: Throat length and inbound lane requirements

Class of public roadway	2	3	4	Total number of inbound lanes summed for all access driveways
Development m²	Throat length m			
< 2 000	20	20	15	1
Ptn 9A 2 000–5 000	30	25	20	2
5 000–10 000	40	30	20	3
Ptn 10B 10 000–25 000	50	40	25	3–5
25 000–50 000	75	50	30	4–6
> 50 0000	100	70	40	6 or more

Source: AMG, Table 14-2

According to the site layout plan, the primary and secondary accesses to Portion 9A will each have 2 inbound lanes, i.e. 4 lanes total, with throat lanes exceeding 30m in length, measured to the access control booms. The Portion 10B access will also have 2 inbound lanes with a 45m long throat length to the internal intersection and will not be access-controlled. Therefore, the throat length provision is deemed to be more than adequate.

Queue length analyses were undertaken in accordance with the Committee of Transport Officials (COTO) TMH16 (Volume 2) guidelines to determine the stacking requirements at the Portion 9A accesses. For the determination of the queue length, a traffic ratio at the entrance must be calculated using the following formula:

$$\text{Traffic Ratio} = \frac{\text{Total Volume /PHF}}{\text{Service Flow Rate}} \times 100$$

Where,

Total Volume	= Highest inbound volume
PHF	= Peak Hour Factor
Service Flow Rate	= Frequency of inbound vehicles based on the type of access control mechanisms, measured in vehicles per hour (vph)

Figure 13: Access control service flow rates

Service flow rates (veh/h) for different control types	
Control type	Service flow (vph)
Swipe magnetic card	480
Remote controlled gates	450
Ticket dispenser: Automatic	390 -450
Ticket dispenser: Push button	220 - 360
Pin number operated gates	150
Pay fee on entry	120
Cell-phone operated gates (gate opens when a call is received)	100
Manual recording, Visitor completes form	80
Intercom operated gates (visitor contacts resident by intercom)	50

Source: Table 30 – COTO TMH16 (Vol2)

It is assumed that accesses will be controlled by a ticket dispenser system (push button), which has a service flow rate (SFR) of up to 360 vph. A PHF of 0.94 derived from the traffic count data has been adopted. As previously calculated, the highest inbound demand for the proposed development will occur during the PM peak hour, with 525 inbound vehicular trips, of which 315 trips will be assigned to the primary access on DR2160 and 210 trips to the secondary access based on a 60:40 split.

Accordingly, the traffic ratios are calculated as follows:

$$\text{Traffic Ratio}_{\text{primary access}} = \frac{310/0.94}{360} \times 100 = 92$$

$$\text{Traffic Ratio}_{\text{secondary access}} = \frac{206/0.94}{360} \times 100 = 61$$

Based on Figure 14, the traffic ratios of 92 and 61 (between 58 and 94) correspond to a stacking requirement of 2 vehicles in a 2-channel access system, i.e. 4 vehicles, equating to a stacking requirement of 12m per lane at each of the accesses. The boom-gates will be set back more than 30m with sufficient stacking for 5 vehicles per lane. Therefore, the access control setbacks are deemed to be more than adequate.

Figure 14: Access control queue lengths on access throats

95 th Percentile queue length (vehicles per channel) at controlled accesses						
Storage (Vehs)	Traffic ratio (Percentage) for different Numbers of Channels					
N _{Que}	1 Channel	2 Channel	3 Channel	4 Channel	5 Channel	6 Channel
1	23	58	97	140	188	235
2	39	94	155	220	292	363
3	49	115	186	261	341	421
4	56	128	205	283	367	449
5	61	137	216	297	382	466
6	65	143	224	306	392	476
7	68	147	229	312	399	484
8	70	151	233	317	403	489
9	71	153	236	321	407	493
10	73	155	239	324	410	496

Source: Table 31 – COTO TMH16 (Vol2)

10. PUBLIC & NON-MOTORISED TRANSPORT

The Saldanha Bay Municipality Spatial Development Framework (SBMSDF), 2025 – 2030, indicates that existing road infrastructure in St Helena Bay predominantly caters to vehicular traffic, with limited provision for pedestrians and non-motorised transport (NMT). St Helena Bay is therefore in great need of improved pedestrian pathways and cycling lanes to foster accessibility, safety, and a more sustainable community environment.

Specific transport-related needs identified by the Saldanha Bay Municipal Integrated Transport Plan, 2021 (SBMITP) include upgrading and tar application on roads between Paternoster and St Helena Bay in Ward 11, as well as the paving and tarring of sidewalks.

The SBMSDF supports the upgrade of Main Street (MR533) to accommodate public and non-motorised transport, prioritising continuous cycle lanes from Ecklonia Street in Britannia Bay to

Laingville, including traffic calming measures. According to the site layout plan, sidewalks will be provided along the perimeters of the Portion 9A and 10B developments.

Public transport in the form of minibus taxis and buses accounted for approximately 9% of the traffic volumes along MR533 during the AM and PM peak periods. According to the site layout plan, the Portion 9A and 10B developments will have designated minibus taxi drop-off areas, which will be instrumental in promoting the objectives of the SBMSDF.

11. PARKING REQUIREMENTS

In accordance with the Saldanha Bay Municipality Integrated Zoning Scheme By-law, the minimum off-street parking requirements for the Phase 1A development land uses are calculated below:

Portion 9A:

➤ Retail Centre:	Shops:	12 795.2m ² @ 1 bay/25m ²	=	512 bays
	Restaurants:	328 seats @ 1 bay/4 seats	=	82 bays
			Total =	594 bays

Portion of Portion of 10B:

➤ Retail Shops:	900m ² @ 1 bay/25m ²	=	36 bays
➤ Quick Service Restaurants:	120 seats @ 1 bay/4 seats	=	30 bays
➤ Fuel Station:	200m ² (shop) @ 4 bays + 1 bay/25m ²	=	24 bays
		Total =	90 bays

According to the site layout plan, the Portion 9A development will have a parking provision of 568 bays (inclusive of 48 credit bays for the 12 taxi stands) and the Portion 10B development will have a parking provision of 109 bays (inclusive of 24 credit bays for the 6 taxi stands). Therefore, while the Portion 10B development will meet the minimum off-street parking requirement, the Portion 9A will have a parking departure of 568 bays in lieu of 594 bays.

However, the parking shortfall on Portion 9A stems from applying separate parking ratios to the restaurants. It must be noted that these are not free-standing restaurants like those found on Portion 10B, but rather restaurants which form part of the GLA and fabric of the retail centre. Therefore, should the general business ratio of 1 bay/25m² be applied to the total 13642.5m² GLA, the minimum off-street parking requirement will be 546 bays, and the 568-bay provision would thus be deemed sufficient.

12. CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that:

1. The proposed Phase 1A development on Portion 4 of Farm Duyker Eiland No. 6, Stompneus Bay, comprises a retail centre of 13 624.5m² GLA on Portion 9A and retail shops, quick service restaurants, a fuel station and car wash totalling 2 200m² GLA on Portion 10B. The development has been assessed in terms of its traffic impact on the surrounding road network in accordance with COTO TMH16 and TMH17 standards.
2. The Phase 1A development is estimated to generate 474 (279 in / 195 out) new vehicular trips during the AM peak hour and 1 205 (609 in / 596 out) new vehicular trips during the PM peak hour, taking into account pass-by and diverted trip reductions.
3. The existing road network (2026) operates efficiently during both the AM and PM peak periods. The key intersection of MR533 / DR2160 operates at LOS A for the majority of movements, with isolated movements at LOS B, reflecting stable traffic flow conditions with sufficient available capacity.
4. Under future 2031 background conditions (excluding site traffic), applying a growth rate of 5.7% per annum, the MR533 / DR2160 intersection and surrounding road network continue to operate at acceptable levels, generally maintaining LOS A to LOS B during both peak periods.
5. Under future 2031 conditions, including site traffic, the MR533 / DR2160 intersection experiences an increase in delays and v/c ratios, particularly on the DR2160 minor road approach, where operations shift to LOS B in the AM peak and up to LOS C in the PM peak for certain movements. These levels remain within acceptable operational standards. The proposed internal access intersections and roundabouts perform well, with the majority of movements at LOS A or LOS B. The overall impact of the Phase 1A development on the surrounding road network is therefore assessed as low.
6. No geometric improvements are required at any of the key intersections as a result of the Phase 1A development. However, right turn lanes are warranted on DR2160 at the accesses to the Portion 9A and Portion 10B developments on safety and mobility grounds, notwithstanding that LOS, delay and v/c criteria do not strictly require them.
7. Primary access to Portions 9A and 10B via DR2160, spaced $\geq 145\text{m}$ from MR533, complies with Class 4 access spacing requirements under the Western Cape Government Access Management Guidelines. Secondary access to Portion 9A via MR533, approximately 295m from DR2160, exceeds the 180m minimum spacing for a Class 3 road. Access spacing provisions are therefore deemed acceptable.
8. The boom-gate setbacks at the Portion 9A primary and secondary accesses, each set back more than 30m with stacking for 5 vehicles per lane, are more than adequate to accommodate the calculated peak-hour inbound demand.
9. The Portion 9A development provides 568 parking bays (inclusive of 48 credit bays for 12 taxi stands). Applying the general business parking ratio of 1 bay/25 m² to the total 13

642.5 m² GLA yields a minimum requirement of 546 bays; the 568-bay provision is therefore deemed sufficient. The Portion 10B development provides 109 bays (inclusive of 24 credit bays for 6 taxi stands), which meets or exceeds the minimum requirement.

10. Designated minibus taxi drop-off areas are provided at both Portion 9A and Portion 10B, and sidewalks are provided along the perimeters of both portions, consistent with the objectives of the Saldanha Bay Municipality Spatial Development Framework (SBMSDF) 2025–2030 and the Saldanha Bay Municipal Integrated Transport Plan (SBMITP) 2021.

We therefore recommend that:

1. The application be approved by the Saldanha Bay Municipality and Western Cape Government as the proposed Phase 1A retail development was found to have a low impact on traffic operations of the surrounding road network.
2. Right turn lanes be constructed on DR2160 at the primary accesses to Portions 9A and 10B prior to the opening of the development, as warranted in terms of the Western Cape Government Access Management Guidelines (AMG) for safety and operational reasons.
3. Access to the development be constructed in accordance with the geometry and spacing requirements set out in this report, with the Portion 9A primary access on DR2160 spaced $\geq 145\text{m}$ from MR533, the Portion 9A secondary access on MR533 spaced approximately 295m from DR2160, and throat lengths and inbound lane provisions as specified.
4. The Portion 9A boom-gate systems at the primary and secondary accesses be set back a minimum of 30m from the edge of the public road, with stacking for at least 5 vehicles per lane, in order to accommodate peak-hour inbound demand without spillback onto the public road network.
5. Sidewalks be provided along the perimeters of both the Portion 9A and Portion 10B developments, and that designated minibus taxi drop-off and pick-up facilities be implemented as indicated on the site layout plan, in support of non-motorised transport and public transport objectives of the SBMSDF and SBMITP.
6. A separate TIA be prepared for each subsequent phase of the broader St Helena Bay mixed-use development as those phases are designed and brought forward for approval, to assess cumulative traffic impacts on the road network at that time.

<<<INSERT SIGNATURE>>>

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

14 April 2026

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B A PHILLIPS (PR TECH ENG)
(Pr No. 200770081)

APPENDIX A

**ST HELENA BAY PHASE 1A SITE LAYOUT
PLAN**

DEVELOPMENT DATA- FUEL STATION, CAR WASH, TAKE AWAYS			
PORTION OF (PORTION 4 OF FARM DUYKER EILAND NO.6)			
SITE AREA- 11 152.3m²			
	GLA	PARKING REQ	
FUEL STATION	500 m²	24 bays @ 4 bays + 1/25m²	
CAR WASH	300m²		
TAKE AWAYS	500 m²	30 bays @ 1/4seats	
RETAIL	900 m²	36 bays @ 1/25m²	
Total	2200 m²	90 bays	
	COUNT	RATIO	
PARKING REQUIRED	90 bays	4.09/100m²	
PARKING PROVIDED	Standard bays	85 bays	
	Taxi bays	6 bays (equivalent to 4 std bays) = 24 std bays	
	109 bays	4.95/100m²	

PARKING SCHEDULE		
BAY TYPE	USE	PHASE
STANDARD PARKING BAY	RETAIL PARKING	Phase 1
292		
STANDARD PARKING BAY	RETAIL PARKING	Phase 2
228		
Grand total: 520		
PARKING SCHEDULE - TAXIS		
BAY TYPE	USE	PHASE
TAXI BAY	RETAIL PARKING	Phase 1
12		
Grand total: 12		

DEVELOPMENT DATA- RETAIL CENTRE - TOTAL			
PORTION OF (PORTION 4 OF FARM DUYKER EILAND NO.6)			
RETAIL SITE AREA - 42 687.135m²			
	GLA	% of GLA	Parking required
ANCHORS	6464.4 m²	48%	259 bays @ 1/25m²
LARGE SHOPS	4391 m²	31%	176 bays @ 1/25m²
LINE SHOPS	1939.8 m²	13%	78 bays @ 1/25m²
RESTAURANTS	847.3 m²	5%	82 bays @ 1/4 seats
Total	13 642.5 m²		595 bays
COUNT		RATIO	
PARKING REQUIRED		595 bays	4.36/100m²
PARKING PROVIDED	Standard bays	520 bays	
	Taxi bays	12 bays (equivalent to 4 std bays) = 48 std bays	
		568 bays	4.16/100m²

