



Member of the Surbana Jurong Group

**Mossel Bay Municipality**

# Traffic Impact Assessment for the Proposed Dana Bay Alternative Access Road

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## DOCUMENT CONTROL

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### APPROVAL

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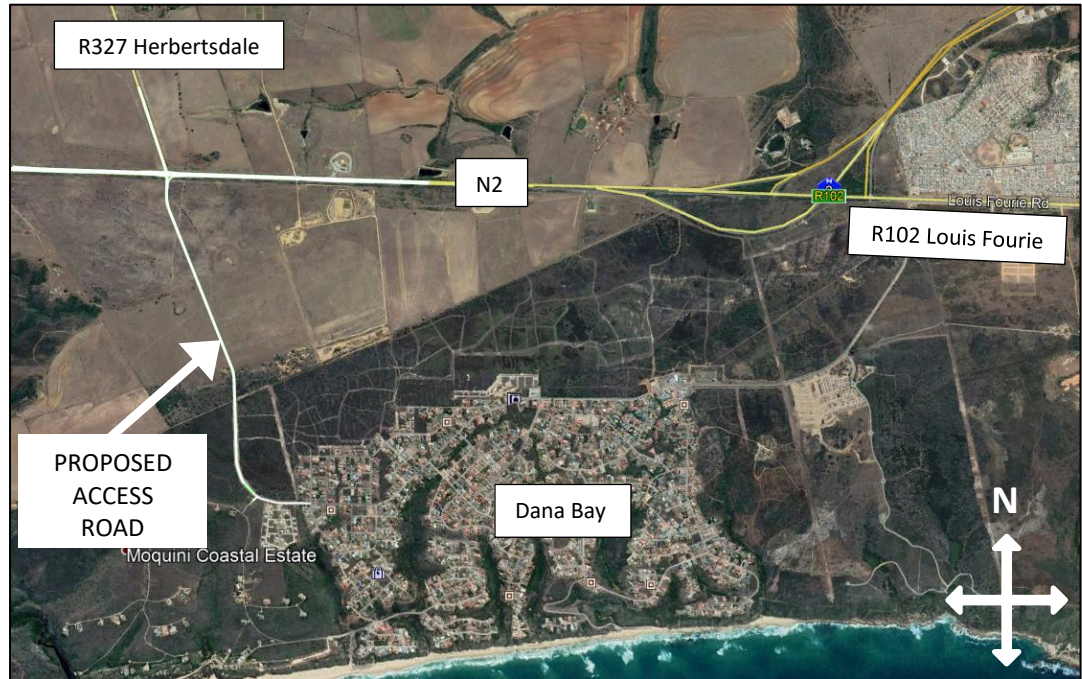
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## 1. INTRODUCTION

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SMEC South Africa (Pty) Ltd was appointed by the Mossel Bay Municipality to conduct a Traffic Impact Assessment for the proposed Dana Bay alternative access road. The proposed access road is planned to join onto the National Road N2 directly opposite R327 Herbertsdale. Refer to Figure 1-1.



**Figure 1-1 Locality Plan (Image: Google)**

The purpose of the proposed Dana Bay alternative access road is twofold, namely:

- Provide a secondary access to the area; and
- Provide an alternate primary access to the area should Flora Road be closed.

## 2. BACKGROUND INFORMATION

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### 2.1 Existing Roads

**National Route N2** is a Class 1 Freeway under the jurisdiction of the South African National Road Agency Limited. In the vicinity of the proposed access it comprises of two lanes per direction. It experiences moderate traffic flows during peak hours, and operates at an acceptable Level of Service.

**R102 (Louis Fourie Rd)** is a Class 2 Major Arterial under ownership of Western Cape Department of Transport, predominantly serving as access to Dana Bay and Mossel Bay. The road comprises of two lanes per direction in the vicinity of the subject site, with junctions generally taking the form of signalised intersections. It experiences moderate traffic flows during peak hours, and generally operates at an acceptable Level of Service.

**Flora Rd** is a Class 4 Collector Road under ownership of Mossel Bay Municipality, serving as access to Dana Bay. The road comprises of one lane per direction, with accesses generally taking the form of priority-controlled intersections. It experiences moderate traffic flows during peak hours, and generally operates at an acceptable Level of Service.

**R327 Herbertsdale** is a Class 3 Minor Arterial under ownership of Western Cape Department of Transport. The road comprises of one lane per direction in the vicinity of the subject site. It experiences low traffic flows during peak hours, and generally operates at an acceptable Level of Service.

## 2.2 Planned Roads

### 2.2.1 Proposed Dana Bay Alternative Access

The proposed alternative access to serve Dana Bay is planned to join onto the National Road N2 directly opposite R327 Herbertsdale. It therefore applies existing intersection spacing distances. Refer to Figure 2-1.

Note should be taken that although National Route N2 is a Class 1 Freeway, access management takes the form of grade-separated intersections, with intersection spacing distances being to Class 2 Road standards.

COTO TMH 16 Manual Volume 2 specifies the minimum access spacing requirements for a Class 2 Road as 800 meter  $\pm$  15% within Urban Areas (680 to 920 metres).

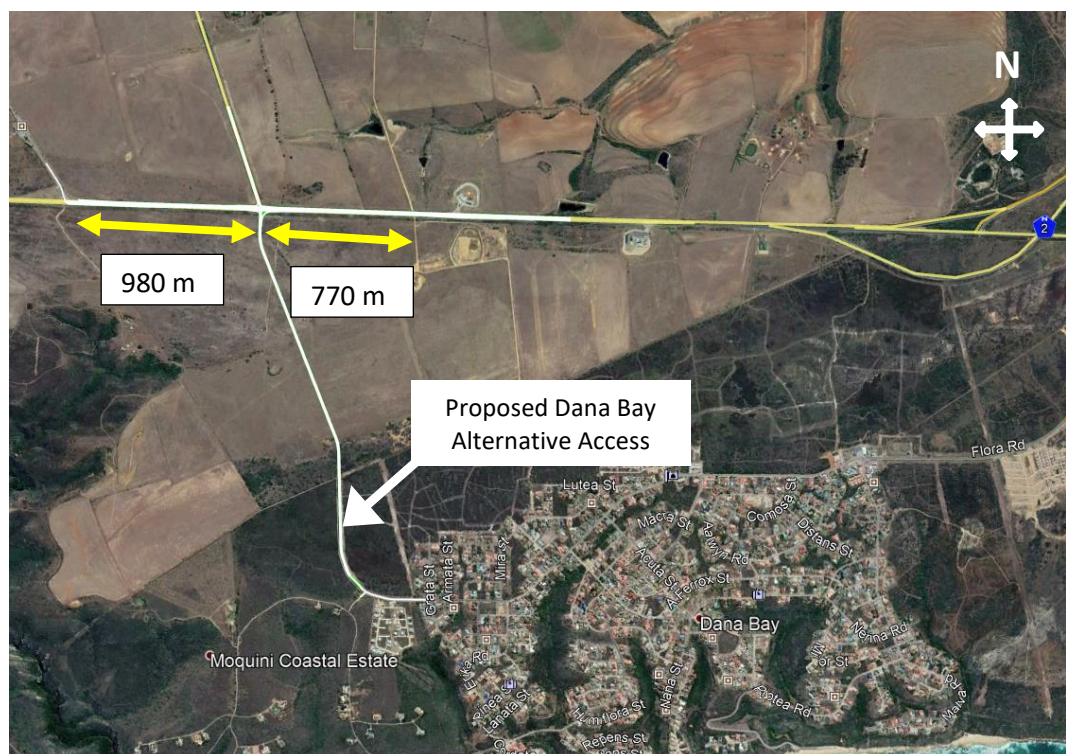


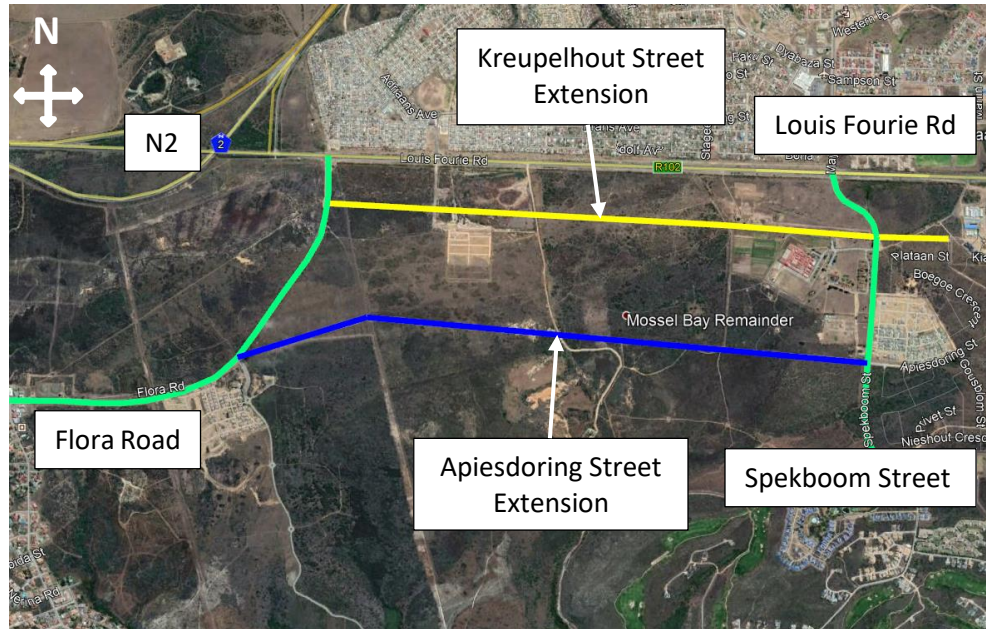
Figure 2-1 Proposed Dana Bay Alternative Access Spacing (Image: Google)

### 2.2.2 IDP Priority Projects

The following priority projects were recommended in the Fourth Generation IDP 2017 – 2022 (CNdV Africa, 2018):