GLA AREA SCHEDULE_P1 & P2					
SHOP NO	TYPE	AREA	PHASE	% TOTAL	% PER PHASE
P1					
ANCHOR 1	ANCHOR 1	3141.8 m²	P1	25%	38.8%
ANCHOR 1	ANCHOR 1	3141.8 m²	P1	23%	38.8%
LARGE SHOP 2	SHOP	514.7 m²	P1	1.8%	4.4%
6	SHOP	331.9 m²	P1	2.4%	4.1%
7	SHOP	375.2 m²	P1	2.8%	4.7%
10	SHOP	336.8 m²	P1	2.5%	4.2%
11	SHOP	322.5 m²	P1	2.4%	4%
106	SHOP	628.3 m²	P1	6.1%	10.2%
LARGE SHOP 6	SHOP	2709.3 m²	P1	19.9%	31.5%
RESTAURANT 17	RESTAURANT	241.7 m²	P1	1.8%	2%
18	RESTAURANT	185.5 m²	P1	1.4%	2.4%
19	RESTAURANT	135.1 m²	P1	1%	1.7%
20	RESTAURANT	106.3 m²	P1	0.8%	1.3%
27	RESTAURANT	168.8 m²	P1	1.2%	2.1%
RESTAURANT 5	RESTAURANT	647.3 m²	P1	6.2%	10.5%
P2					
3	SHOP	110.6 m²	P1	0.8%	1.4%
4	SHOP	75 m²	P1	0.5%	0.9%
5	SHOP	92 m²	P1	0.7%	1.1%
8	SHOP	78 m²	P1	0.6%	0.9%
9	SHOP	14 m²	P1	0.5%	0.9%
12	SHOP	60 m²	P1	0.4%	0.7%
13	SHOP	179 m²	P1	1.3%	2.2%
14	SHOP	52 m²	P1	0.4%	0.7%
15	SHOP	75 m²	P1	0.5%	0.9%
16	SHOP	49 m²	P1	0.4%	0.6%
21	SHOP	37.5 m²	P1	0.3%	0.5%
23	SHOP	152.7 m²	P1	1.1%	1.9%
24	SHOP	112.5 m²	P1	0.9%	1.4%
25	SHOP	112.5 m²	P1	0.8%	1.4%
26	SHOP	123.8 m²	P1	0.9%	1.5%
SHOP 15	SHOP	1399.3 m²	P1	10.2%	17.2%
P1		8068.7 m²		59.3%	100%
P2					
34	ANCHOR 2	1863.3 m²	P2	13.2%	32.5%
35	ANCHOR 3	1519.3 m²	P2	11.1%	27.4%
ANCHOR 3	ANCHOR 3	3322.6 m²	P2	24.4%	58.6%
LARGE SHOP 33	SHOP	303.1 m²	P2	2.2%	5.5%
36	SHOP	253.1 m²	P2	1.9%	4.6%
37A	SHOP	562.8 m²	P2	4.1%	10.1%
37B	SHOP	562.8 m²	P2	4.1%	10.1%
LARGE SHOP 4	SHOP	1661.7 m²	P2	12.2%	30.3%
28	SHOP	209.3 m²	P2	1.5%	3.8%
29	SHOP	112.5 m²	P2	0.8%	2%
30	SHOP	75 m²	P2	0.5%	1.4%
31	SHOP	110.6 m²	P2	0.8%	2%
32	SHOP	42 m²	P2	0.3%	0.8%
SHOP 5	SHOP	548.5 m²	P2	4%	9.9%
P2		555.8 m²		40.7%	100%
Grand total: 38					



1. All work is to be done in accordance with the National Building Regulations.
2. All materials and workmanship are to comply with the relevant S.A.S. codes and or the specified international codes where applicable in the Architectural specifications. Where relevant South African National Standards, British Standards, BS codes of practice, or Agreement Certificates applicable to the design exist, the recommendations and requirements of such documents to be considered a minimum standard for the works.
3. The contractor shall in all aspects of the works comply with the provisions of the Occupational Health and Safety Act of 1993 (Act No. 95 of 1993) and any regulations promulgated in terms of that Act or the Factories Machinery and Building Works Act of 1941.
4. The contractor shall set up, document and maintain a quality assurance and quality control system, in accordance with SANS 9001:2001, able to be checked to the satisfaction of the Architect, that all materials and workmanship, whatever their source, meet the requirements of the Specification. Should the Contractor or any of his sub-contractors be certified to the SANS 9000 family of standards then monitor these works accordingly.
5. This drawing must be read in conjunction with all the relevant drawings, schedules and specifications from B-UP and all other consultants related to the project.
6. All portions of the works related to any service or consultant's information is to be done in accordance with the National Building Regulations.
7. This drawing is not to be scaled. Figured dimensions to be used.
8. All dimensions are in millimetres unless otherwise stated.
9. All dimensions and levels must be checked on site by the contractor before putting work in hand.
10. All work to be executed by competent persons qualified for the trade.
11. This drawings is copyright reserved and remains the property of Boogertman + Partners Architects.

REV	DATE	DRAWN	DESCRIPTION
A	26/10/2025		INITIAL DESIGN PACKAGE
B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

REV	DATE	DRAWN	DESCRIPTION
A	26/10/2025		INITIAL DESIGN PACKAGE
B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

REV	DATE	DRAWN	DESCRIPTION
A	26/10/2025		INITIAL DESIGN PACKAGE
B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

REV	DATE	DRAWN	DESCRIPTION
A	26/10/2025		INITIAL DESIGN PACKAGE
B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

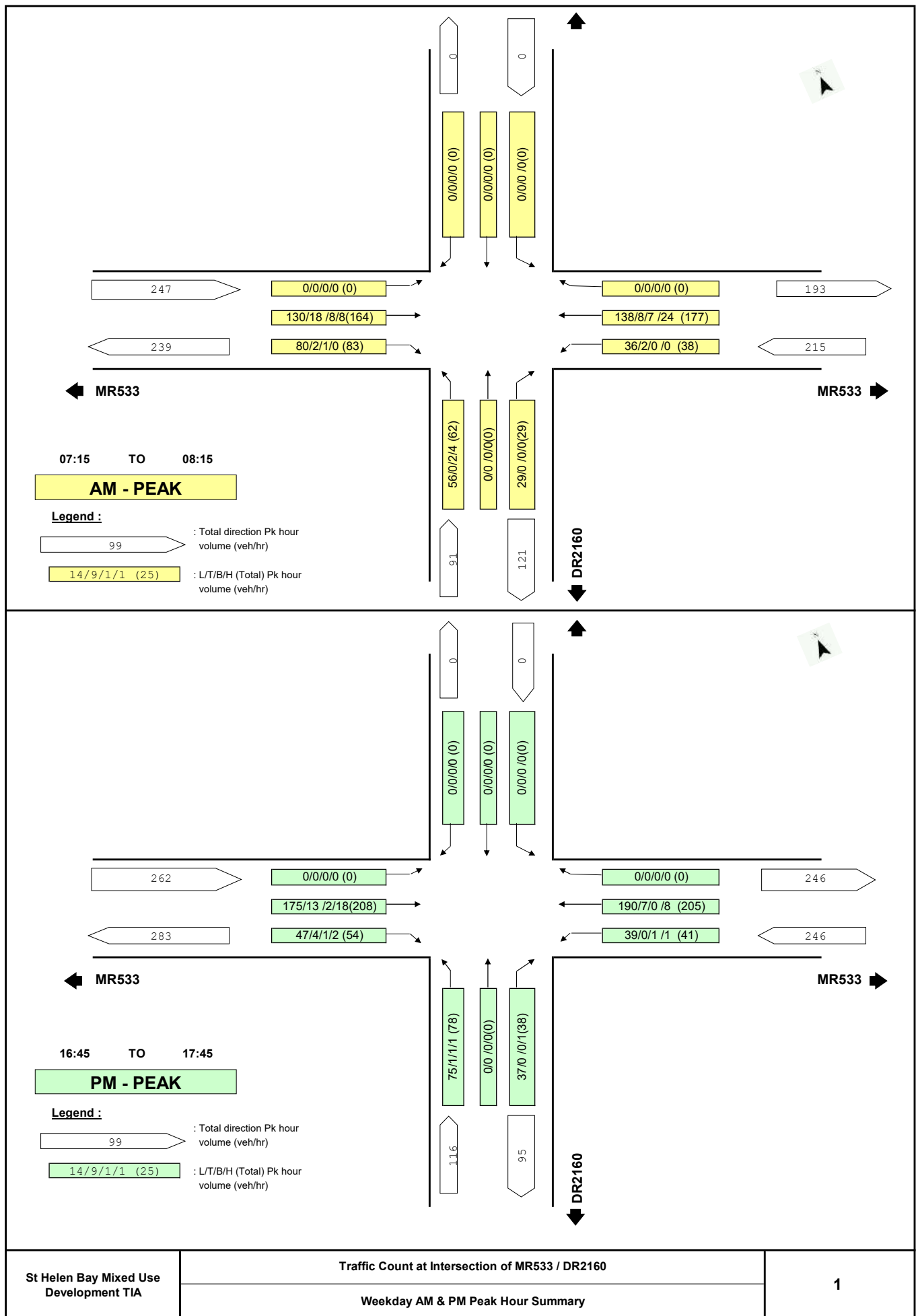
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C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

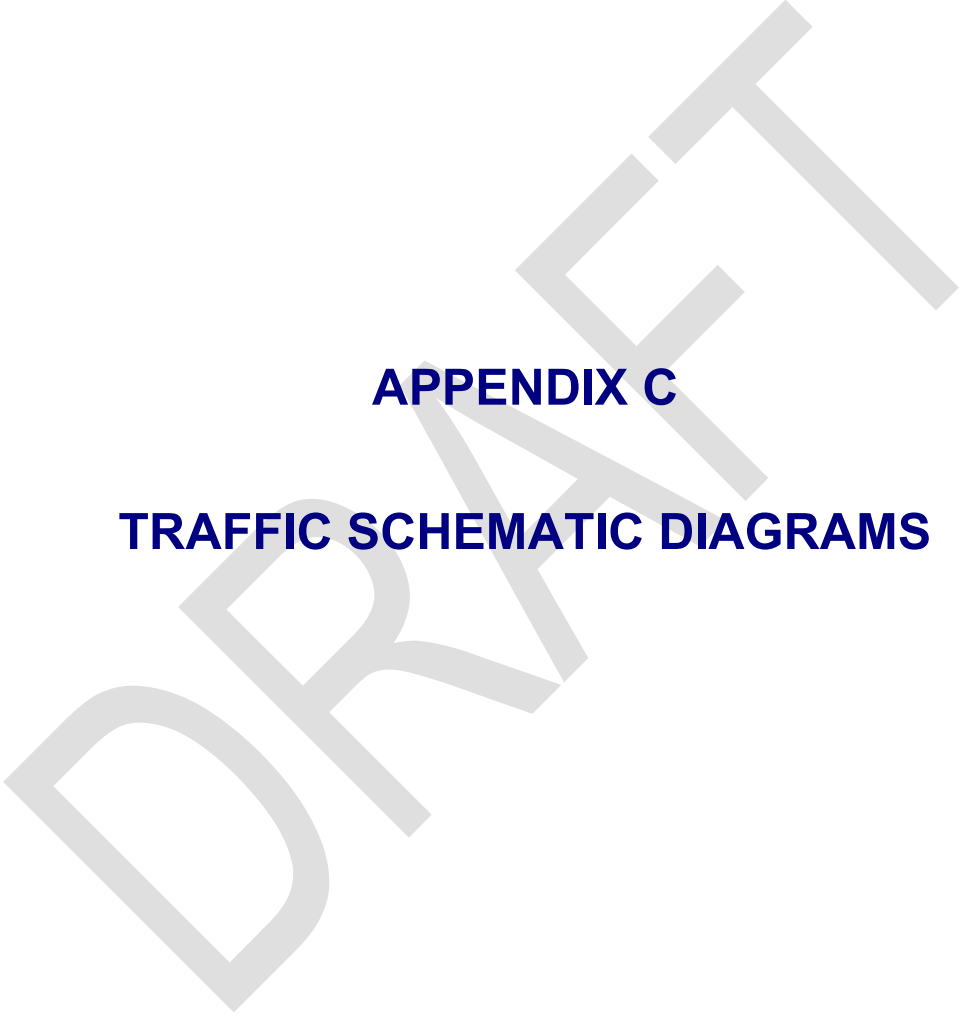
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B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

REV	DATE	DRAWN	DESCRIPTION
A	26/10/2025		INITIAL DESIGN PACKAGE
B	22/01/2026		ROADS AND ACCESS
C	08/03/2026		DESIGN LAYOUT
D	24/03/2026		DESIGN LAYOUT
E	25/03/2026		DESIGN LAYOUT
F	02/04/2026		DESIGN LAYOUT