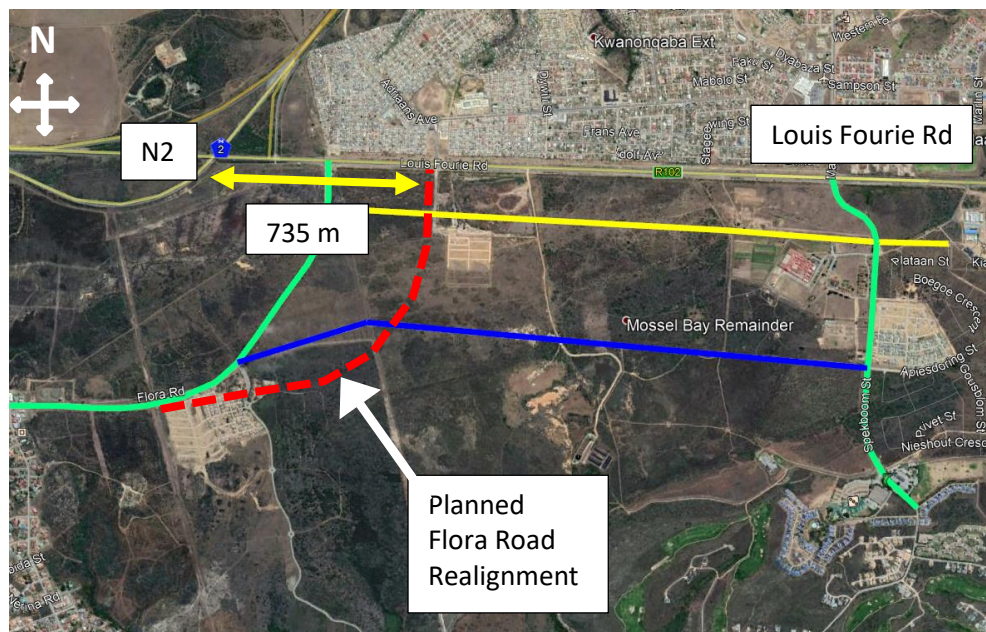
- Upgrade of Flora road, including public transport and non-motorised transport routes using the “complete streets” approach. Paving of sidewalks in Flora Road is also included;
- Re-align Flora road and link to the existing Crotz Street / R102 Louie Fourie Road intersection and signalise the new four-way intersection;

- Extend Kreupelhout Street to Flora Road to provide access to the proposed Technikon site (Refer to Figure 2-2);
- Extend Apiesdoring Street from Spekboom Street to Flora Road (Refer to Figure 2-2).



**Figure 2-2 Planned New Roads (Image: Google)**

Flora Road is planned to be realigned in future, in order to attain improved access spacing from the N2 ramp terminal, joining onto R102 (Louis Fourie Rd) directly opposite Crotz Road



**Figure 2-3 Planned Flora Road Realignment (Image: Google)**

## 2.3 Land Use Development

### Dana Bay:

Dana Bay comprises of a total of 2 490 erven, of which 1 127 is currently developed, as per Mossel Bay Municipality Spatial Development Framework (CNdV Africa (Pty) Ltd, 2018).

For future growth purposes, it was assumed that the remaining erven in the Dana Bay will be 50% developed within 5 years, and 100% developed within 10 years.

### Other planned developments:

A development named Paradise Coast is planned directly to the east of Dana Bay. It will comprise of approximately 930 residential units, taking a similar form as Dana Bay.

It is anticipated that the development will be 50% developed within 5 years, and 100% developed within 10 years.

### 3. OTHER PLANNING AUTHORITIES

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National Route N2 falls under the jurisdiction of the South African National Road Agency Limited (SANRAL).

Provincial roads R102 (Louis Fourie Rd) and R327 Herbertsdale fall under the jurisdiction of the Western Cape Department of Transport.

Taking the above into consideration, it would be required that SANRAL and Western Cape Department of Transport also review this Traffic Impact Assessment.

### 4. TRAFFIC DEMAND ESTIMATION

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#### 4.1 Assessment Year

A traffic assessment was undertaken for the 2019 base year, as well as a 2024 and 2029 design year. Future build-out of latent and approved land use rights were assumed to occur in two distinct phases, namely:

- Phase 1: 50% build-out by 2024.
- Phase 2: Full build-out by 2029.

#### 4.2 Assessment Hour

The traffic assessment must be undertaken for the hours during which the combined effect of background and development traffic will result in the highest traffic demand. Taking into consideration the residential nature of the planned developments, it is deemed appropriate for the Weekday AM and PM Peak Hours to be analysed.

The common Peak Hours of the intersections within the study area are as follows:

- Weekday AM Peak Hour            07h00 - 08h00
- Weekday PM Peak Hour            16h15 - 17h15

#### 4.3 Background Traffic Demand Estimation

##### 4.3.1 Traffic Counts

The following traffic counts were undertaken as part of this project assignment:

- Intersection of R102 (Louis Fourie Rd) and Flora Road;
- Intersection of N2 and R327 Herbertsdale;
- N2 & R102 (Louis Fourie Rd) interchange; and
- Intersection of R102 (Louis Fourie Rd) and Crotz Road.

Details of the traffic survey are provided below:

- Date counted                      November 2019 and January 2020
- Day of the week                    Normal Weekdays
- Day class                            Normal
- Congestion levels                Low
- Enumerator                        SMEC South Africa (Pty) Ltd

#### 4.3.2 Traffic Growth

A traffic growth rate is applied to background traffic in order to determine the anticipated increase in Base Year traffic by a predefined Design Year.

The COTO TMH 17 South African Trip Data Manual dated September 2012 provides typical growth rates to be used for growth areas based on the existing/anticipated rate of growth. Refer to Table 4-1.

**Table 4-1 Typical Growth Rates**

DEVELOPMENT AREA	GROWTH RATE
Low Growth Areas	0% - 3%
Average Growth Areas	3% - 4%
Above Average Growth Areas	4% - 6%
Fast Growing Ares	6% - 8%
Exceptionally High Growth Areas	> 8%

Taking into consideration the location of the subject site, a compounded traffic growth rate of 2.0% was applied to the 2019 Base Year Traffic in order to derive 2024 and 2029 Design Year traffic flows.

Taking into consideration the travel patterns to/from Dana Bay any Other Developments, it was deemed appropriate to only apply a growth rate to N2 and R102 traffic.

#### 4.4 Redistribution of Background Traffic

In situations where a development proposal may result in a diversion of background traffic, such diversion must be taken into account as part of the “with” development scenario.

In the event that the Dana Bay Alternate Access would serve as a secondary access to the area, no traffic was redistributed between Flora Road and the proposed alternative access to Dana Bay off the N2. Refer to Figure 4-1.

In the event that the Dana Bay Alternate Access would serve as the primary access to the area, traffic was redistributed between Flora Road and the proposed alternative access to Dana Bay off the N2, as shown in Figure 4-2.

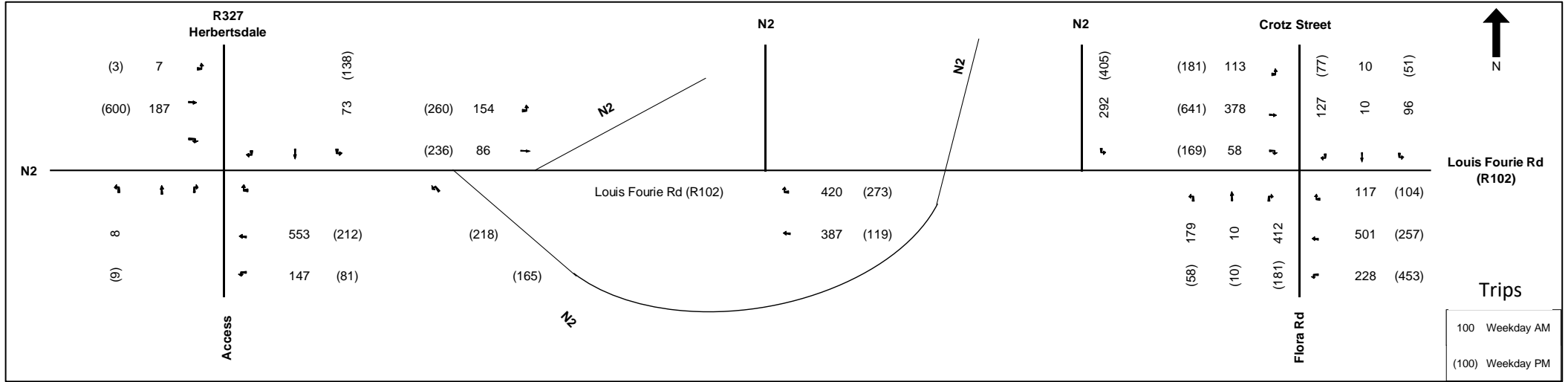


Figure 4-1 Traffic Redistribution: Secondary Access

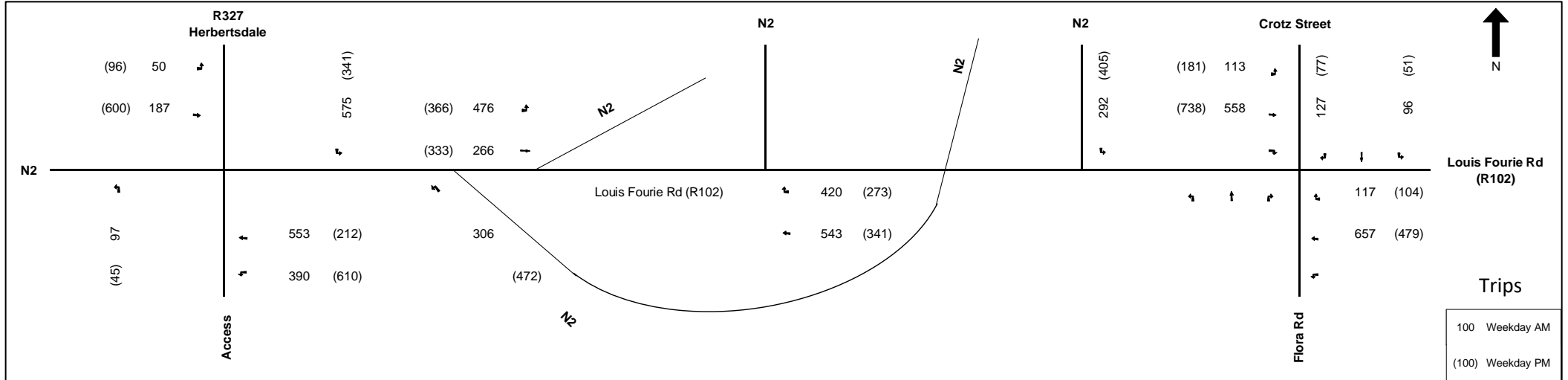


Figure 4-2 Traffic Redistribution: Primary Access

## 4.5 Trip Generation

Trip generation rates are measured in units of trip ends, with either an origin or a destination at the development. It is the sum of traffic to or from a development.

The Trip Generation Rate and Directional Split for Single Dwelling Units is as follows, as defined by the TMH 17 South African Trip Data Manual (Version 1.01) dated September 2013.

**Table 4-2 Typical Trip Generation**

Land Use	Trip Generation Rate		Directional Split (%)			
			AM		PM	
	AM	PM	In	Out	In	Out
Single Dwelling Units	1.0	1.0	25	75	70	30

With Dana Bay only being served by one access (Flora Road), allowed for the calculation of a site-specific trip generation rate, based on the traffic counts undertaken. Refer to

**Table 4-3 Site-Specific Trip Generation**

Land Use	Trip Generation Rate		Directional Split (%)			
			AM		PM	
	AM	PM	In	Out	In	Out
Single Dwelling Units	0.78	0.76	33	67	72	28

Taking into consideration the type and location of planned developments, it was deemed appropriate to make use of the site-specific trip generation rate of Dana Bay for these developments.