APPENDIX B

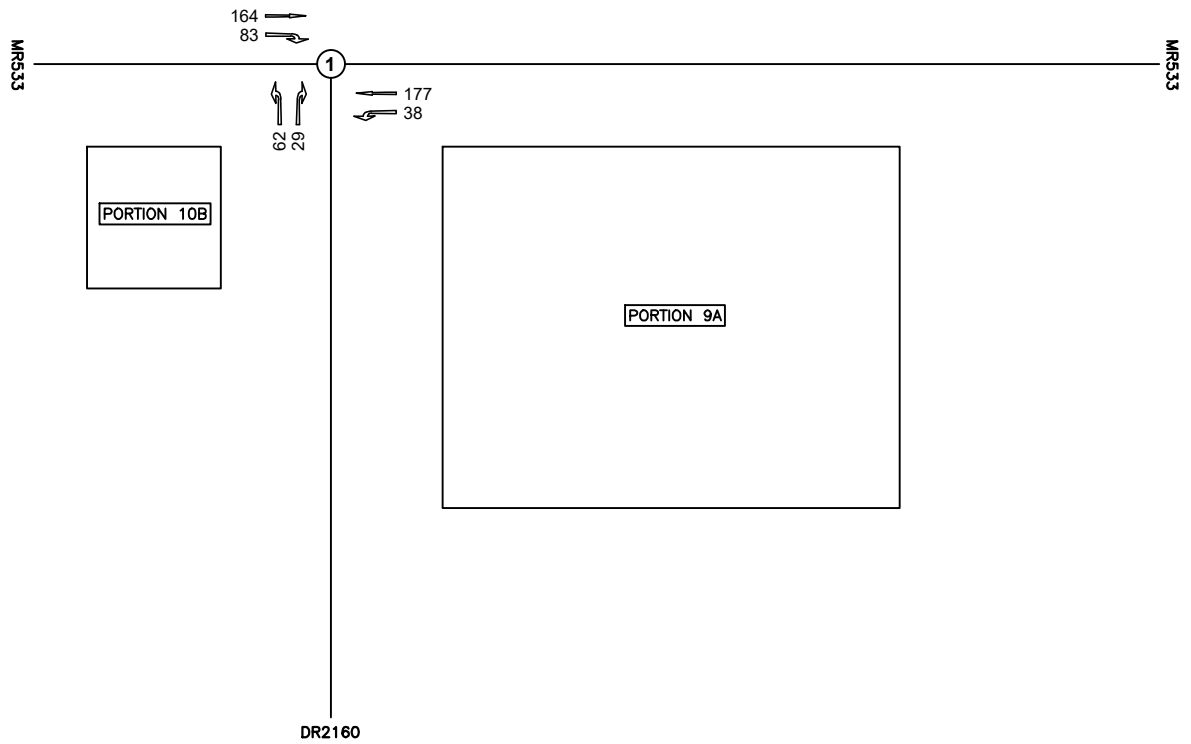
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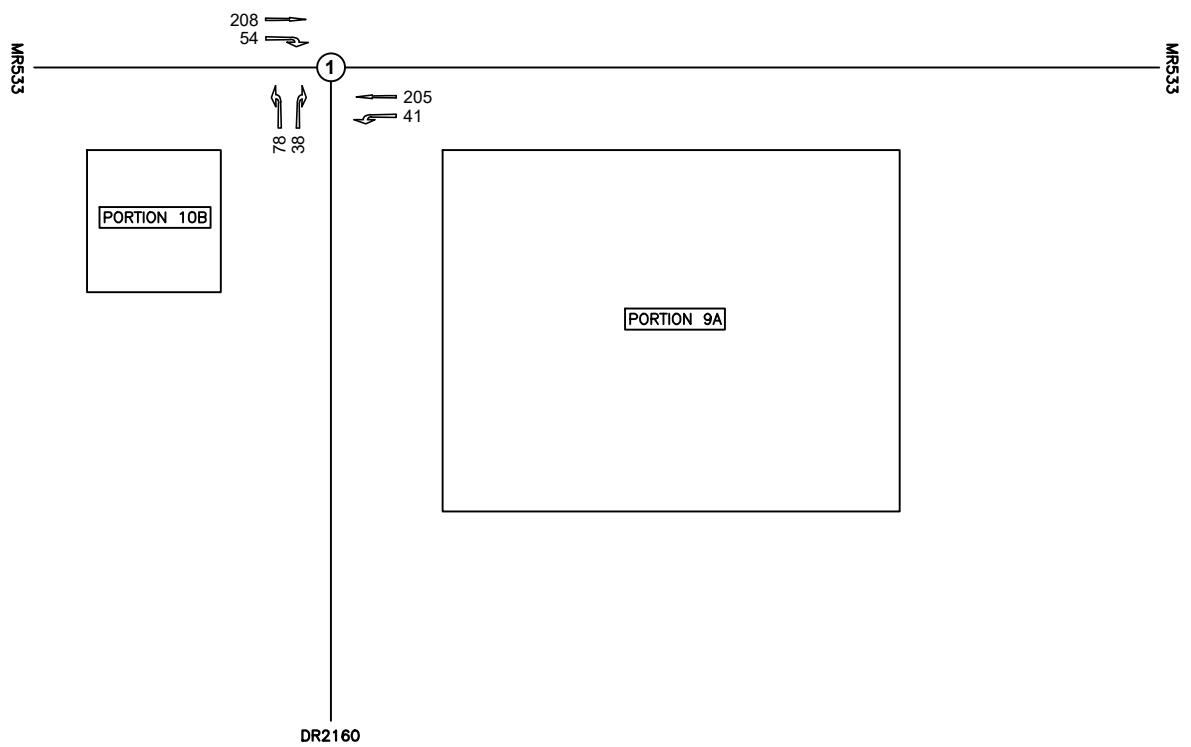


APPENDIX C

TRAFFIC SCHEMATIC DIAGRAMS



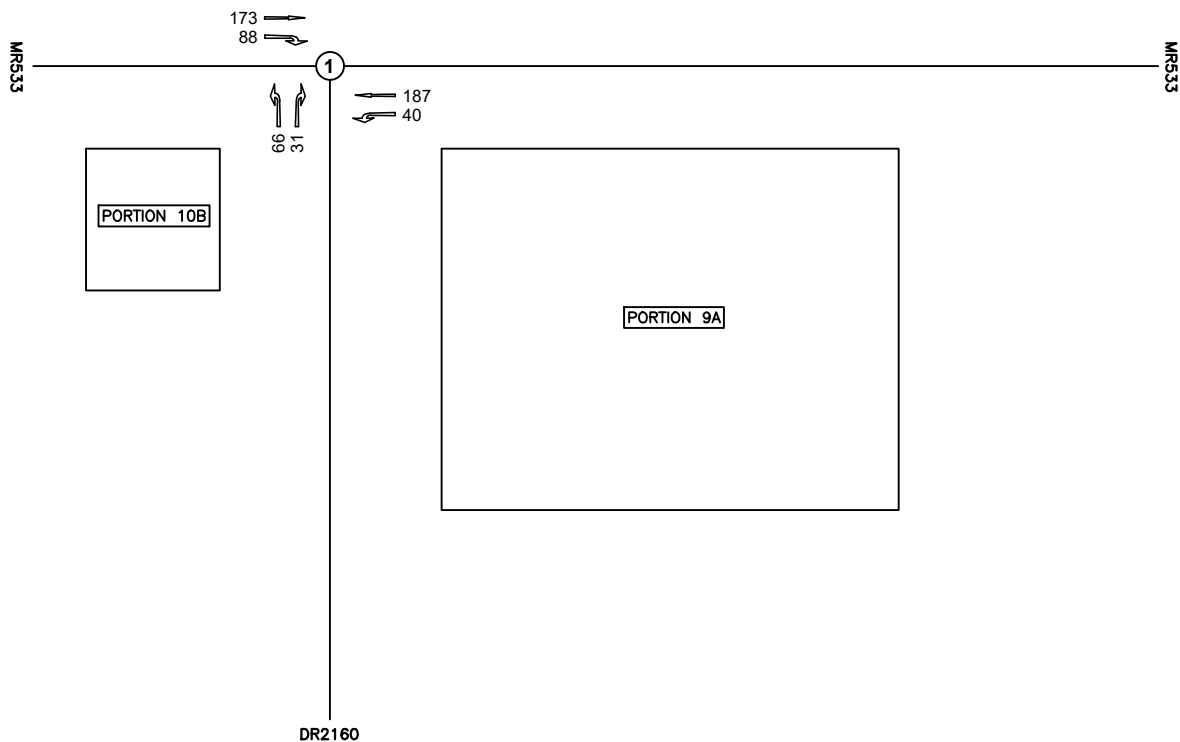
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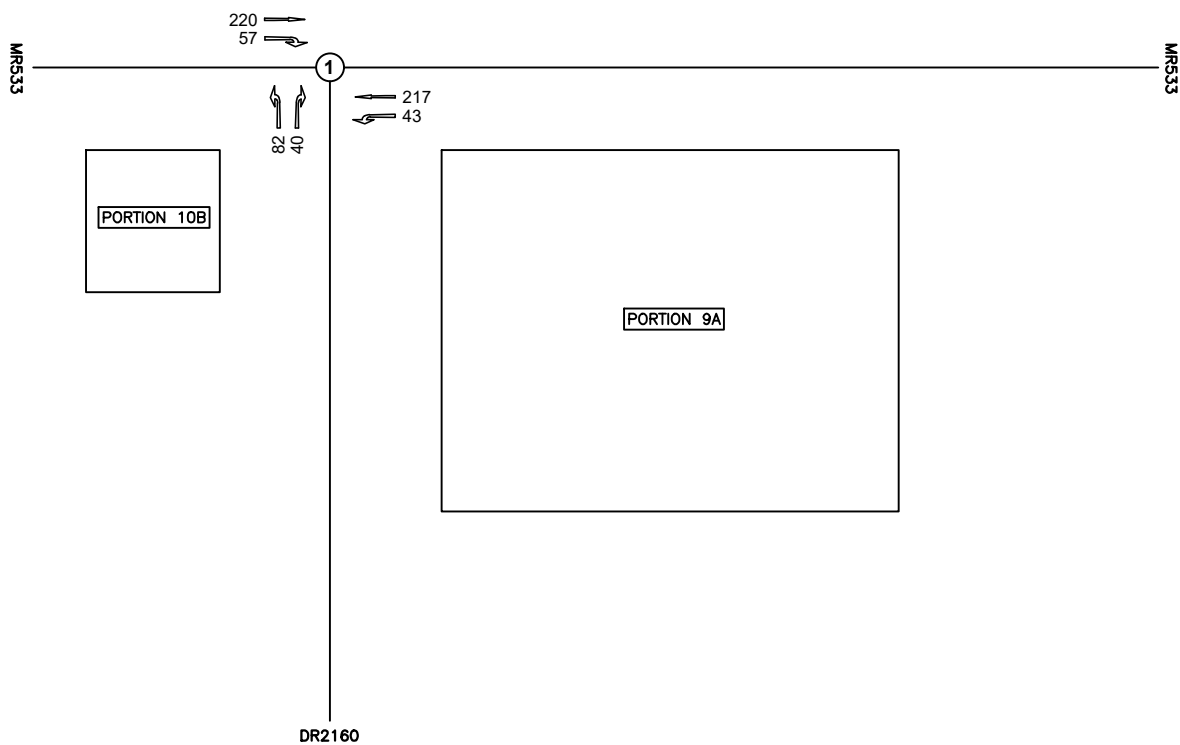
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LEGEND		
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	1	INTERSECTION NO.

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	APPROVED	PB	APR 2026					



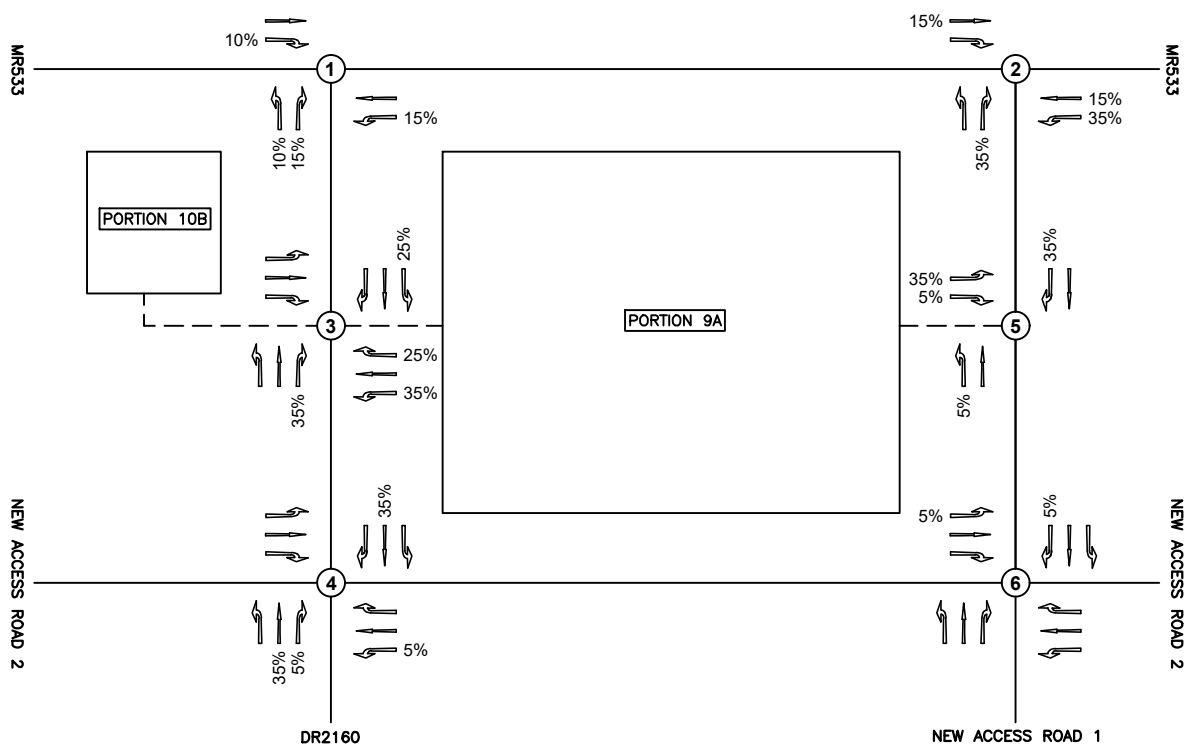
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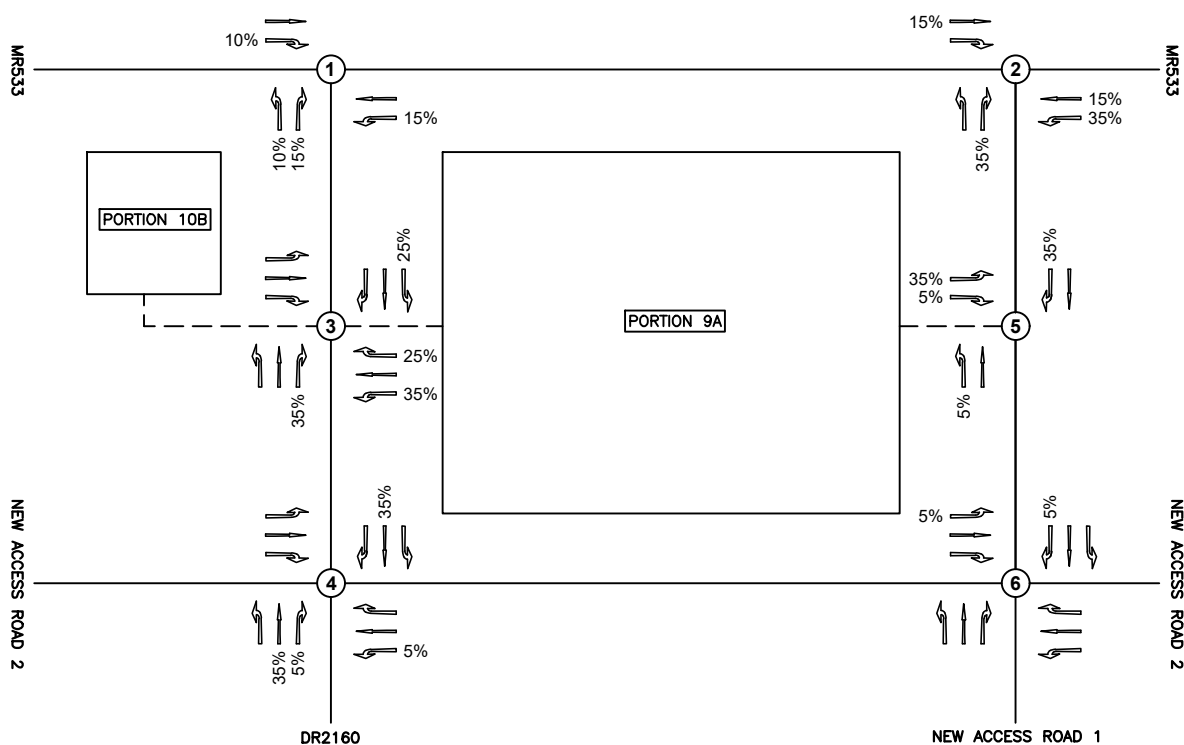
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LEGEND		
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	APPROVED	PB	APR 2026					