The trip generation potential of Phase 1 of the planned developments is shown in Table 4-4.

**Table 4-4 Trip Generation – Phase 1**

Land Use	Units	Trip Generation Rate		Total Trips			
				AM		PM	
		AM	PM	In	Out	In	Out
Undeveloped Dana Bay Single Dwelling Units	681	0.78	0.76	175	356	373	145
Planned Paradise Coast Single Dwelling Units	465	0.78	0.76	120	243	254	99
Total				295	599	627	244
				894		871	

The trip generation potential of Phase 1 + 2 of the planned developments is shown in Table 4-5.

**Table 4-5 Trip Generation – Phase 1 + 2**

Land Use	Units	Trip Generation Rate		Total Trips			
				AM		PM	
		AM	PM	In	Out	In	Out
Undeveloped Dana Bay Single Dwelling Units	1363	0.78	0.76	351	712	746	290
Planned Paradise Coast Single Dwelling Units	930	0.78	0.76	239	486	509	198
Total				590	1198	1255	488
				1788		1743	

It is anticipated that Phase 1 of the land use development would generate 894 and 871 new vehicular trips during the Weekday AM and PM Peak Hours respectively. Phase 1 + 2 of the land use development would generate 1 788 and 1 743 new vehicular trips during the Weekday AM and PM Peak Hours respectively.

#### 4.6 Modal Split

According to the Mossel bay SDF, Dana Bay is an upper-income holiday accommodation Town with a high level of vehicle ownership with limited public transport facilities. For the purpose of this study, no trip reduction factors were applied for the analysis.

#### 4.7 Trip Types

For the purpose of this study, it is assumed that all trips associated with the land use development are classified as primary trips, therefore new trips on the surrounding road network.

## 5. TRIP DISTRIBUTION AND ASSIGNMENT

### 5.1 Trip Distribution

Trip distribution was estimated manually, based on the principles of the gravity model and with knowledge of local conditions.

Taking into consideration the land use type and location of potential labour force in the surrounding area, the gravity model calculation is set out in Table 5-1.

**Table 5-1 Gravity Model**

LOCATION	AREA (km <sup>2</sup> )	DISTANCE (km)	PERCENT	DIRECTION
Mossel Bay Town	0.95	10	33%	E
Mossdustria	0.29	7	21%	W
Voorbaai-Hartenbos	1.08	9	46%	NE

Based on the trip generation potential of the subject site, development trip distribution summary is set out in Table 5-2.

**Table 5-2 Development Trip Distribution**

DIRECTION	CORRIDOR	PERCENT	AM IN	AM OUT	PM IN	PM OUT
N	N2	46%	274	555	582	226
E	R102	33%	193	391	409	159
W	N2	21%	124	252	264	103
Total		100%	590	1198	1255	488

### 5.2 Traffic Assignment

Traffic assignment involves determining the percentage of traffic that will use specific routes in the network. The traffic assignment is made with consideration to logical routings, available roadway capacity, right-turn movements, travel times and other factors.

Traffic assignment for the Proposed Dana Bay Access as a Secondary Access is shown in Figure 5-1.

Traffic assignment for the Proposed Dana Bay Access as a Primary Access is shown in Figure 5-2.

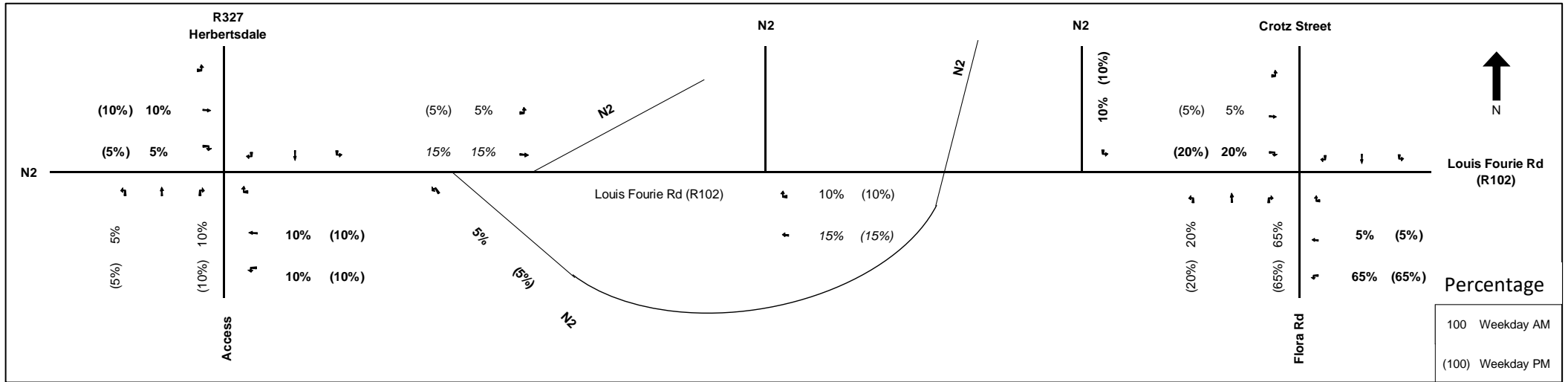


Figure 5-1 Traffic Assignment: Secondary Access

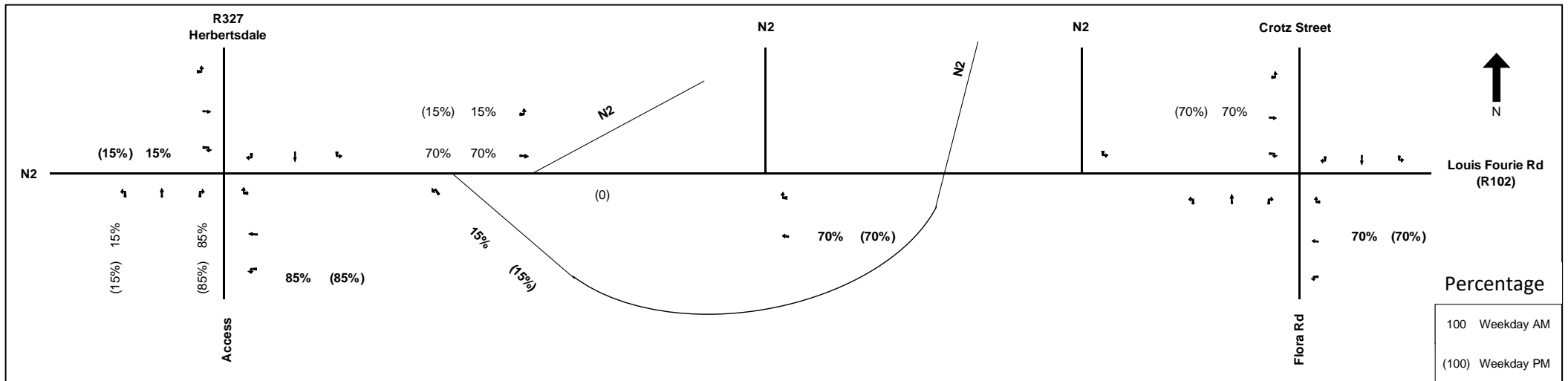


Figure 5-2 Traffic Assignment: Primary Access

## 6. TOTAL TRAFFIC DEMAND

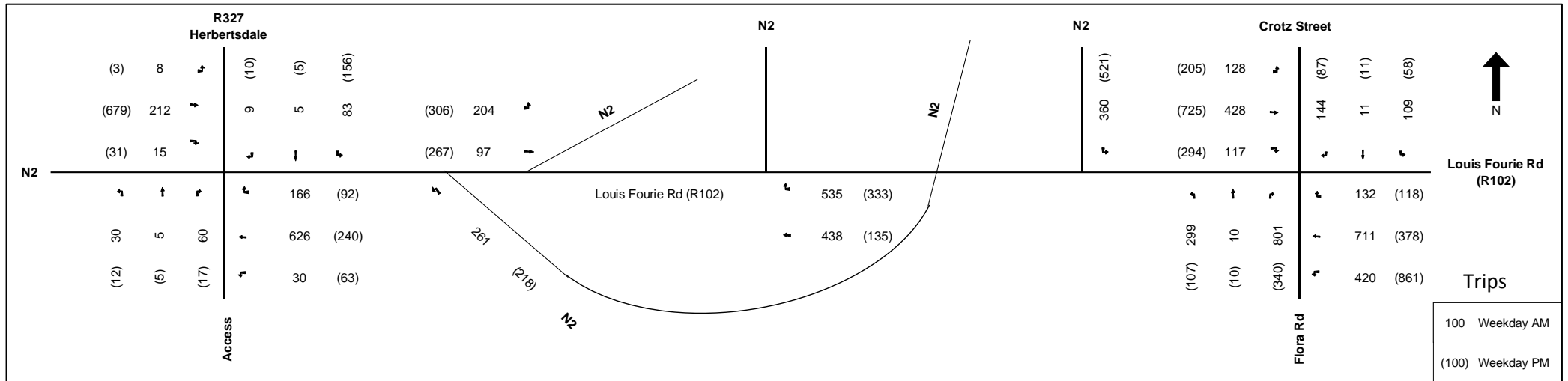
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In the event that the Dana Bay Alternate Access would serve as a Secondary Access to the area, the following traffic demand applies:

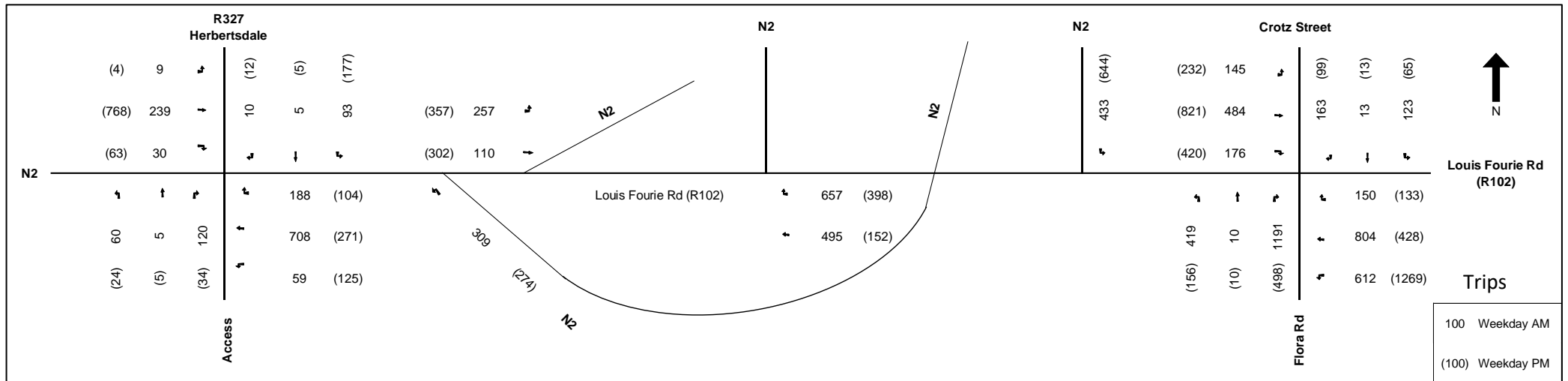
- Figure 6-1 Secondary Access: 2024 Design Year + Phase 1 Development Trips; and
- Figure 6-2 Secondary Access: 2029 Planning Year + Phase 1+2 Development Trips;

In the event that the Dana Bay Alternate Access would serve as a Primary Access to the area, the following traffic demand applies

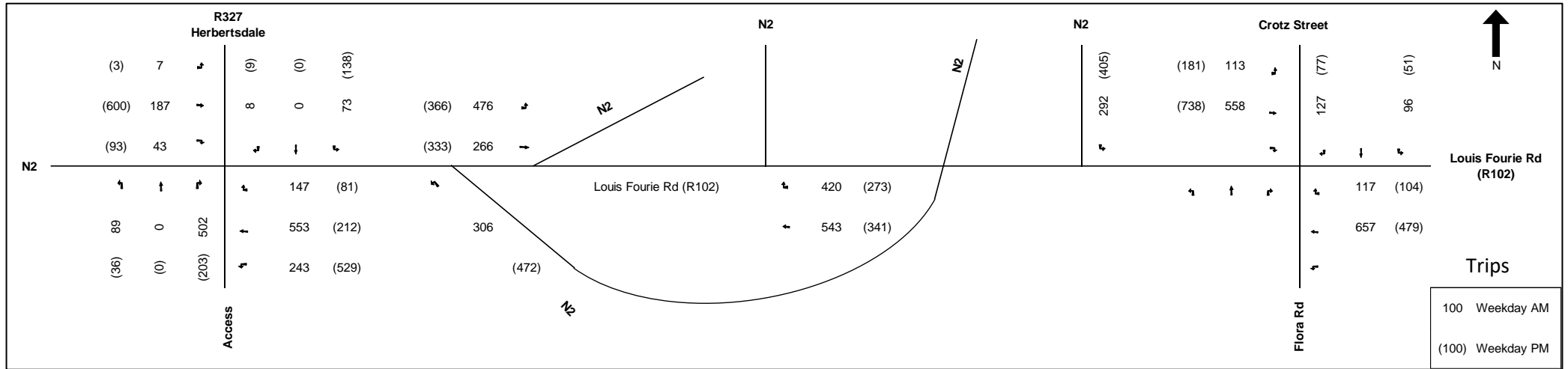
- Figure 6-3 Primary Access: 2019 Base Year;
- Figure 6-4 Primary Access: 2024 Design Year + Phase 1 Development Trips; and
- Figure 6-5 Primary Access: 2029 Planning Year + Phase 1+2 Development Trips.



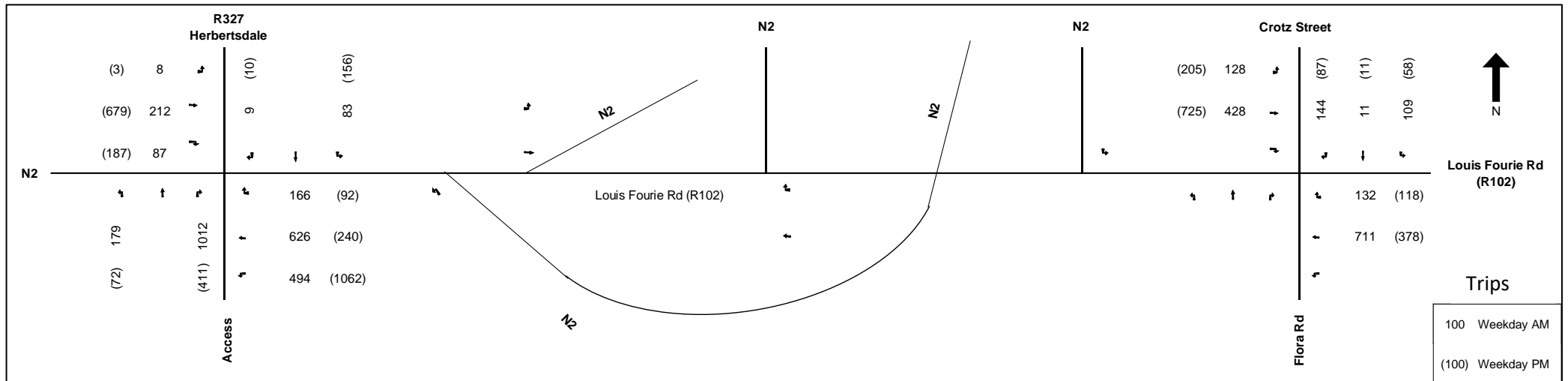
**Figure 6-1 Secondary Access: 2024 + Phase 1 Development Trips**



**Figure 6-2 Secondary Access: 2029 + Phase 1+2 Development Trips**



**Figure 6-3 Primary Access: 2019 Base Year**



**Figure 6-4 Primary Access: 2024 + Phase 1 Development Trips**

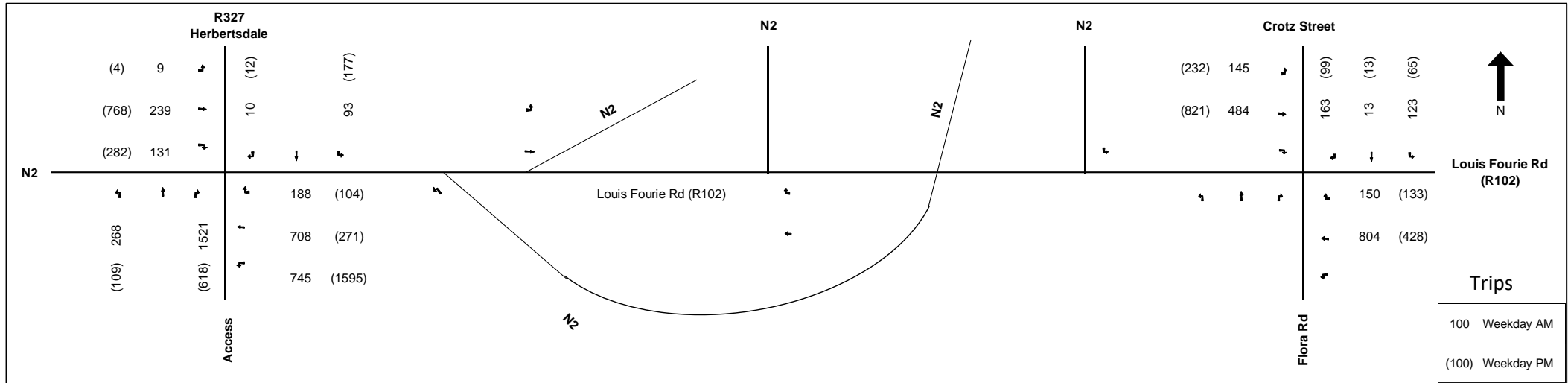


Figure 6-5 Primary Access: 2029 + Phase 1+2 Development Trips

## 7. TRAFFIC IMPACT ASSESSMENT SCENARIOS

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The following access scenarios formed part of the project assignment:

- Flora Road serving as a Primary Access;
- Dana Bay Alternate Access serving as a Secondary Access to the area; and
- Dana Bay Alternate Access serving as a Primary Access to the area (if Flora Road is closed).

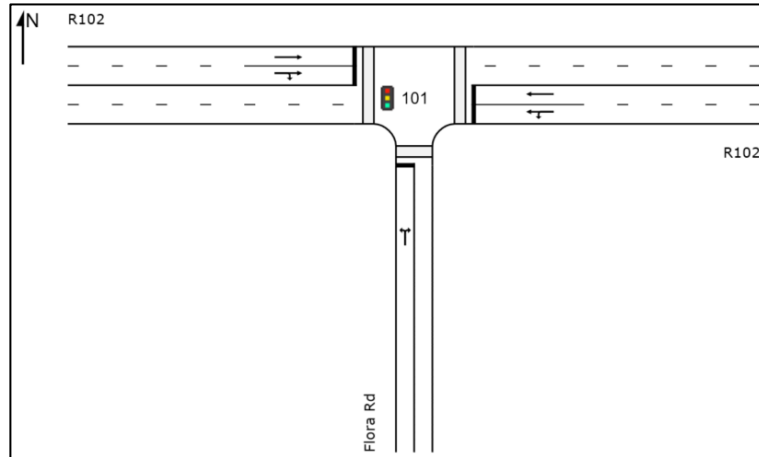
The following year scenarios were analysed as part of the Traffic Impact Assessment:

- 2019 Base Year Traffic;
- 2024 Design Year + Phase 1 Development Trips; and
- 2029 Planning Year + Phase 1+2 Development Trips.

The following sub-sections set out the analysis findings.

## 7.1 Flora Road as Primary Access

The intersection of R102 (Louis Fourie Road) and Flora Road is a signalised T-junction. The east approach has a shared through and left-turn lane plus one through lane, the south approach has a single lane serving all turning movements, and the west approach has one through lane plus a shared through and right-turn lane. Refer to Figure 7-1.



**Figure 7-1 Layout: R102 (Louis Fourie Road) & Flora Road**

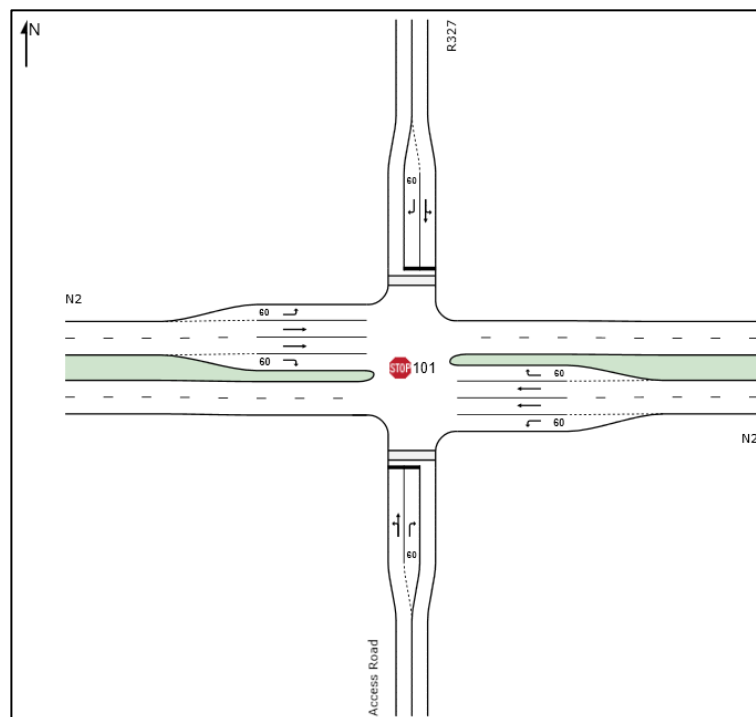
### 2019 Base Year Traffic

Taking into consideration the 2019 Base Year traffic flows, the intersection currently operates at an overall Level of Service C and B during the Weekday AM and PM Peak Hours, with an average delay of approximately 22 and 19 seconds respectively.