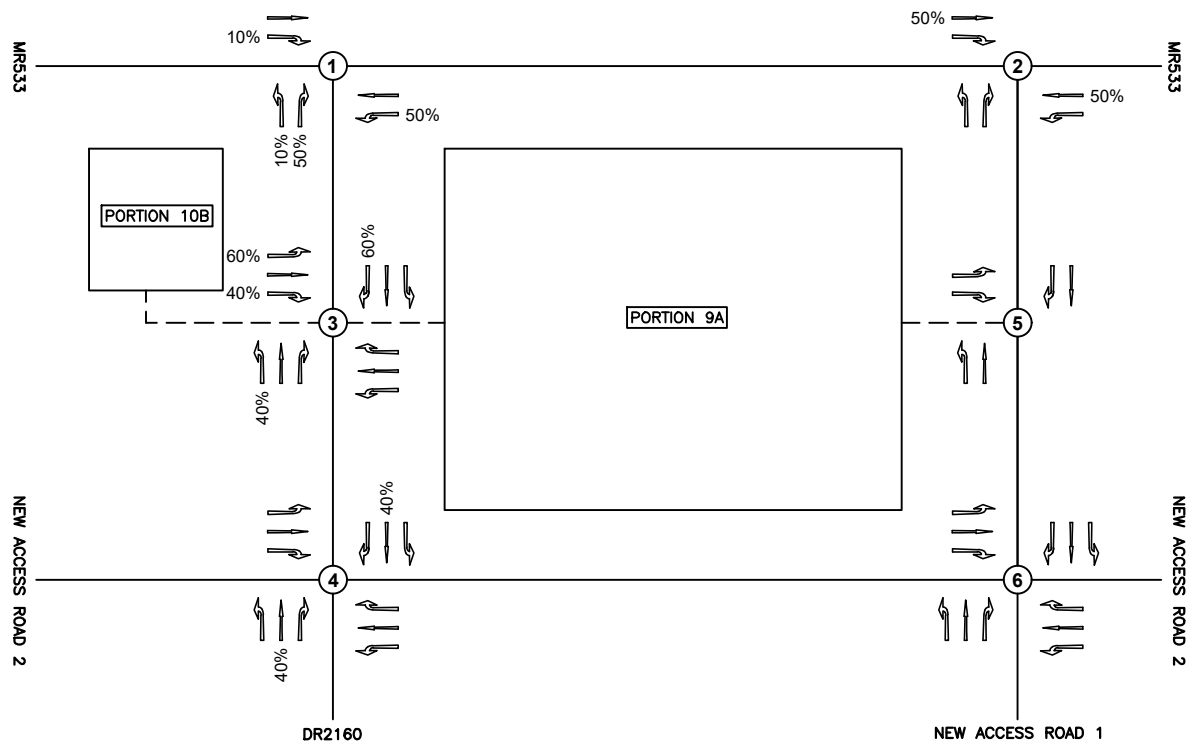
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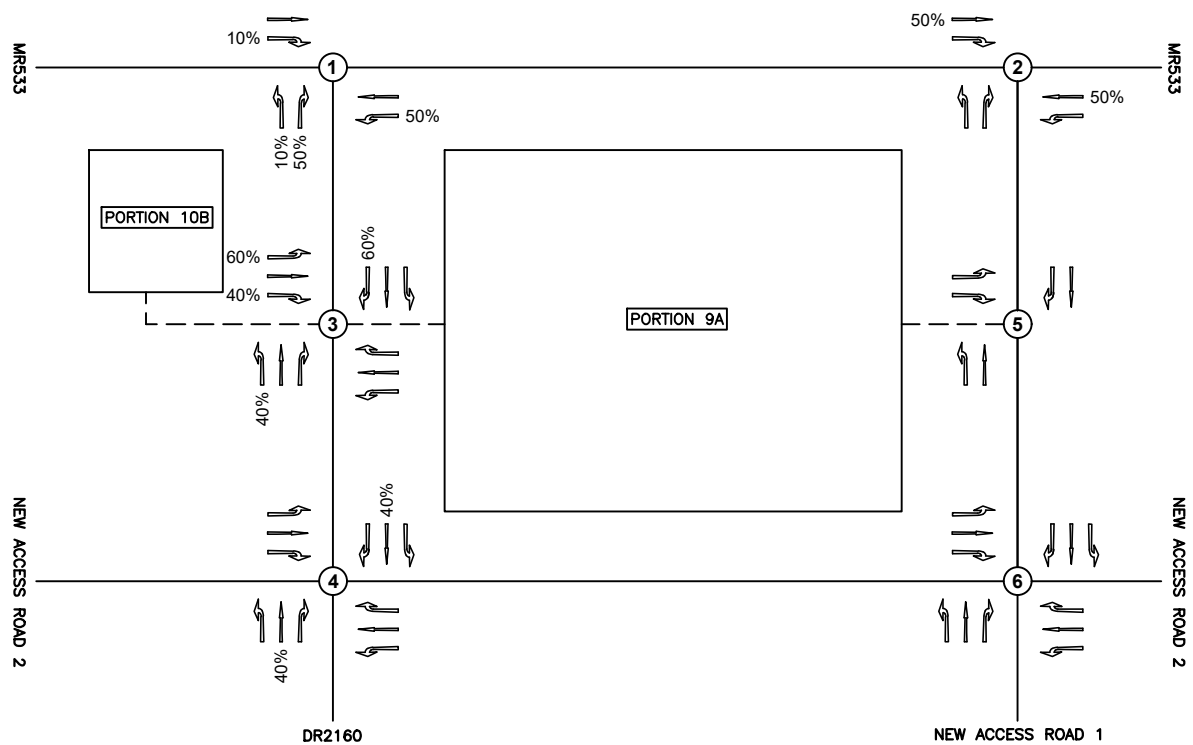
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	APPROVED	PB	APR 2026					



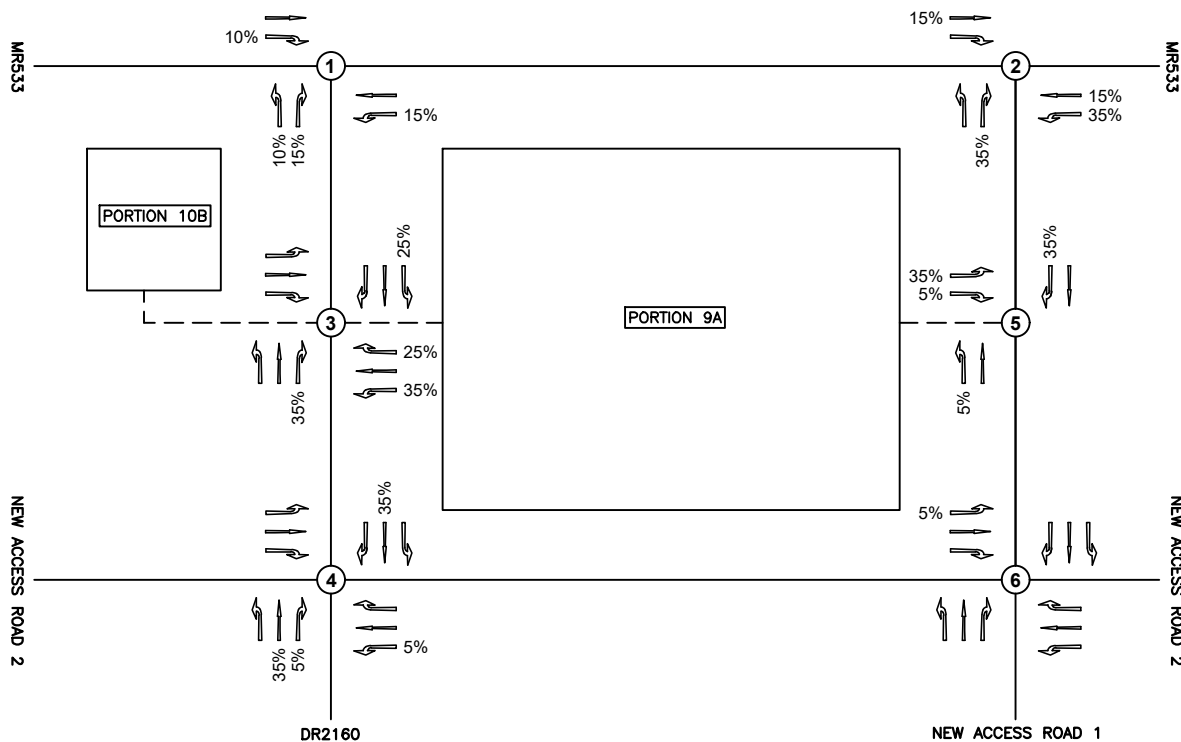
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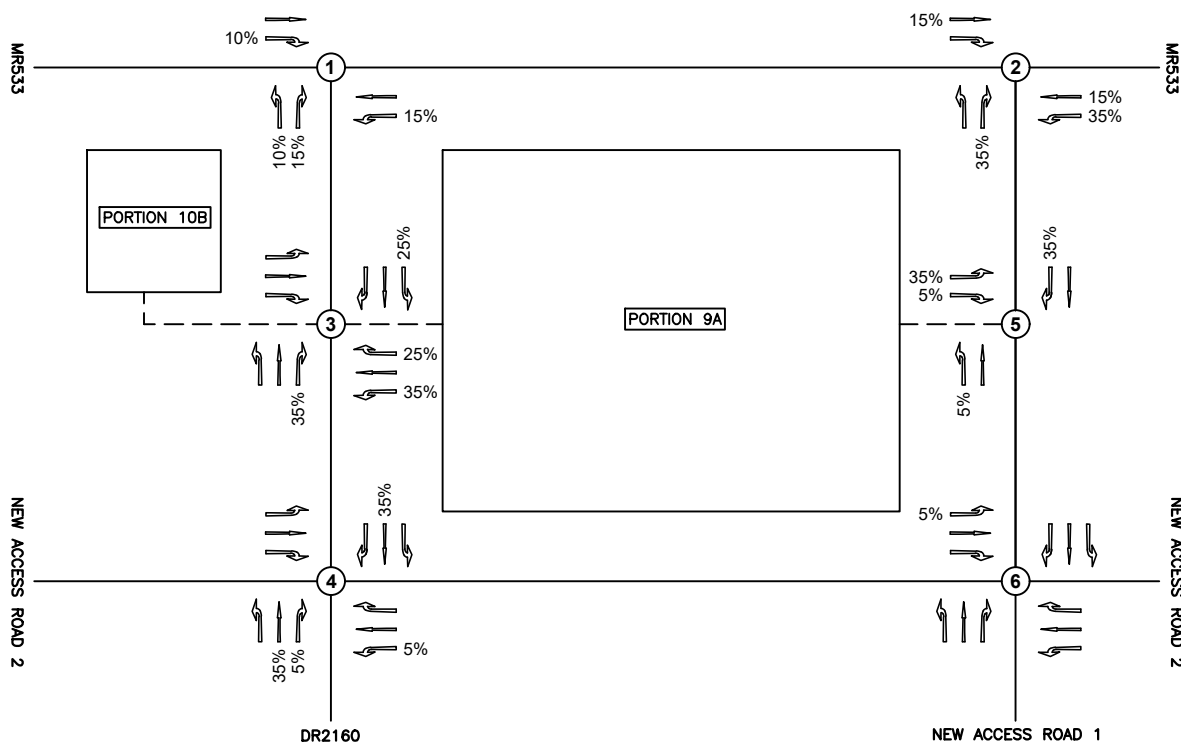
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LEGEND		
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①		INTERSECTION NO.

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	APPROVED	PB	APR 2026					

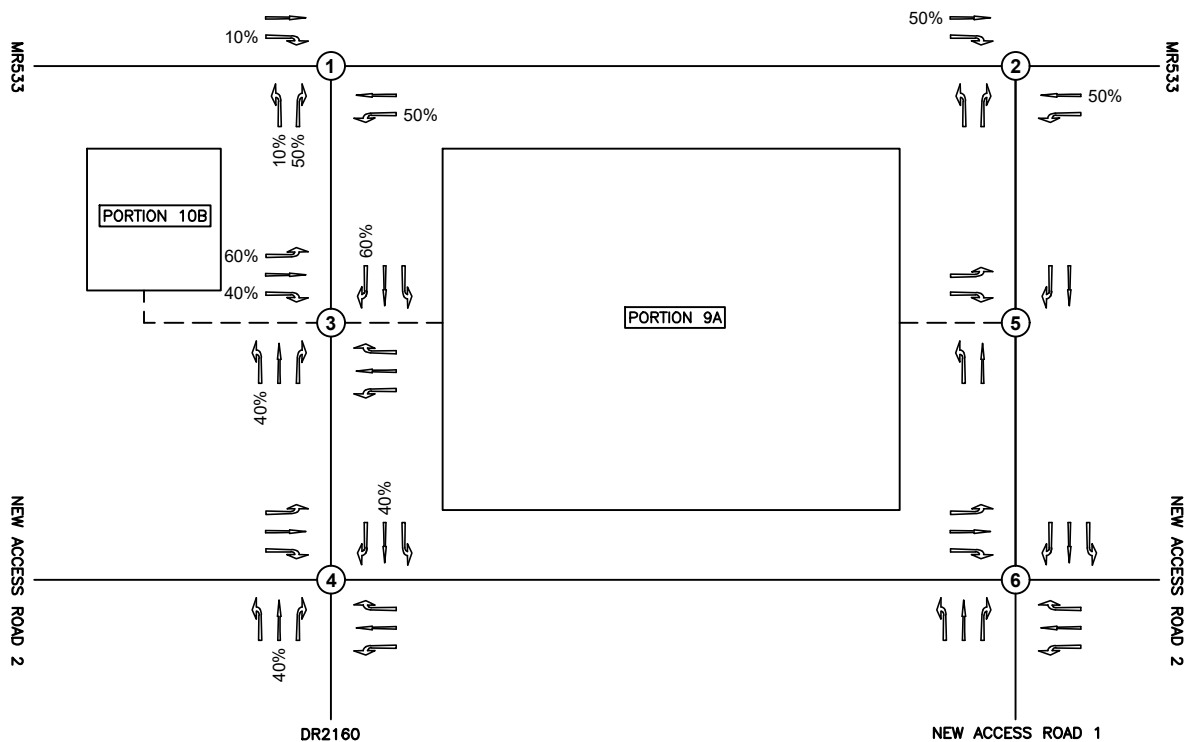


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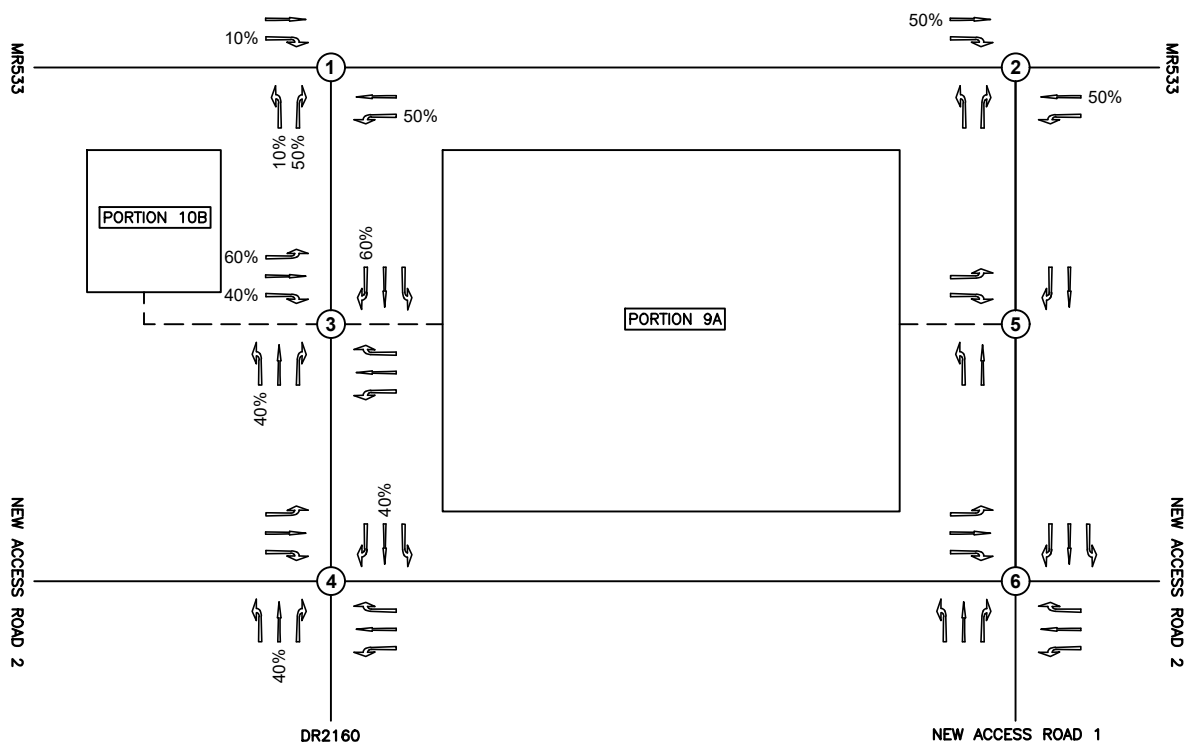


PM PEAK HOUR

LEGEND		
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①		INTERSECTION NO.



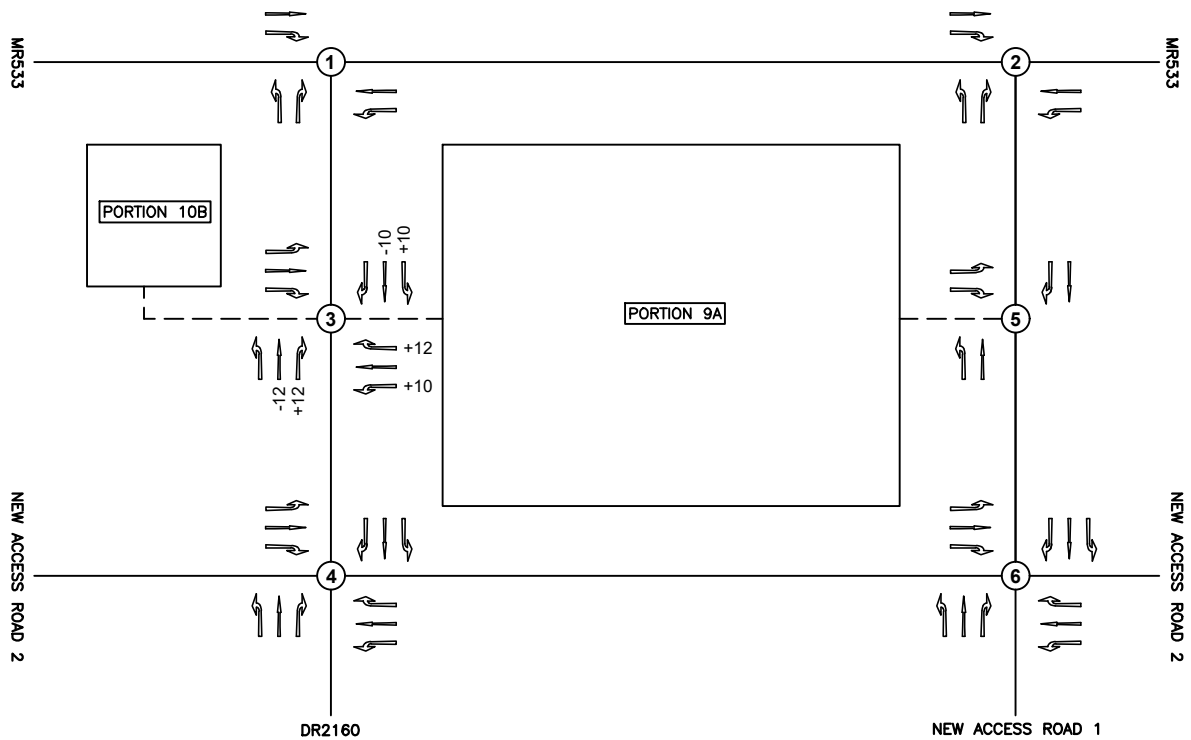
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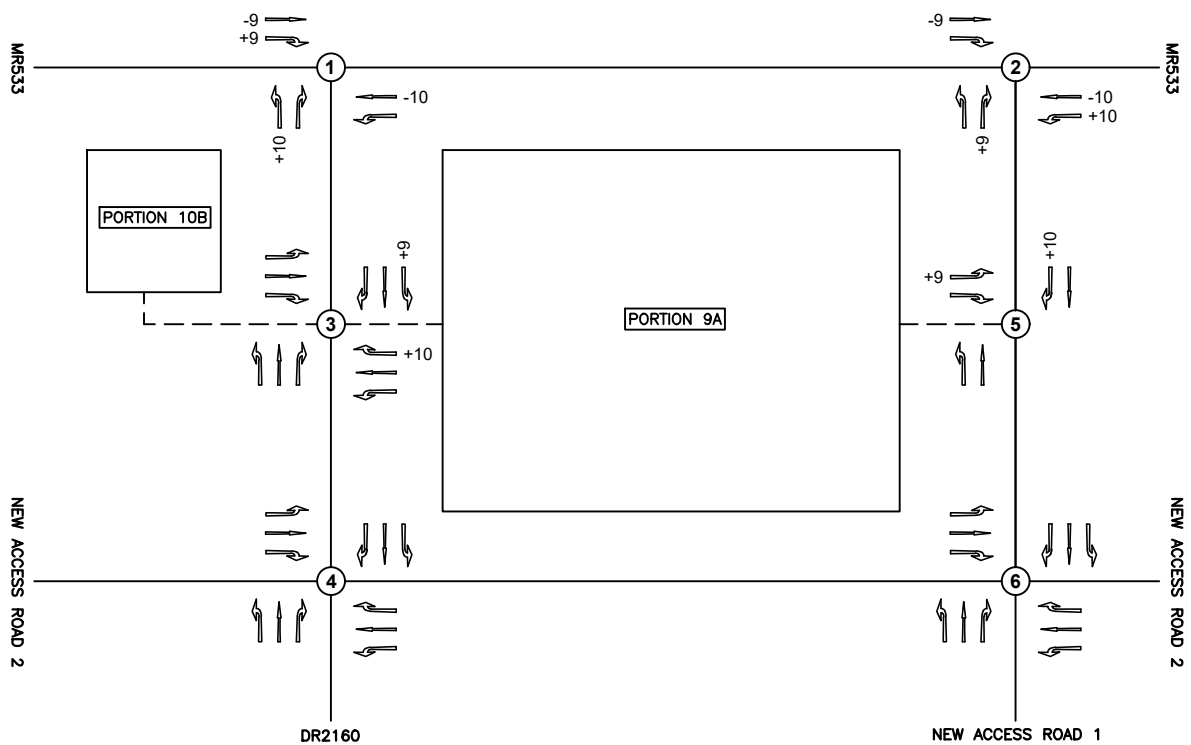
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LEGEND		
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①		INTERSECTION NO.

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	CHECKED	BAP	APR 2026	ST HELENA BAY PHASE 1 TIA				
	APPROVED	PB	APR 2026	TITLE				
				SITE TRAFFIC ASSIGNMENT: PORTION 10B		17046T	N.T.S	C6



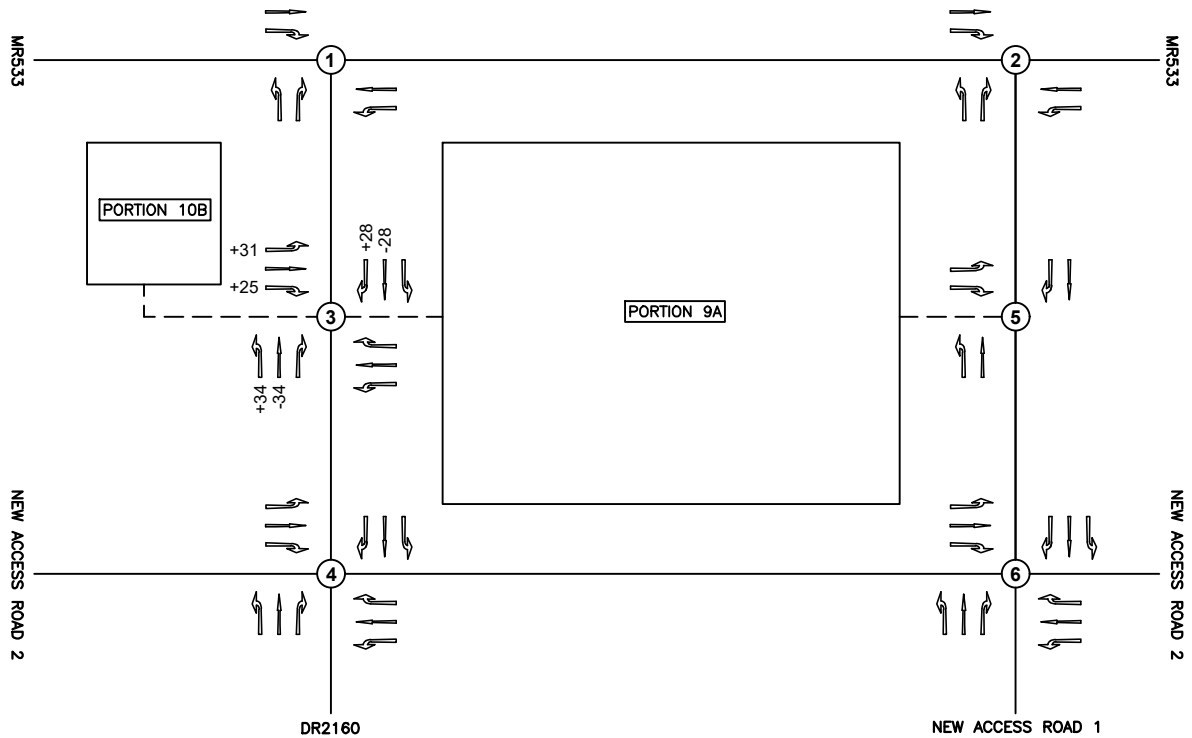
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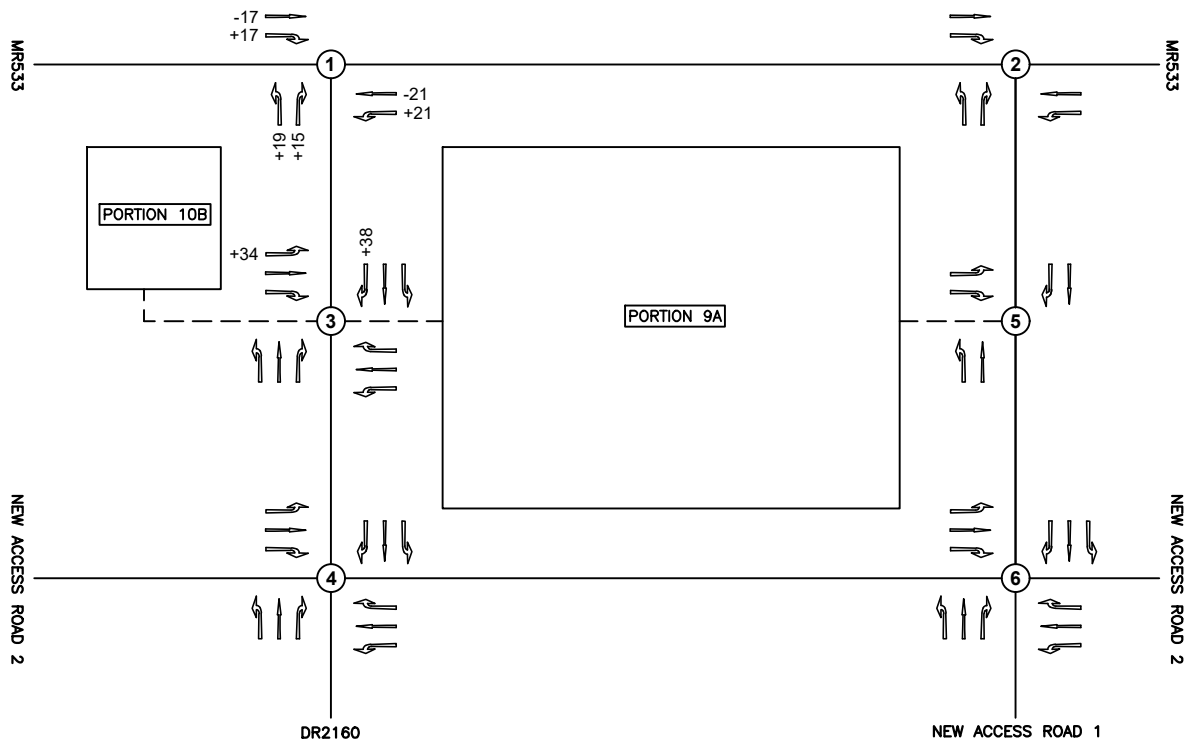
DIVERTED TRIPS

LEGEND		
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①		INTERSECTION NO.