## 7.2 Dana Bay Alternate Access as Secondary Access

### Secondary Access: Priority-Controlled Intersection

This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a priority-controlled 4-leg junction, with R327 Herbertsdale and proposed Access Road under stop control. The North approach will have a shared through plus left-turn lane plus a short right-turn lane, the east approach will have a short left-turn lane plus two through lanes plus a short right-turn lane, the south approach will have a shared through plus left-turn lane plus a short right-turn lane. The west approach will have a short left-turn lane plus two through lanes plus a short right-turn lane. Refer to Figure 7-2.



**Figure 7-2 Layout: N2 & Alternative Access: Stop Control**

### 2024 Design Year + Phase 1 Development Trips

Taking into consideration the proposed intersection configuration, and the 2024 Design Year traffic plus the Phase 1 Development Trips, the critical movements along the stop-controlled side roads will operate at Level of Service F during both the Weekday AM and PM Peak Hours, with excessive delays being experienced.

It is our submission that the Dana Bay Alternate Access as a stop-controlled intersection, would not be able to accommodate the anticipated traffic flows at an acceptable Level of Service, even when only serving 10% of the Future Development Traffic.

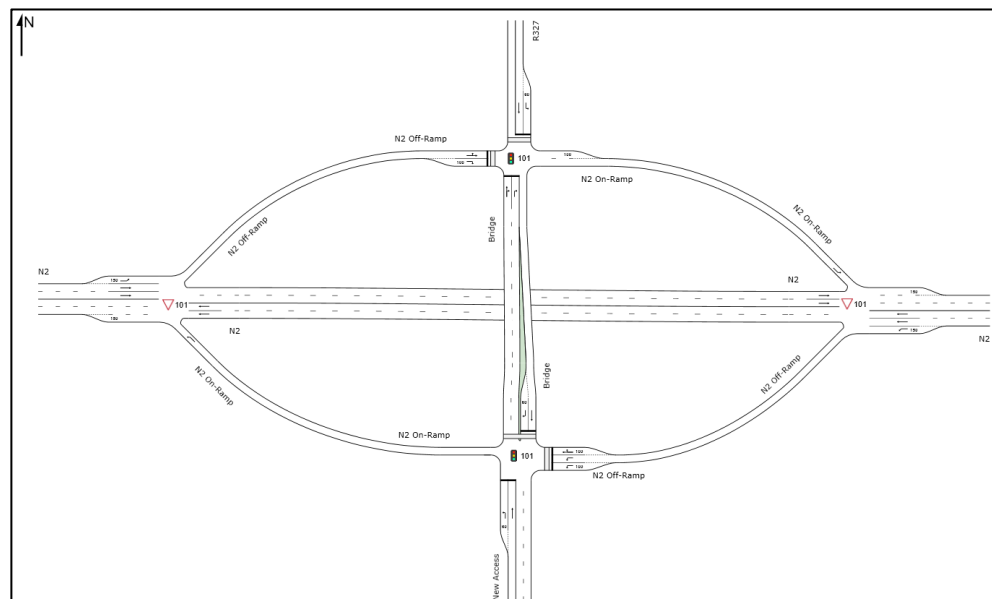
### Secondary Access: Roundabout

Considering the mobility function of the N2 Freeway, the surrounding rural area of the planned junction, and the associated posted speed limit, a motorist would not expect a roundabout along the roadway. Such a junction control type would create an unsafe scenario for motorists, and almost certainly lead to collisions along this section of road.

It is our submission that a roundabout would not be an appropriate junction type along this section of the N2 Freeway.

### Secondary Access: Diamond Interchange

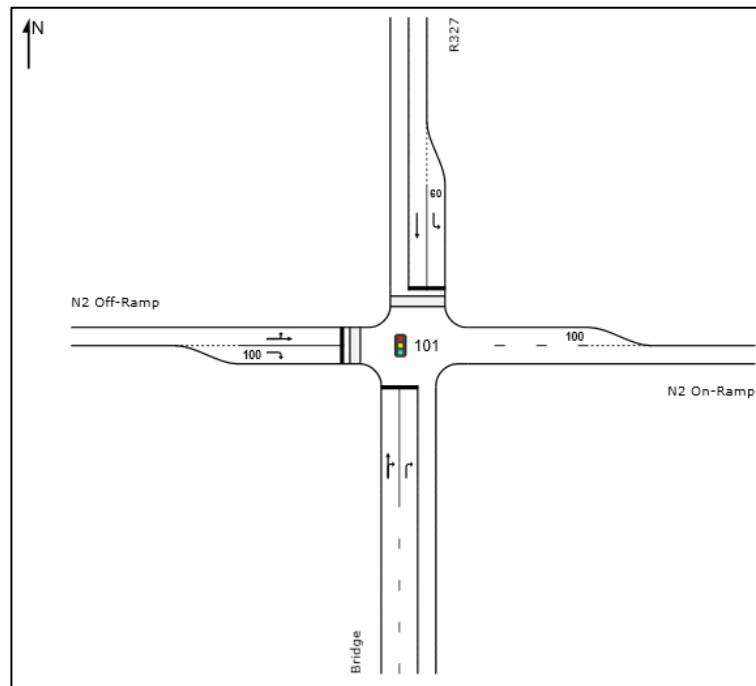
This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a diamond interchange, with the interchange intersections being signal controlled. See Figure 7-3 for the interchange layout.



**Figure 7-3 Layout: N2 & Alternative Access Diamond Interchange**

#### **a) North Terminal**

The north approach will comprise of a short left-turn lane plus a through lane, the east approach will be a one-way on-ramp, the south approach will have a shared through-and-right lane plus a right turn lane, and the west approach will have a shared left-and-through lane plus a short right-turn lane. Refer to Figure 7-4.



**Figure 7-4 Layout: N2 & Alternative Access I/C: North Terminal**

2024 Planning Year + Phase 1 Development Trips

Taking into consideration the 2024 Design Year traffic plus the Phase 1 Development Trips, the intersection will operate at Level of Service B during both the Weekday AM and PM Peak Hours, with an average delay of 15 and 16 seconds respectively.

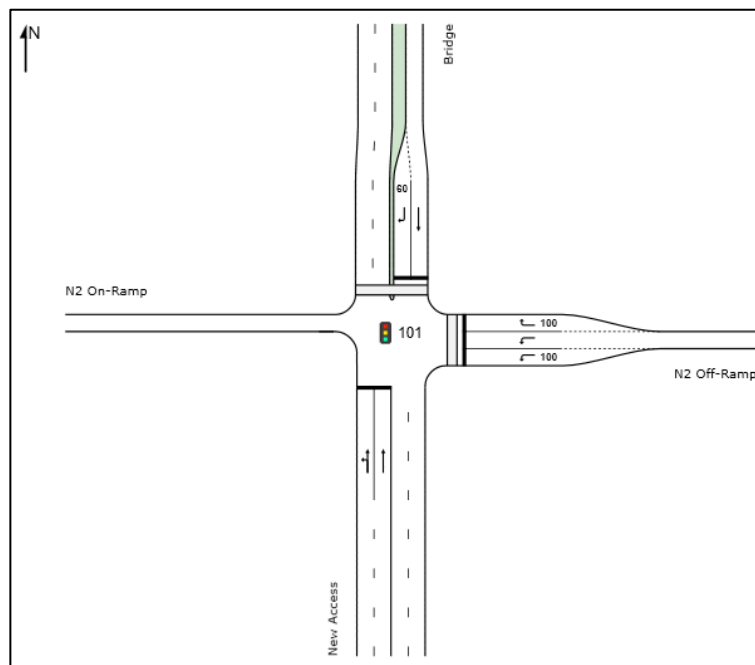
2029 Planning Year + Phase 1+2 Development Trips

Taking into consideration the 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips, the intersection will operate at Level of Service B and C during the Weekday AM and PM Peak Hours respectively, with an average delay of 19 and 20 seconds respectively.

It is our submission that the proposed interchange with signalised ramp terminals would be sufficient to accommodate the anticipated 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips at an acceptable Level of Service.

**b) South Terminal**

The north approach will comprise of a through lane plus a short right-turn lane, the east approach will have two left-turn lanes plus a short right-turn lane, the south approach will have shared left-and-through lane plus a through lane, and the west approach will one way on-ramp. Refer to Figure 7-5.



**Figure 7-5 Layout: N2 & Alternative Access I/C: South Terminal**

2024 Planning Year + Phase 1 Development Trips

Taking into consideration the 2024 Design Year traffic plus the Phase 1 Development Trips, the intersection will operate at Level of Service C and B during the Weekday AM and PM Peak Hours respectively, with an average delay of 23 and 18 seconds respectively.

2029 Planning Year + Phase 1+2 Development Trips

Taking into consideration the 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips, the intersection will operate at Level of Service C during both the Weekday AM and PM Peak Hours, with an average delay of 25 and 20 seconds respectively.

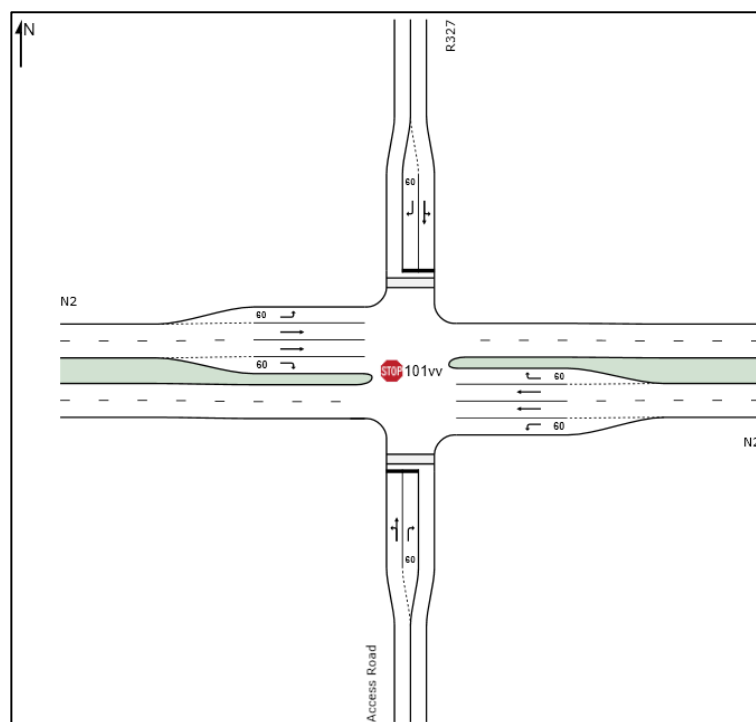
It is our submission that the proposed interchange with signalised ramp terminals would be sufficient to accommodate the anticipated 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips at an acceptable Level of Service.