 KANTEY & TEMPLER CONSULTING ENGINEERS	DRAWN	HC	APR 2026	PROJECT	PROJECT NO.	SCALE	FIGURE
	CHECKED	BAP	APR 2026	ST HELENA BAY PHASE 1 TIA			
	APPROVED	PB	APR 2026	TITLE PM PEAK PASS-BY & DIVERTED TRIPS: PORTION 9A			
					17046T	N.T.S	C7

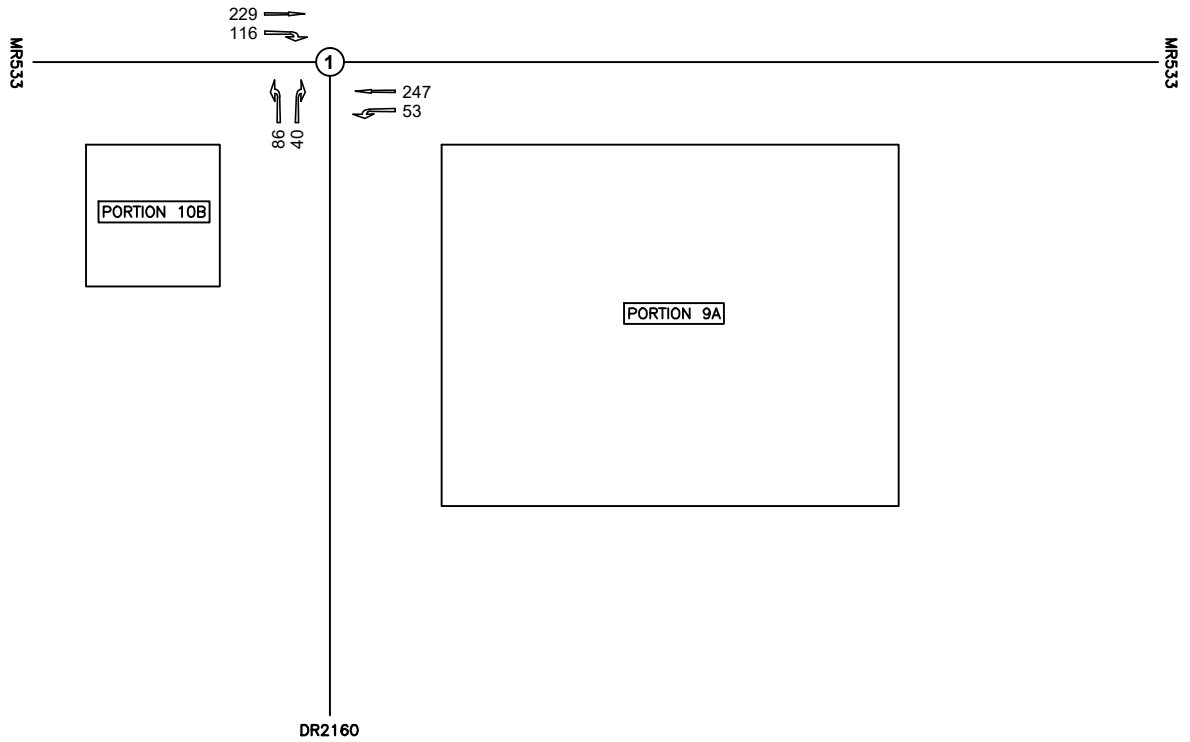


PASS-BY TRIPS

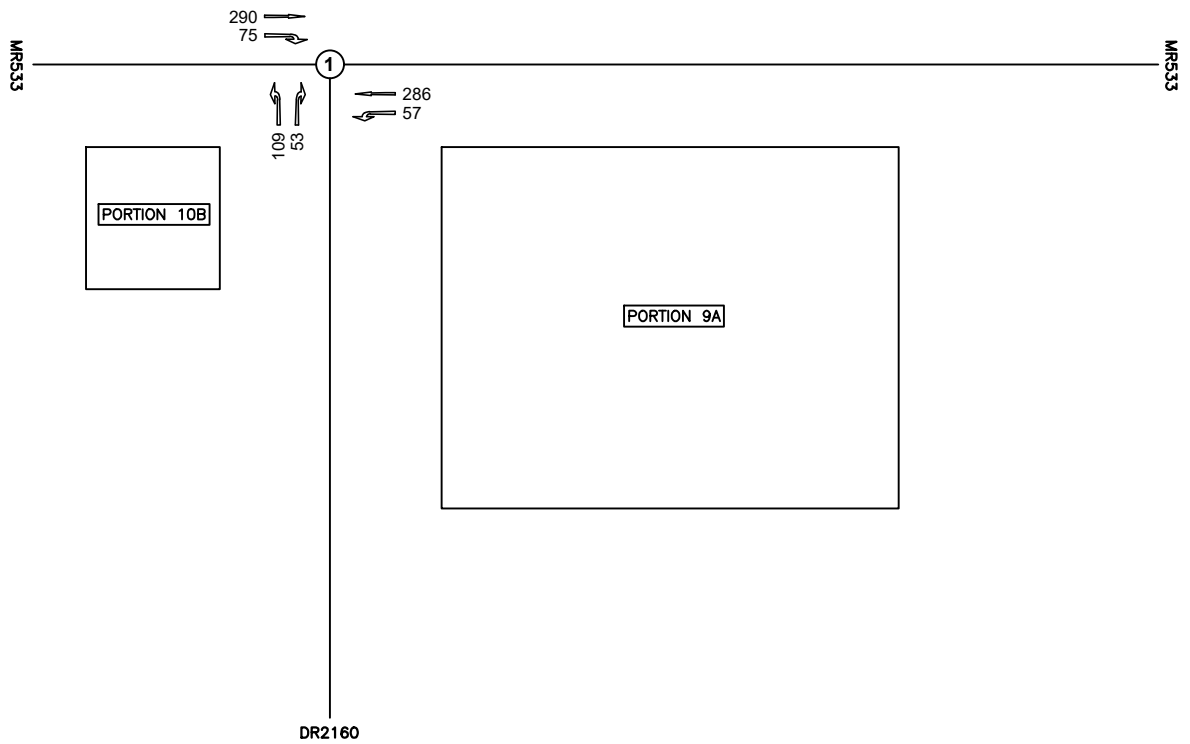


DIVERTED TRIPS

LEGEND		
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①		INTERSECTION NO.



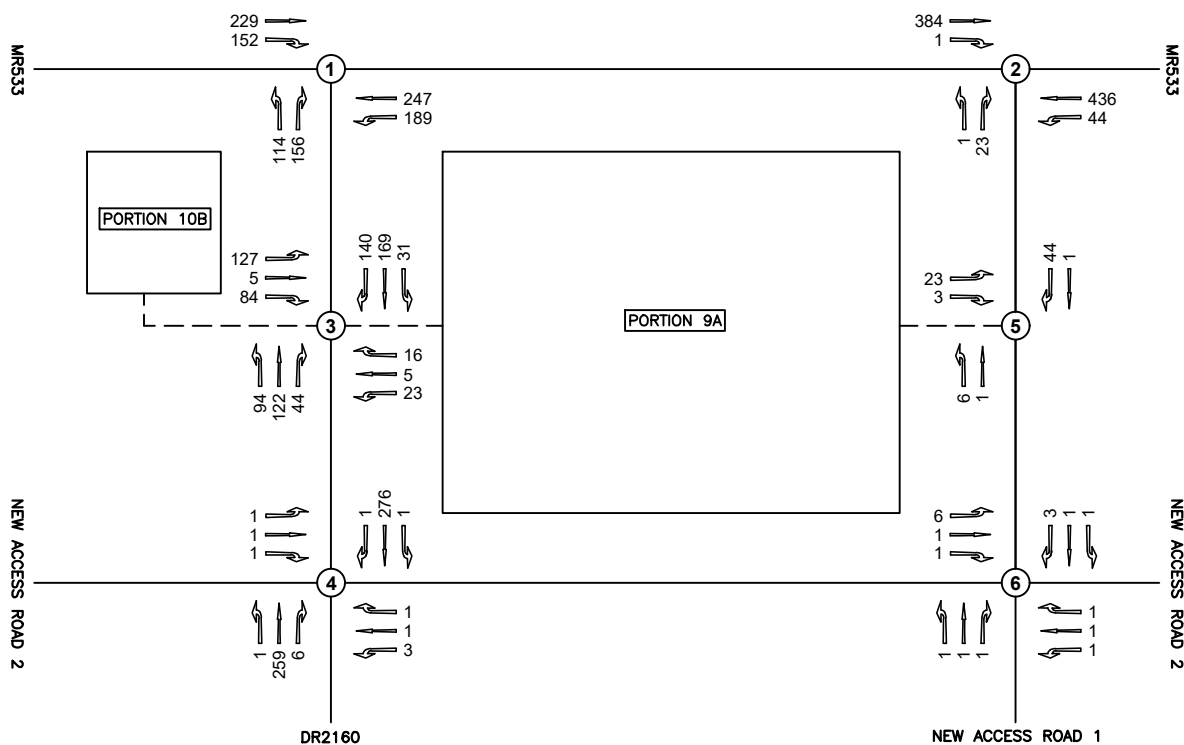
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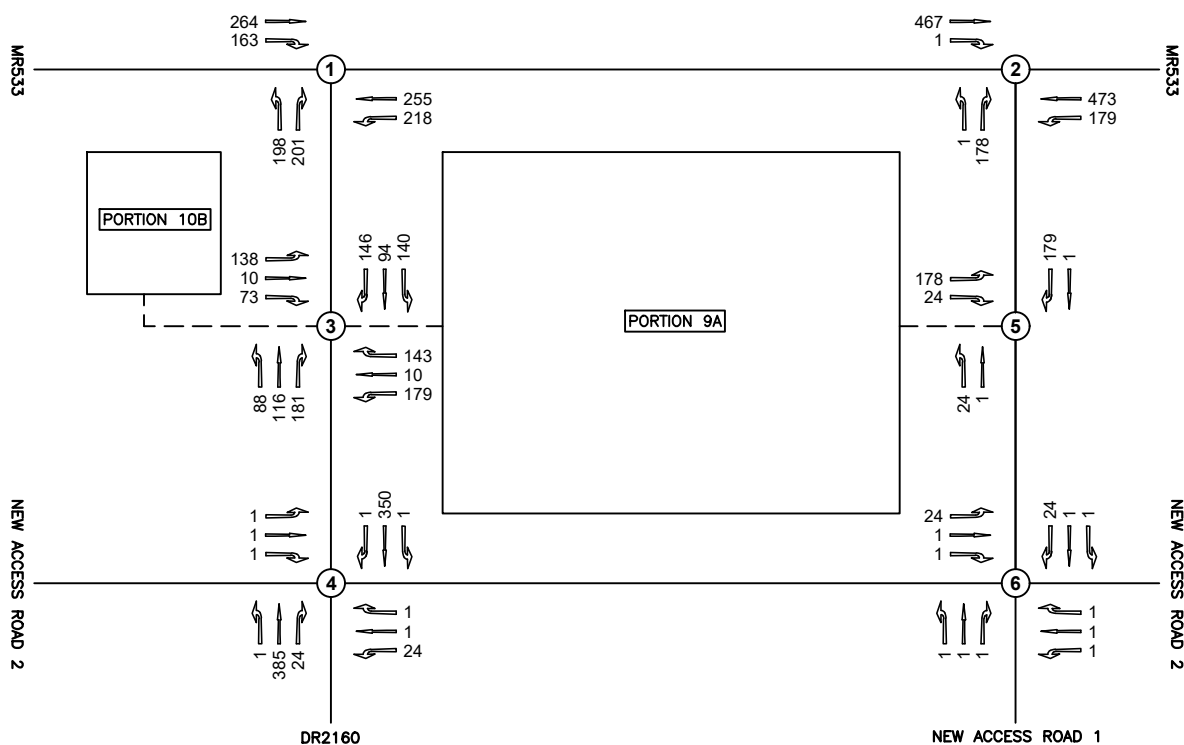
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LEGEND		
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	①	INTERSECTION NO.

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	CHECKED	BAP	APR 2026	TITLE	FUTURE 2031 TRAFFIC – EXCL. SITE TRAFFIC	17046T	N.T.S	C9
	APPROVED	PB	APR 2026					



AM PEAK HOUR



PM PEAK HOUR

LEGEND		
	10	TRAFFIC MOVEMENT
①		INTERSECTION NO.

MOVEMENT SUMMARY

 **Site: 01 [01am2026existing (Site Folder: Existing 2026)]**

MR533 / DR2160
AM Peak Hour
2026
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	66	0.0	66	0.0	0.098	8.8	LOS A	0.4	2.4	0.32	0.89	0.32	51.3
3	R2	31	0.0	31	0.0	0.098	10.1	LOS B	0.4	2.4	0.32	0.89	0.32	50.9
Approach		97	0.0	97	0.0	0.098	9.2	LOS A	0.4	2.4	0.32	0.89	0.32	51.2
East: MR533														
4	L2	40	0.0	40	0.0	0.117	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	57.4
5	T1	187	0.0	187	0.0	0.117	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	59.0
Approach		227	0.0	227	0.0	0.117	1.0	NA	0.0	0.0	0.00	0.11	0.00	58.7
West: MR533														
11	T1	173	0.0	173	0.0	0.150	0.4	LOS A	0.6	3.9	0.24	0.21	0.24	57.3
12	R2	88	0.0	88	0.0	0.150	6.3	LOS A	0.6	3.9	0.24	0.21	0.24	55.2
Approach		261	0.0	261	0.0	0.150	2.4	NA	0.6	3.9	0.24	0.21	0.24	56.6
All Vehicles		585	0.0	585	0.0	0.150	3.0	NA	0.6	3.9	0.16	0.28	0.16	56.4

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

MOVEMENT SUMMARY

 **Site: 01 [01am2031future - excl site traffic (Site Folder: Future 2031 - excl site traffic)]**

MR533 / DR2160
AM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	86	0.0	86	0.0	0.144	9.1	LOS A	0.5	3.5	0.39	0.91	0.39	51.0
3	R2	40	0.0	40	0.0	0.144	11.6	LOS B	0.5	3.5	0.39	0.91	0.39	50.5
Approach		126	0.0	126	0.0	0.144	9.9	LOS A	0.5	3.5	0.39	0.91	0.39	50.8
East: MR533														
4	L2	53	0.0	53	0.0	0.155	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	57.4
5	T1	247	0.0	247	0.0	0.155	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	59.0
Approach		300	0.0	300	0.0	0.155	1.0	NA	0.0	0.0	0.00	0.11	0.00	58.7
West: MR533														
11	T1	229	0.0	229	0.0	0.205	0.7	LOS A	0.9	5.7	0.30	0.21	0.30	57.1
12	R2	116	0.0	116	0.0	0.205	6.7	LOS A	0.9	5.7	0.30	0.21	0.30	55.0
Approach		345	0.0	345	0.0	0.205	2.7	NA	0.9	5.7	0.30	0.21	0.30	56.4
All Vehicles		771	0.0	771	0.0	0.205	3.2	NA	0.9	5.7	0.20	0.29	0.20	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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: 01 [01am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

MR533 / DR2160
AM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	114	0.0	114	0.0	0.403	10.2	LOS B	2.0	13.2	0.52	1.00	0.69	49.2
3	R2	156	0.0	156	0.0	0.403	14.5	LOS B	2.0	13.2	0.52	1.00	0.69	48.7
Approach		270	0.0	270	0.0	0.403	12.7	LOS B	2.0	13.2	0.52	1.00	0.69	48.9
East: MR533														
4	L2	189	0.0	189	0.0	0.228	5.6	LOS A	0.0	0.0	0.00	0.26	0.00	56.1
5	T1	247	0.0	247	0.0	0.228	0.1	LOS A	0.0	0.0	0.00	0.26	0.00	57.6
Approach		436	0.0	436	0.0	0.228	2.5	NA	0.0	0.0	0.00	0.26	0.00	57.0
West: MR533														
11	T1	229	0.0	229	0.0	0.250	1.4	LOS A	1.3	8.4	0.43	0.28	0.43	56.3
12	R2	152	0.0	152	0.0	0.250	7.5	LOS A	1.3	8.4	0.43	0.28	0.43	54.3
Approach		381	0.0	381	0.0	0.250	3.8	NA	1.3	8.4	0.43	0.28	0.43	55.5
All Vehicles		1087	0.0	1087	0.0	0.403	5.5	NA	2.0	13.2	0.28	0.45	0.32	54.2

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

MOVEMENT SUMMARY

 **Site: 01 [01pm2026existing (Site Folder: Existing 2026)]**

MR533 / DR2160
PM Peak Hour
2025
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	82	0.0	82	0.0	0.130	9.0	LOS A	0.5	3.2	0.36	0.90	0.36	51.2
3	R2	40	0.0	40	0.0	0.130	10.6	LOS B	0.5	3.2	0.36	0.90	0.36	50.7
Approach		122	0.0	122	0.0	0.130	9.5	LOS A	0.5	3.2	0.36	0.90	0.36	51.0
East: MR533														
4	L2	43	0.0	43	0.0	0.134	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.5
5	T1	217	0.0	217	0.0	0.134	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		260	0.0	260	0.0	0.134	0.9	NA	0.0	0.0	0.00	0.10	0.00	58.8
West: MR533														
11	T1	220	0.0	220	0.0	0.154	0.3	LOS A	0.4	2.8	0.18	0.13	0.18	58.2
12	R2	57	0.0	57	0.0	0.154	6.4	LOS A	0.4	2.8	0.18	0.13	0.18	56.1
Approach		277	0.0	277	0.0	0.154	1.6	NA	0.4	2.8	0.18	0.13	0.18	57.7
All Vehicles		659	0.0	659	0.0	0.154	2.8	NA	0.5	3.2	0.14	0.26	0.14	56.8

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

MOVEMENT SUMMARY

 **Site: 01 [01pm2031future - excl site traffic (Site Folder: Future 2031 - excl site traffic)]**

MR533 / DR2160
PM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: DR2160														
1	L2	109	0.0	109	0.0	0.198	9.4	LOS A	0.8	4.9	0.44	0.92	0.44	50.7
3	R2	53	0.0	53	0.0	0.198	12.4	LOS B	0.8	4.9	0.44	0.92	0.44	50.2
Approach		162	0.0	162	0.0	0.198	10.4	LOS B	0.8	4.9	0.44	0.92	0.44	50.5
East: MR533														
4	L2	57	0.0	57	0.0	0.177	5.6	LOS A	0.0	0.0	0.00	0.10	0.00	57.4
5	T1	286	0.0	286	0.0	0.177	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	59.0
Approach		343	0.0	343	0.0	0.177	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.8
West: MR533														
11	T1	290	0.0	290	0.0	0.208	0.5	LOS A	0.7	4.3	0.22	0.13	0.22	58.0
12	R2	75	0.0	75	0.0	0.208	6.9	LOS A	0.7	4.3	0.22	0.13	0.22	55.9
Approach		365	0.0	365	0.0	0.208	1.8	NA	0.7	4.3	0.22	0.13	0.22	57.6
All Vehicles		870	0.0	870	0.0	0.208	3.1	NA	0.8	4.9	0.18	0.27	0.18	56.5

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.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: 01 [01pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

MR533 / DR2160
PM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	198	0.0	198	0.0	0.607	12.2	LOS B	4.4	28.4	0.59	1.09	1.04	47.6
3	R2	201	0.0	201	0.0	0.607	18.5	LOS C	4.4	28.4	0.59	1.09	1.04	47.1
Approach		399	0.0	399	0.0	0.607	15.3	LOS C	4.4	28.4	0.59	1.09	1.04	47.4
East: MR533														
4	L2	218	0.0	218	0.0	0.248	5.6	LOS A	0.0	0.0	0.00	0.27	0.00	56.0
5	T1	255	0.0	255	0.0	0.248	0.1	LOS A	0.0	0.0	0.00	0.27	0.00	57.5
Approach		473	0.0	473	0.0	0.248	2.6	NA	0.0	0.0	0.00	0.27	0.00	56.8
West: MR533														
11	T1	264	0.0	264	0.0	0.284	1.5	LOS A	1.5	9.8	0.45	0.28	0.46	56.2
12	R2	163	0.0	163	0.0	0.284	7.8	LOS A	1.5	9.8	0.45	0.28	0.46	54.2
Approach		427	0.0	427	0.0	0.284	3.9	NA	1.5	9.8	0.45	0.28	0.46	55.5
All Vehicles		1299	0.0	1299	0.0	0.607	7.0	NA	4.4	28.4	0.33	0.53	0.47	53.1

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

MOVEMENT SUMMARY

 **Site: 02 [02am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

MR533 / New Access Road 1
AM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Access Road 1														
1	L2	1	0.0	1	0.0	0.054	10.1	LOS B	0.2	1.1	0.63	0.99	0.63	48.8
3	R2	23	0.0	23	0.0	0.054	13.6	LOS B	0.2	1.1	0.63	0.99	0.63	48.3
Approach		24	0.0	24	0.0	0.054	13.4	LOS B	0.2	1.1	0.63	0.99	0.63	48.3
East: MR533														
4	L2	44	0.0	44	0.0	0.247	5.6	LOS A	0.0	0.0	0.00	0.05	0.00	57.8
5	T1	436	0.0	436	0.0	0.247	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	59.4
Approach		480	0.0	480	0.0	0.247	0.6	NA	0.0	0.0	0.00	0.05	0.00	59.2
West: MR533														
11	T1	384	0.0	384	0.0	0.198	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	0.0	1	0.0	0.198	7.8	LOS A	0.0	0.1	0.00	0.00	0.00	57.7
Approach		385	0.0	385	0.0	0.198	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		889	0.0	889	0.0	0.247	0.7	NA	0.2	1.1	0.02	0.06	0.02	59.2

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

MOVEMENT SUMMARY

 **Site: 02 [02pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

MR533 / New Access Road 1
PM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Access Road 1														
1	L2	1	0.0	1	0.0	0.553	14.6	LOS B	2.5	16.0	0.85	1.12	1.33	43.7
3	R2	178	0.0	178	0.0	0.553	22.5	LOS C	2.5	16.0	0.85	1.12	1.33	43.4
Approach		179	0.0	179	0.0	0.553	22.4	LOS C	2.5	16.0	0.85	1.12	1.33	43.4
East: MR533														
4	L2	179	0.0	179	0.0	0.339	5.6	LOS A	0.0	0.0	0.00	0.16	0.00	56.8
5	T1	473	0.0	473	0.0	0.339	0.1	LOS A	0.0	0.0	0.00	0.16	0.00	58.3
Approach		652	0.0	652	0.0	0.339	1.6	NA	0.0	0.0	0.00	0.16	0.00	57.9
West: MR533														
11	T1	467	0.0	467	0.0	0.241	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	60.0
12	R2	1	0.0	1	0.0	0.241	9.4	LOS A	0.0	0.1	0.00	0.00	0.00	57.7
Approach		468	0.0	468	0.0	0.241	0.0	NA	0.0	0.1	0.00	0.00	0.00	60.0
All Vehicles		1299	0.0	1299	0.0	0.553	3.9	NA	2.5	16.0	0.12	0.24	0.18	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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: 03 [03am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

DR2160 / Primary Accesses
AM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	94	0.0	94	0.0	0.137	5.8	LOS A	0.4	3.1	0.19	0.27	0.19	55.1
2	T1	122	0.0	122	0.0	0.137	0.3	LOS A	0.4	3.1	0.19	0.27	0.19	56.6
3	R2	44	0.0	44	0.0	0.137	6.2	LOS A	0.4	3.1	0.19	0.27	0.19	54.5
Approach		260	0.0	260	0.0	0.137	3.3	NA	0.4	3.1	0.19	0.27	0.19	55.7
East: Portion 9A Access														
4	L2	23	0.0	23	0.0	0.060	8.7	LOS A	0.2	1.5	0.35	0.91	0.35	50.5
5	T1	5	0.0	5	0.0	0.060	11.5	LOS B	0.2	1.5	0.35	0.91	0.35	50.2
6	R2	16	0.0	16	0.0	0.060	12.8	LOS B	0.2	1.5	0.35	0.91	0.35	50.3
Approach		44	0.0	44	0.0	0.060	10.5	LOS B	0.2	1.5	0.35	0.91	0.35	50.4
North: DR2160														
7	L2	31	0.0	31	0.0	0.182	6.3	LOS A	1.0	7.1	0.34	0.28	0.34	54.7
8	T1	169	0.0	169	0.0	0.182	0.6	LOS A	1.0	7.1	0.34	0.28	0.34	56.2
9	R2	140	0.0	140	0.0	0.182	6.3	LOS A	1.0	7.1	0.34	0.28	0.34	54.2
Approach		340	0.0	340	0.0	0.182	3.4	NA	1.0	7.1	0.34	0.28	0.34	55.2
West: Portion 10B Access														
10	L2	127	0.0	127	0.0	0.266	8.6	LOS A	1.1	7.6	0.31	0.92	0.31	50.5
11	T1	5	0.0	5	0.0	0.266	12.0	LOS B	1.1	7.6	0.31	0.92	0.31	50.3
12	R2	84	0.0	84	0.0	0.266	13.0	LOS B	1.1	7.6	0.31	0.92	0.31	50.3
Approach		216	0.0	216	0.0	0.266	10.4	LOS B	1.1	7.6	0.31	0.92	0.31	50.4
All Vehicles		860	0.0	860	0.0	0.266	5.5	NA	1.1	7.6	0.29	0.47	0.29	53.8

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

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

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

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

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: 03 [03pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

DR2160 / Primary Accesses
PM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: DR2160														
1	L2	88	0.0	88	0.0	0.209	6.3	LOS A	1.3	9.1	0.40	0.36	0.40	53.7
2	T1	116	0.0	116	0.0	0.209	0.8	LOS A	1.3	9.1	0.40	0.36	0.40	55.1
3	R2	181	0.0	181	0.0	0.209	6.4	LOS A	1.3	9.1	0.40	0.36	0.40	53.2
Approach		385	0.0	385	0.0	0.209	4.7	NA	1.3	9.1	0.40	0.36	0.40	53.9
East: Portion 9A Access														
4	L2	179	0.0	179	0.0	0.511	10.5	LOS B	3.4	24.0	0.33	0.98	0.52	47.8
5	T1	10	0.0	10	0.0	0.511	16.7	LOS C	3.4	24.0	0.33	0.98	0.52	47.6
6	R2	143	0.0	143	0.0	0.511	19.3	LOS C	3.4	24.0	0.33	0.98	0.52	47.6
Approach		332	0.0	332	0.0	0.511	14.5	LOS B	3.4	24.0	0.33	0.98	0.52	47.7
North: DR2160														
7	L2	140	0.0	140	0.0	0.203	6.1	LOS A	1.2	8.1	0.34	0.37	0.34	53.7
8	T1	94	0.0	94	0.0	0.203	0.6	LOS A	1.2	8.1	0.34	0.37	0.34	55.0
9	R2	146	0.0	146	0.0	0.203	6.2	LOS A	1.2	8.1	0.34	0.37	0.34	53.1
Approach		380	0.0	380	0.0	0.203	4.8	NA	1.2	8.1	0.34	0.37	0.34	53.8
West: Portion 10B Access														
10	L2	138	0.0	138	0.0	0.313	8.7	LOS A	1.3	9.4	0.32	0.92	0.34	49.7
11	T1	10	0.0	10	0.0	0.313	14.3	LOS B	1.3	9.4	0.32	0.92	0.34	49.5
12	R2	73	0.0	73	0.0	0.313	16.6	LOS C	1.3	9.4	0.32	0.92	0.34	49.5
Approach		221	0.0	221	0.0	0.313	11.6	LOS B	1.3	9.4	0.32	0.92	0.34	49.6
All Vehicles		1318	0.0	1318	0.0	0.511	8.3	NA	3.4	24.0	0.35	0.61	0.40	51.4