### 7.3 Dana Bay Alternate Access as Primary Access

#### Primary Access: Priority-Controlled

In the event that Flora road is closed, the Dana Bay Alternate Access will operate as the primary access to the area. It is anticipated that the junction would be under priority-control. This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a Priority-Controlled intersection with the R327 (Herbertsdale Road) and Alternate Access road being under stop-control.

The North approach will have a shared through plus left-turn lane plus a short right-turn lane, the east approach will have a short left-turn lane plus two through lanes plus a short right-turn lane, the south approach will have a shared through plus left-turn lane plus a short right-turn lane. The west approach will have a short left-turn lane plus two through lanes plus a short right-turn lane. Refer to Figure 7-6.



**Figure 7-6 Layout: N2 & Alternative Access: Priority-Control**

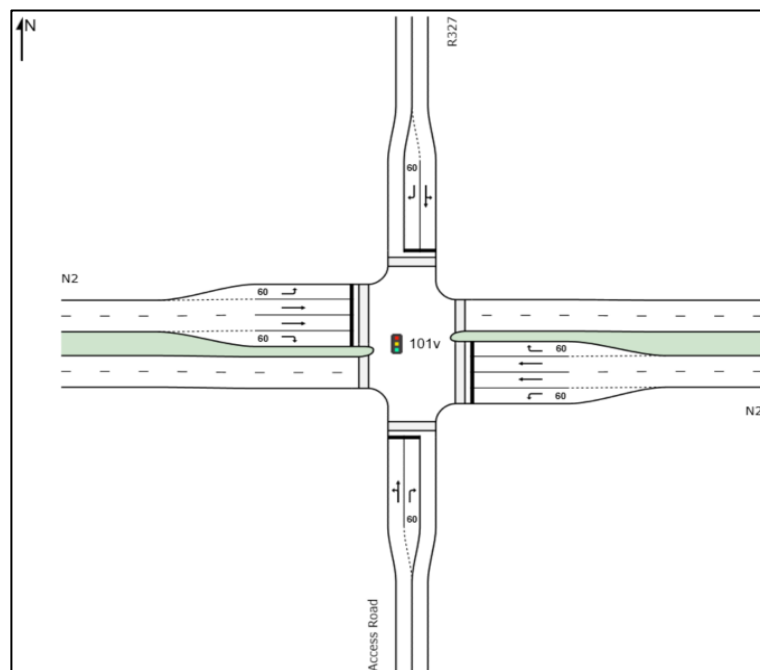
#### 2019 Base Year Traffic

Taking into consideration the 2019 Base Year traffic flows, the critical movement along the stop-controlled side roads currently operates at Level of Service F during both the Weekday AM and PM Peak Hours, with excessive average delays of 8388 seconds and a queue length of 2531 meters being experienced during the AM peak hours.

It is our submission that the Dana Bay Alternate Access would not be able to accommodate the anticipated traffic flows at an acceptable Level of Service when operating as a priority-controlled intersection.

### **Primary Access: Pointsman-Controlled Intersection**

This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a Pointsman-Controlled intersection. The intersection layout used is that of the Priority-Controlled Intersection discussed previously. In order to replicate operations at the junction when it is under the control of a pointsman, it was deemed appropriate to analyse the junction as a signalised intersection with a 180 second cycle length. Refer to Figure 7-7.



**Figure 7-7 Layout: N2 & Alternative Access: Pointsman Control**

### **2019 Base Year Traffic**

Taking into consideration pointsman-control of the priority-controlled Dana Bay Alternate Access, and the 2019 Base Year traffic, the intersection will operate at an overall Level of Service F and D during the Weekday AM and PM Peak Hours respectively, with excessive average delays of 190 seconds and a queue length of 1024 meters being experienced during the AM peak hours.

It is our submission that the Dana Bay Alternate Access would not be able to accommodate the anticipated traffic flows at an acceptable Level of Service when operating as a pointsman-controlled intersection.

### **Primary Access: Signalised Intersection**

This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a Signalised Intersection. The intersection layout used is that of the Priority-Controlled and Pointsman-Controlled Intersection discussed previously. Refer to Figure 7-7.

#### **2019 Base Year Traffic**

Taking into consideration the proposed intersection configuration, and the 2019 Base Year traffic, the intersection will operate at an overall Level of Service C during both the Weekday AM and PM Peak Hours, with an average delay of approximately 23 and 25 seconds respectively.

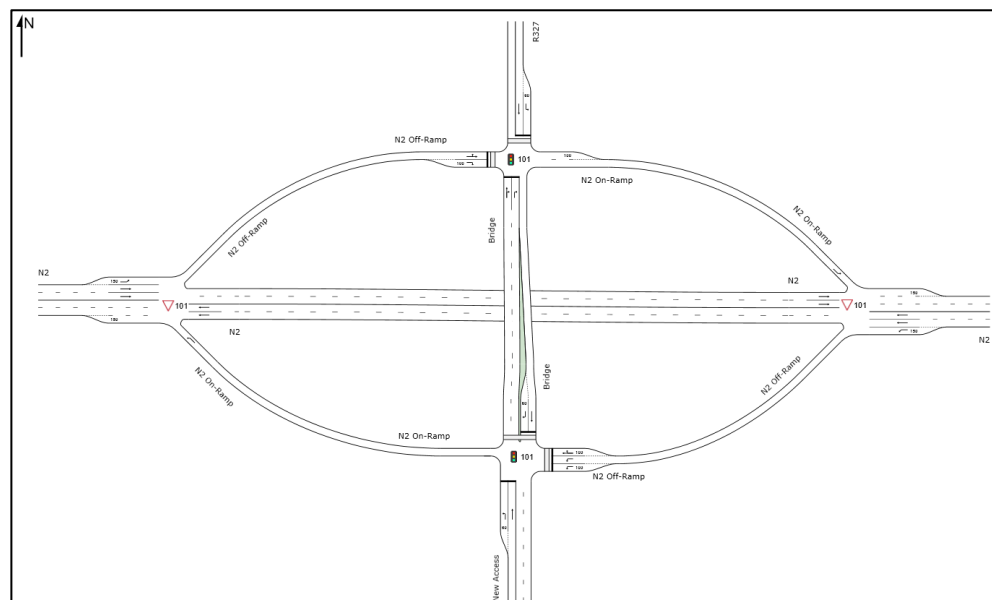
#### **2024 Planning Year + Phase 1 Development Trips**

Taking into consideration the proposed intersection configuration, and the 2024 Design Year traffic plus the Phase 1 Development Trips, the intersection will operate at an overall Level of Service F during both the Weekday AM and PM Peak Hours, with excessive delays being experienced.

It is our submission that the Dana Bay Alternate Access would not be able to accommodate the anticipated traffic flows at an acceptable Level of Service when operating as a Signalised Intersection.

### **Primary Access: Diamond Interchange**

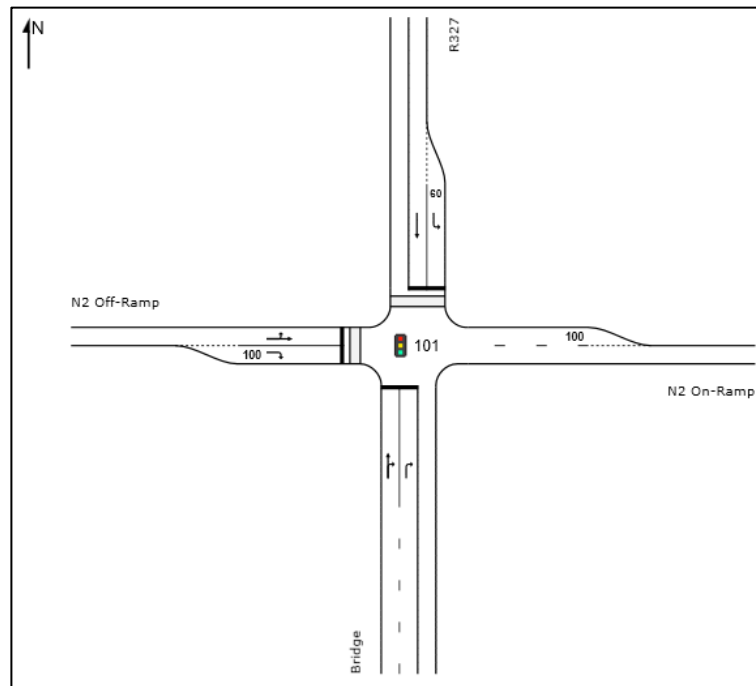
This scenario considers the N2 and proposed Dana Bay Alternate Access being planned as a diamond interchange, with the interchange intersections being signal controlled. See Figure 7-8 for the interchange layout.



**Figure 7-8 Layout: N2 & Alternative Access Diamond Interchange**

a) **North Terminal**

The north approach will comprise of a short left-turn lane plus a through lane, the east approach will be a one-way on-ramp, the south approach will have a shared through-and-right lane plus a right turn lane, and the west approach will have a shared left-and-through lane plus a short right-turn lane. Refer to Figure 7-9.



**Figure 7-9 Layout: N2 & Alternative Access I/C: North Terminal**

2024 Planning Year + Phase 1 Development Trips

Taking into consideration the 2024 Design Year traffic plus the Phase 1 Development Trips, the intersection will operate at Level of Service B and C during the Weekday AM and PM Peak Hours respectively, with an average delay of 13 and 22 seconds respectively.