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

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

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

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

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: 04 [04am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

DR2160 / New Access Road 2
AM Peak Hour
2031
Site Category: Roundabout
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	1	0.0	1	0.0	0.152	3.4	LOS A	0.8	5.9	0.03	0.35	0.03	56.4
2	T1	259	0.0	259	0.0	0.152	3.4	LOS A	0.8	5.9	0.03	0.35	0.03	58.2
3	R2	6	0.0	6	0.0	0.152	9.1	LOS A	0.8	5.9	0.03	0.35	0.03	58.6
Approach		266	0.0	266	0.0	0.152	3.6	LOS A	0.8	5.9	0.03	0.35	0.03	58.2
East: New Access Road 2														
4	L2	3	0.0	3	0.0	0.004	4.4	LOS A	0.0	0.1	0.38	0.47	0.38	54.3
5	T1	1	0.0	1	0.0	0.004	4.4	LOS A	0.0	0.1	0.38	0.47	0.38	55.9
6	R2	1	0.0	1	0.0	0.004	10.2	LOS B	0.0	0.1	0.38	0.47	0.38	56.3
Approach		5	0.0	5	0.0	0.004	5.6	LOS A	0.0	0.1	0.38	0.47	0.38	55.0
North: DR2160														
7	L2	1	0.0	1	0.0	0.163	3.4	LOS A	0.9	6.0	0.05	0.34	0.05	56.4
8	T1	276	0.0	276	0.0	0.163	3.4	LOS A	0.9	6.0	0.05	0.34	0.05	58.1
9	R2	1	0.0	1	0.0	0.163	9.2	LOS A	0.9	6.0	0.05	0.34	0.05	58.5
Approach		278	0.0	278	0.0	0.163	3.5	LOS A	0.9	6.0	0.05	0.34	0.05	58.1
West: New Access Road 2														
10	L2	1	0.0	1	0.0	0.002	4.4	LOS A	0.0	0.1	0.37	0.48	0.37	53.8
11	T1	1	0.0	1	0.0	0.002	4.4	LOS A	0.0	0.1	0.37	0.48	0.37	55.3
12	R2	1	0.0	1	0.0	0.002	10.1	LOS B	0.0	0.1	0.37	0.48	0.37	55.7
Approach		3	0.0	3	0.0	0.002	6.3	LOS A	0.0	0.1	0.37	0.48	0.37	54.9
All Vehicles		552	0.0	552	0.0	0.163	3.5	LOS A	0.9	6.0	0.05	0.34	0.05	58.1

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.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: 04 [04pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

DR2160 / New Access Road 2
PM Peak Hour
2031
Site Category: Roundabout
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: DR2160														
1	L2	1	0.0	1	0.0	0.232	3.4	LOS A	1.4	10.0	0.03	0.36	0.03	56.2
2	T1	385	0.0	385	0.0	0.232	3.4	LOS A	1.4	10.0	0.03	0.36	0.03	58.0
3	R2	24	0.0	24	0.0	0.232	9.1	LOS A	1.4	10.0	0.03	0.36	0.03	58.4
Approach		410	0.0	410	0.0	0.232	3.8	LOS A	1.4	10.0	0.03	0.36	0.03	58.0
East: New Access Road 2														
4	L2	24	0.0	24	0.0	0.023	4.8	LOS A	0.1	0.8	0.44	0.50	0.44	54.8
5	T1	1	0.0	1	0.0	0.023	4.8	LOS A	0.1	0.8	0.44	0.50	0.44	56.5
6	R2	1	0.0	1	0.0	0.023	10.5	LOS B	0.1	0.8	0.44	0.50	0.44	56.8
Approach		26	0.0	26	0.0	0.023	5.0	LOS A	0.1	0.8	0.44	0.50	0.44	54.9
North: DR2160														
7	L2	1	0.0	1	0.0	0.218	3.5	LOS A	1.2	8.3	0.12	0.34	0.12	56.1
8	T1	350	0.0	350	0.0	0.218	3.5	LOS A	1.2	8.3	0.12	0.34	0.12	57.8
9	R2	1	0.0	1	0.0	0.218	9.2	LOS A	1.2	8.3	0.12	0.34	0.12	58.2
Approach		352	0.0	352	0.0	0.218	3.5	LOS A	1.2	8.3	0.12	0.34	0.12	57.8
West: New Access Road 2														
10	L2	1	0.0	1	0.0	0.003	5.0	LOS A	0.0	0.1	0.46	0.50	0.46	53.4
11	T1	1	0.0	1	0.0	0.003	5.0	LOS A	0.0	0.1	0.46	0.50	0.46	55.0
12	R2	1	0.0	1	0.0	0.003	10.7	LOS B	0.0	0.1	0.46	0.50	0.46	55.3
Approach		3	0.0	3	0.0	0.003	6.9	LOS A	0.0	0.1	0.46	0.50	0.46	54.5
All Vehicles		791	0.0	791	0.0	0.232	3.7	LOS A	1.4	10.0	0.09	0.36	0.09	57.8

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.

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

Queue Model: SIDRA Standard.

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

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

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Project: C:\Users\Hoosain Cassoo\OneDrive - Apex Transport Solutions\00 ATS\1 Projects\21000\21008 - Kanteys Support\04 K&T Support\17046T - St Helena Bay Development\5. Traffic\SIDRA\Phase 1A\St Helena Bay Development - Phase 1A.sip9

MOVEMENT SUMMARY

 **Site: 05 [05am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

New Access Road 1 / Secondary Access
AM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: New Access Road 1														
1	L2	6	0.0	6	0.0	0.004	5.5	LOS A	0.0	0.0	0.00	0.50	0.00	54.3
2	T1	1	0.0	1	0.0	0.004	0.0	LOS A	0.0	0.0	0.00	0.50	0.00	55.7
Approach		7	0.0	7	0.0	0.004	4.7	NA	0.0	0.0	0.00	0.50	0.00	54.5
North: New Access Road 1														
8	T1	1	0.0	1	0.0	0.026	0.0	LOS A	0.1	0.8	0.04	0.57	0.04	55.0
9	R2	44	0.0	46	0.0	0.026	5.5	LOS A	0.1	0.8	0.04	0.57	0.04	53.1
Approach		45	0.0	47	0.0	0.026	5.3	NA	0.1	0.8	0.04	0.57	0.04	53.2
West: Portion 9A Access														
10	L2	23	0.0	24	0.0	0.020	8.0	LOS A	0.1	0.5	0.01	0.99	0.01	51.8
12	R2	3	0.0	3	0.0	0.020	7.6	LOS A	0.1	0.5	0.01	0.99	0.01	51.3
Approach		26	0.0	27	0.0	0.020	8.0	LOS A	0.1	0.5	0.01	0.99	0.01	51.7
All Vehicles		78	0.0	82	0.0	0.026	6.2	NA	0.1	0.8	0.03	0.70	0.03	52.8

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

MOVEMENT SUMMARY

 **Site: 05 [05pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

New Access Road 1 / Secondary Access
PM Peak Hour
2031
Site Category: Unsignalised
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Access Road 1														
1	L2	24	0.0	24	0.0	0.013	5.5	LOS A	0.0	0.0	0.00	0.55	0.00	53.8
2	T1	1	0.0	1	0.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.55	0.00	55.2
Approach		25	0.0	25	0.0	0.013	5.3	NA	0.0	0.0	0.00	0.55	0.00	53.9
North: New Access Road 1														
8	T1	1	0.0	1	0.0	0.107	0.1	LOS A	0.5	3.7	0.09	0.56	0.09	54.8
9	R2	179	0.0	188	0.0	0.107	5.5	LOS A	0.5	3.7	0.09	0.56	0.09	52.9
Approach		180	0.0	189	0.0	0.107	5.5	NA	0.5	3.7	0.09	0.56	0.09	52.9
West: Portion 9A Access														
10	L2	178	0.0	187	0.0	0.155	8.0	LOS A	0.7	4.7	0.00	1.00	0.00	51.7
12	R2	24	0.0	24	0.0	0.155	8.5	LOS A	0.7	4.7	0.00	1.00	0.00	51.2
Approach		202	0.0	211	0.0	0.155	8.1	LOS A	0.7	4.7	0.00	1.00	0.00	51.7
All Vehicles		407	0.0	426	0.0	0.155	6.8	NA	0.7	4.7	0.04	0.78	0.04	52.3

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

MOVEMENT SUMMARY

 **Site: 06 [06am2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

New Access Road 1 / New Access Road 2
AM Peak Hour
2031
Site Category: Roundabout
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
						v/c	sec							km/h
South: New Access Road 1														
1	L2	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.04	0.49	0.04	55.0
2	T1	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.04	0.49	0.04	56.7
3	R2	1	0.0	1	0.0	0.002	9.2	LOS A	0.0	0.1	0.04	0.49	0.04	57.0
Approach		3	0.0	3	0.0	0.002	5.3	LOS A	0.0	0.1	0.04	0.49	0.04	56.2
East: New Access Road 2														
4	L2	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.04	0.49	0.04	55.0
5	T1	1	0.0	1	0.0	0.002	3.4	LOS A	0.0	0.1	0.04	0.49	0.04	56.7
6	R2	1	0.0	1	0.0	0.002	9.2	LOS A	0.0	0.1	0.04	0.49	0.04	57.0
Approach		3	0.0	3	0.0	0.002	5.3	LOS A	0.0	0.1	0.04	0.49	0.04	56.2
North: New Access Road 1														
7	L2	1	0.0	1	0.0	0.003	3.4	LOS A	0.0	0.1	0.03	0.57	0.03	53.9
8	T1	1	0.0	1	0.0	0.003	3.4	LOS A	0.0	0.1	0.03	0.57	0.03	55.5
9	R2	3	0.0	3	0.0	0.003	9.1	LOS A	0.0	0.1	0.03	0.57	0.03	55.8
Approach		5	0.0	5	0.0	0.003	6.9	LOS A	0.0	0.1	0.03	0.57	0.03	55.4
West: New Access Road 2														
10	L2	6	0.0	6	0.0	0.005	3.4	LOS A	0.0	0.2	0.03	0.45	0.03	56.0
11	T1	1	0.0	1	0.0	0.005	3.4	LOS A	0.0	0.2	0.03	0.45	0.03	57.7
12	R2	1	0.0	1	0.0	0.005	9.1	LOS A	0.0	0.2	0.03	0.45	0.03	58.1
Approach		8	0.0	8	0.0	0.005	4.1	LOS A	0.0	0.2	0.03	0.45	0.03	56.4
All Vehicles		19	0.0	19	0.0	0.005	5.2	LOS A	0.0	0.2	0.03	0.49	0.03	56.1

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.

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

Queue Model: SIDRA Standard.

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

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

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MOVEMENT SUMMARY

 **Site: 06 [06pm2031future - incl site traffic (Site Folder: Future 2031 - incl site traffic)]**

New Access Road 1 / New Access Road 2
PM Peak Hour
2031
Site Category: Roundabout
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: New Access Road 1														
1	L2	1	0.0	1	0.0	0.002	3.5	LOSA	0.0	0.1	0.10	0.47	0.10	54.7
2	T1	1	0.0	1	0.0	0.002	3.5	LOSA	0.0	0.1	0.10	0.47	0.10	56.4
3	R2	1	0.0	1	0.0	0.002	9.2	LOSA	0.0	0.1	0.10	0.47	0.10	56.8
Approach		3	0.0	3	0.0	0.002	5.4	LOSA	0.0	0.1	0.10	0.47	0.10	56.0
East: New Access Road 2														
4	L2	1	0.0	1	0.0	0.002	3.5	LOSA	0.0	0.1	0.10	0.47	0.10	54.7
5	T1	1	0.0	1	0.0	0.002	3.5	LOSA	0.0	0.1	0.10	0.47	0.10	56.4
6	R2	1	0.0	1	0.0	0.002	9.2	LOSA	0.0	0.1	0.10	0.47	0.10	56.8
Approach		3	0.0	3	0.0	0.002	5.4	LOSA	0.0	0.1	0.10	0.47	0.10	56.0
North: New Access Road 1														
7	L2	1	0.0	1	0.0	0.016	3.4	LOSA	0.1	0.5	0.03	0.63	0.03	52.6
8	T1	1	0.0	1	0.0	0.016	3.4	LOSA	0.1	0.5	0.03	0.63	0.03	54.1
9	R2	24	0.0	24	0.0	0.016	9.1	LOSA	0.1	0.5	0.03	0.63	0.03	54.4
Approach		26	0.0	26	0.0	0.016	8.7	LOSA	0.1	0.5	0.03	0.63	0.03	54.3
West: New Access Road 2														
10	L2	24	0.0	24	0.0	0.016	3.4	LOSA	0.1	0.5	0.03	0.43	0.03	56.4
11	T1	1	0.0	1	0.0	0.016	3.4	LOSA	0.1	0.5	0.03	0.43	0.03	58.1
12	R2	1	0.0	1	0.0	0.016	9.1	LOSA	0.1	0.5	0.03	0.43	0.03	58.5
Approach		26	0.0	26	0.0	0.016	3.6	LOSA	0.1	0.5	0.03	0.43	0.03	56.5
All Vehicles		58	0.0	58	0.0	0.016	6.1	LOSA	0.1	0.5	0.03	0.52	0.03	55.4

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.

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

Queue Model: SIDRA Standard.

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

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

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