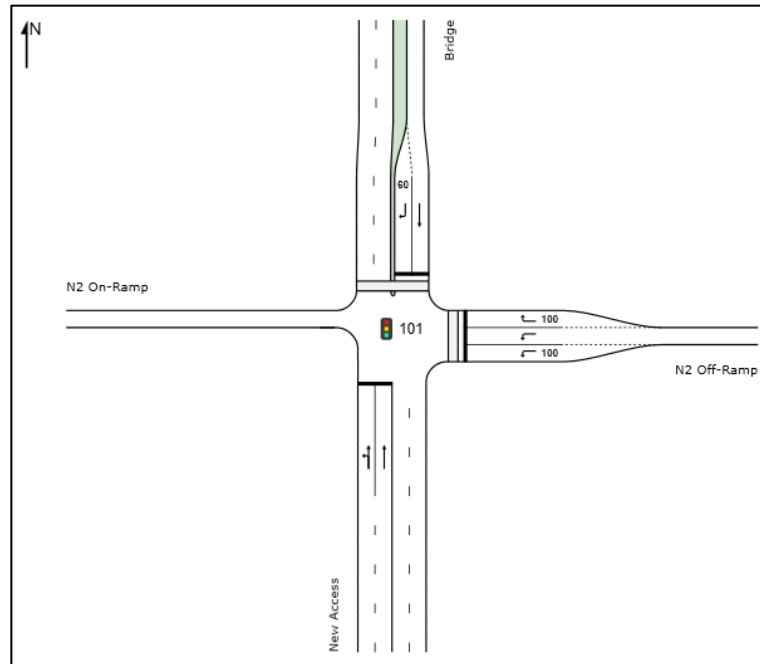
2029 Planning Year + Phase 1+2 Development Trips

Taking into consideration the 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips, the intersection will operate at Level of Service C during both the Weekday AM and PM Peak Hours, with an average delay of 22 and 25 seconds respectively.

It is our submission that the proposed interchange with signalised ramp terminals would be sufficient to accommodate the anticipated 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips at an acceptable Level of Service.

**b) South Terminal**

The north approach will comprise of a through lane plus a short right-turn lane, the east approach will have two left-turn lanes plus a short right-turn lane, the south approach will have shared left-and-through lane plus a through lane, and the west approach will one way on-ramp. Refer to Figure 7-10.



**Figure 7-10 Layout: N2 & Alternative Access I/C: South Terminal**

2024 Planning Year + Phase 1 Development Trips

Taking into consideration the 2024 Design Year traffic plus the Phase 1 Development Trips, the intersection will operate at Level of Service C during both the Weekday AM and PM Peak Hours, with an average delay of 24 and 26 seconds respectively.

2029 Planning Year + Phase 1+2 Development Trips

Taking into consideration the 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips, the intersection will operate at Level of Service C during both the Weekday AM and PM Peak Hours, with an average delay of 27 and 22 seconds respectively.

It is our submission that the proposed interchange with signalised ramp terminals would be sufficient to accommodate the anticipated 2029 Planning Year traffic plus the Phase 1 + 2 Development Trips at an acceptable Level of Service.

## 7.4 Analysis Summary

A summary of the analysis outputs is provided in Table 7-1.

**Table 7-1 Analysis Summary (AM / PM)**

	2019	2024 + Phase 1	2029 + Phase 1+2
<b>Flora Road Access:</b>			
Primary Access: Signalised T-junction	C / B	-	-
<b>Dana Bay Alternate Access:</b>			
Secondary Access: Priority-Controlled Intersection	-	F / F	-
Secondary Access: Diamond Interchange (North Terminal)	-	B / B	B / C
Secondary Access: Diamond Interchange (South Terminal)	-	C / B	C / C
Primary Access: Priority-Controlled Intersection	F / F	-	-
Primary Access: Pointsman-Controlled Intersection	F / D	-	-
Primary Access: Signalised Intersection	C / C	F / F	-
Primary Access: Diamond Interchange (North Terminal)	-	B / C	C / C
Primary Access: Diamond Interchange (South Terminal)	-	C / C	C / C

## 8. PROPOSED IMPROVEMENTS

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In the event that the Dana Bay Alternate Access would serve as a primary or secondary access to the area, the following road improvements would be required:

- Construct a diamond interchange with single lane on- and off-ramps;
- The bridge over the N2 Freeway to comprise one lanes per direction, as well as a short right-turn lane; and
- Traffic signals serving as junction control at the north terminal (Figure 7-9) and south terminal (Figure 7-10) of the diamond interchange.

## 9. CONCLUSIONS AND RECOMMENDATIONS

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SMEC South Africa (Pty) Ltd was appointed by the Mossel Bay Municipality to conduct a Traffic Impact Assessment for the proposed Dana Bay alternative access. The proposed access road is planned to join onto the National Road N2 directly opposite R327 Herbertsdale.

For future growth purposes, it was assumed that the remaining erven in the Dana Bay will be 50% developed within 5 years, and 100% developed within 10 years. It is anticipated that the other planned developments will be 50% developed within 5 years, and 100% developed within 10 years.

It is anticipated that Phase 1 of the land use development would generate 894 and 871 new vehicular trips during the Weekday AM and PM Peak Hours respectively, and Phase 1 + 2 of the land use development would generate 1 788 and 1 743 new vehicular trips during the Weekday AM and PM Peak Hours respectively.

In the event that the Dana Bay Alternate Access would serve as a primary or secondary access to the area, the following road improvements would be required:

- Construct a diamond interchange with single lane on- and off-ramps; and
- The bridge over the N2 Freeway to comprise one lanes per direction, as well as a short right-turn lane; and
- Traffic signals serving as junction control at the north terminal (Figure 7-9) and south terminal (Figure 7-10) of the diamond interchange.

This Traffic Impact Assessment is supported from a Traffic Engineering point of view, provided that the recommended improvements be implemented in line with appropriate design standards.

## ANNEXURE A: TRAFFIC DATA

### R102 (Louis Fourie Rd) and Flora Road

Light:

VERKEERSTELLING TE: Dana Bay Access				AANTAL VOERTUIG: 13024			LEËR NO. C1759							
STASIE : 1				TIPE VERKEER : Light traffic										
DATUM : 21/5/2019														
KWARTIER VOLUMES														
KWARTIER EINDIG	NOORD			Louis Fourie Rd from Mossel Bay OOS			Flora Street from Danabaai SUID			Louis Fourie Rd from N2 WES			TOTAAL	BEW. UUR VOLUME
	Links	Deur	Regs	Links	Deur	Regs	Links	Deur	Regs	Links	Deur	Regs		
06h15	0	0	0	7	38	0	8	0	13	0	21	3	90	
06h30	0	0	0	16	76	0	11	0	34	0	17	4	158	
06h45	0	0	0	9	117	0	26	0	55	0	44	3	254	
07h00	0	0	0	20	136	0	50	0	127	0	61	1	395	897
07h15	0	0	0	33	119	0	53	0	145	0	120	10	480	1287
07h30	0	0	0	46	159	0	28	0	89	0	80	9	411	1540
07h45	0	0	0	92	194	0	51	0	81	0	88	17	523	1809
08h00	0	0	0	56	138	0	47	0	97	0	69	20	427	1841
08h15	0	0	0	45	79	0	40	0	52	0	52	13	281	1642
08h30	0	0	0	33	60	0	29	0	38	0	36	12	208	1439
08h45	0	0	0	40	69	0	24	0	58	0	39	12	242	1158
09h00	0	0	0	11	34	0	25	0	27	0	49	17	163	894
09h15	0	0	0	29	49	0	27	0	39	0	60	16	220	833
09h30	0	0	0	29	42	0	22	0	44	0	45	11	193	818
09h45	0	0	0	48	57	0	40	0	52	0	69	25	291	867
10h00	0	0	0	24	44	0	15	0	42	0	36	21	182	886
10h15	0	0	0	27	35	0	23	0	30	0	49	13	177	843
10h30	0	0	0	36	60	0	23	0	37	0	59	17	232	882
10h45	0	0	0	41	27	0	19	0	50	0	36	25	198	789
11h00	0	0	0	34	43	0	25	0	49	0	54	16	221	828
11h15	0	0	0	27	54	0	21	0	34	0	48	19	203	854
11h30	0	0	0	39	34	0	19	0	34	0	57	7	190	812
11h45	0	0	0	53	56	0	24	0	68	0	40	15	256	870
12h00	0	0	0	40	31	0	18	0	25	0	44	15	173	822
12h15	0	0	0	39	50	0	9	0	24	0	47	17	186	805
12h30	0	0	0	32	48	0	20	0	27	0	54	25	206	821
12h45	0	0	0	34	54	0	7	0	13	0	53	15	176	741
13h00	0	0	0	46	64	0	24	0	42	0	57	37	270	838
13h15	0	0	0	52	39	0	18	0	36	0	42	22	209	861
13h30	0	0	0	67	47	0	15	0	60	0	48	19	256	911
13h45	0	0	0	61	41	0	18	0	37	0	67	17	241	976
14h00	0	0	0	49	66	0	31	0	56	0	59	22	283	989
14h15	0	0	0	66	58	0	17	0	41	0	51	24	257	1037
14h30	0	0	0	71	68	0	20	0	32	0	54	28	273	1054
14h45	0	0	0	57	69	0	14	0	26	0	66	24	256	1069
15h00	0	0	0	63	59	0	14	0	34	0	52	25	247	1033
15h15	0	0	0	42	58	0	16	0	42	0	52	21	231	1007
15h30	0	0	0	60	45	0	9	0	31	0	50	24	219	953
15h45	0	0	0	86	37	0	15	0	32	0	73	17	260	957
16h00	0	0	0	38	46	0	16	0	33	0	51	22	206	916
16h15	0	0	0	93	73	0	10	0	38	0	74	35	323	1008
16h30	0	0	0	114	84	0	13	0	62	0	100	37	410	1199
16h45	0	0	0	89	74	0	12	0	29	0	219	30	453	1392
17h00	0	0	0	107	77	0	17	0	26	0	156	47	430	1616
17h15	0	0	0	139	78	0	12	0	58	0	149	52	488	1781
17h30	0	0	0	113	71	0	21	0	38	0	160	50	453	1824
17h45	0	0	0	76	54	0	15	0	18	0	93	39	295	1666
18h00	0	0	0	77	32	0	8	0	23	0	64	24	228	1464
<b>TOTAAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2506</b>	<b>3143</b>	<b>0</b>	<b>1039</b>	<b>0</b>	<b>2178</b>	<b>0</b>	<b>3164</b>	<b>994</b>	<b>13024</b>	

**MOSSSEL BAY MUNICIPALITY**  
**TRAFFIC IMPACT ASSESSMENT**  
**DANA BAY ALTERNATIVE ACCESS**

Heavy:

VERKEERSTELLING TE:		Dana Bay Access			AANTAL VOERTUIG:			588			LEER NO.:		C1759	
STASIE :		1			TIPE VERKEER :			Heavy traffic						
DATUM :		21/5/2019												
KWARTIER VOLUMES														
KWARTIER EINDIG	NOORD			Louis Fourie Rd from Mossel Bay OOS			Flora Street from Danabaai SUID			Louis Fourie Rd from N2 WES			TOTAAL	BEW. UUR VOLUME
	Links	Deur	Regs	Links	Deur	Regs	Links	Deur	Regs	Links	Deur	Regs		
06h15	0	0	0	0	4	0	0	0	1	0	4	0	9	
06h30	0	0	0	0	1	0	0	0	0	0	3	0	4	
06h45	0	0	0	0	5	0	0	0	0	0	4	1	10	
07h00	0	0	0	1	1	0	0	0	2	0	3	0	7	30
07h15	0	0	0	0	4	0	0	0	0	0	6	1	11	32
07h30	0	0	0	0	6	0	0	0	0	0	2	1	9	37
07h45	0	0	0	1	4	0	0	0	0	0	3	0	8	35
08h00	0	0	0	0	4	0	0	0	0	0	10	0	14	42
08h15	0	0	0	1	0	0	0	0	0	0	4	0	5	36
08h30	0	0	0	2	5	0	0	0	0	0	5	2	14	41
08h45	0	0	0	0	2	0	0	0	0	0	5	3	10	43
09h00	0	0	0	3	6	0	1	0	1	0	5	3	19	48
09h15	0	0	0	4	2	0	1	0	0	0	9	1	17	60
09h30	0	0	0	1	6	0	2	0	3	0	8	0	20	66
09h45	0	0	0	1	9	0	2	0	0	0	6	1	19	75
10h00	0	0	0	3	2	0	3	0	1	0	5	2	16	72
10h15	0	0	0	0	7	0	6	0	0	0	5	0	18	73
10h30	0	0	0	0	7	0	0	0	3	0	3	3	16	69
10h45	0	0	0	0	4	0	3	0	0	0	7	0	14	64
11h00	0	0	0	1	5	0	1	0	1	0	2	1	11	59
11h15	0	0	0	0	3	0	0	0	0	0	6	0	9	50
11h30	0	0	0	0	7	0	1	0	1	0	7	1	17	51
11h45	0	0	0	1	11	0	2	0	0	0	5	2	21	58
12h00	0	0	0	0	7	0	0	0	0	0	3	0	10	57
12h15	0	0	0	0	3	0	0	0	1	0	7	0	11	59
12h30	0	0	0	1	2	0	0	0	0	0	6	2	11	53
12h45	0	0	0	2	3	0	0	0	0	0	4	1	10	42
13h00	0	0	0	2	3	0	1	0	0	0	3	0	9	41
13h15	0	0	0	1	5	0	1	0	3	0	5	0	15	45
13h30	0	0	0	0	4	0	0	0	0	0	1	0	5	39
13h45	0	0	0	0	4	0	4	0	0	0	3	0	11	40
14h00	0	0	0	1	6	0	0	0	2	0	4	0	13	44
14h15	0	0	0	1	3	0	0	0	0	0	3	1	8	37
14h30	0	0	0	1	4	0	2	0	0	0	3	0	10	42
14h45	0	0	0	1	4	0	0	0	0	0	1	3	9	40
15h00	0	0	0	1	6	0	2	0	0	0	9	2	20	47
15h15	0	0	0	2	8	0	1	0	2	0	2	0	15	54
15h30	0	0	0	1	6	0	0	0	0	0	4	1	12	56
15h45	0	0	0	1	1	0	2	0	0	0	5	2	11	58
16h00	0	0	0	4	3	0	2	0	4	0	5	0	18	56
16h15	0	0	0	1	6	0	0	0	1	0	3	1	12	53
16h30	0	0	0	3	7	0	1	0	5	0	3	0	19	60
16h45	0	0	0	1	8	0	1	0	1	0	3	0	14	63
17h00	0	0	0	0	4	0	0	0	0	0	5	2	11	56
17h15	0	0	0	0	2	0	2	0	0	0	6	1	11	55
17h30	0	0	0	0	4	0	0	0	1	0	7	1	13	49
17h45	0	0	0	1	1	0	0	0	0	0	3	0	5	40
18h00	0	0	0	0	3	0	1	0	0	0	3	0	7	36
<b>TOTAAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>212</b>	<b>0</b>	<b>42</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>218</b>	<b>39</b>	<b>588</b>	

**N2 and R327 Herbertsdale**

Light:

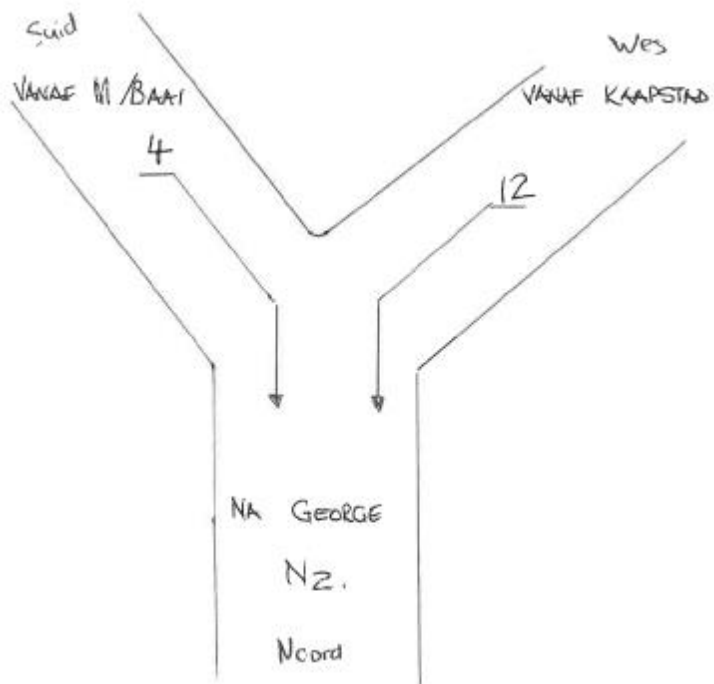
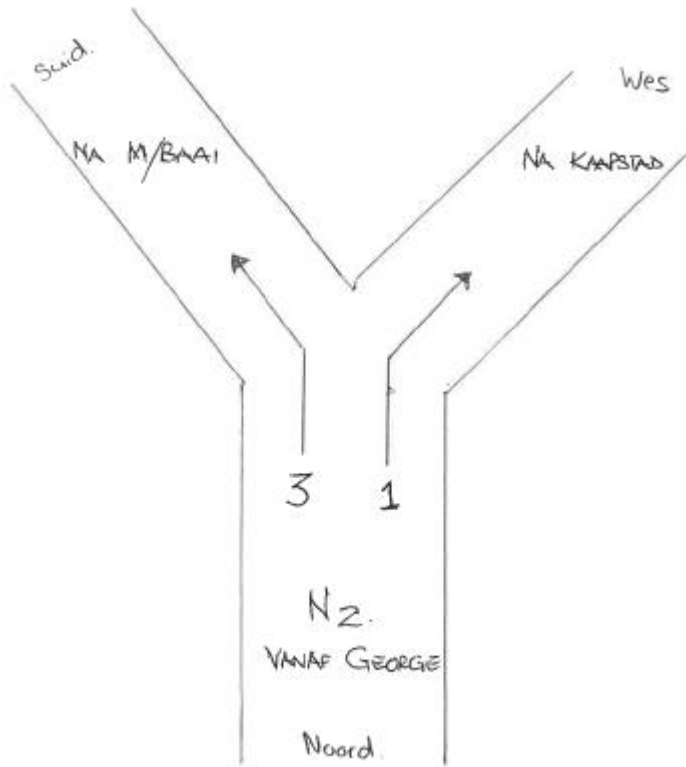
VERKEERSTELLING TE: Dana Bay Access				AANTAL VOERTUIG: 7779				LEER NO. C1759						
STASIE : 1				TIPE VERKEER : Light traffic										
DATUM : 06/11/2019														
KWARTIER VOLUMES														
KWARTIER EINDIG	NOORD			N2			Herbertsdale			N2			TOTAAL	BEW. UUR VOLUME
	Links	Deur	Regs	Links	OOS Deur	Regs	Links	SUID Deur	Regs	Links	WES Deur	Regs		
06h15	10	0	0	0	26	3	0	0	0	0	17	0	56	
06h30	10	0	0	0	61	18	0	0	0	1	27	0	117	
06h45	17	0	1	0	82	24	0	0	0	1	35	0	160	
07h00	10	0	1	0	100	34	0	0	0	3	26	0	174	507
07h15	19	0	3	0	95	40	0	0	0	2	44	0	203	654
07h30	14	0	1	0	119	21	0	0	0	2	38	0	195	732
07h45	13	0	2	0	149	41	0	0	0	2	36	0	243	815
08h00	13	0	0	0	150	32	0	0	0	1	37	0	233	874
08h15	25	0	0	0	92	26	0	0	0	1	57	0	201	872
08h30	12	0	0	0	63	20	0	0	0	0	51	0	146	823
08h45	13	0	0	0	66	26	0	0	0	1	47	0	153	733
09h00	18	0	3	0	56	13	0	0	0	0	56	0	146	646
09h15	11	0	1	0	60	22	0	0	0	2	38	0	134	579
09h30	13	0	3	0	60	10	0	0	0	1	46	0	133	566
09h45	12	0	0	0	63	19	0	0	0	1	56	0	151	564
10h00	11	0	0	0	69	13	0	0	0	0	39	0	132	550
10h15	16	0	1	0	49	9	0	0	0	0	63	0	138	554
10h30	21	0	1	0	68	20	0	0	0	3	36	0	149	570
10h45	14	0	0	0	48	17	0	0	0	1	44	0	124	543
11h00	17	0	3	0	55	21	0	0	0	4	47	0	147	558
11h15	11	0	2	0	60	13	0	0	0	2	59	0	147	567
11h30	22	0	1	0	64	12	0	0	0	0	56	0	155	573
11h45	20	0	3	0	63	19	0	0	0	1	77	0	183	632
12h00	10	0	1	0	50	18	0	0	0	2	51	0	132	617
12h15	17	0	0	0	47	18	0	0	0	2	62	0	146	616
12h30	14	0	4	0	58	18	0	0	0	1	62	0	157	618
12h45	21	0	4	0	44	10	0	0	0	1	61	0	141	576
13h00	22	0	2	0	70	14	0	0	0	0	48	0	156	600
13h15	23	0	0	0	64	10	0	0	0	1	74	0	172	626
13h30	8	0	0	0	55	8	0	0	0	1	69	0	141	610
13h45	8	0	0	0	36	18	0	0	0	4	60	0	126	595
14h00	15	0	0	0	38	12	0	0	0	1	53	0	119	558
14h15	18	0	2	0	59	14	0	0	0	0	72	0	165	551
14h30	13	0	1	0	46	33	0	0	0	1	63	0	157	567
14h45	18	0	2	0	63	21	0	0	0	4	73	0	181	622
15h00	19	0	1	0	52	18	0	0	0	0	66	0	156	659
15h15	19	0	0	0	59	14	0	0	0	1	58	0	151	645
15h30	16	0	0	0	63	14	0	0	0	2	50	0	145	633
15h45	22	0	0	0	42	14	0	0	0	2	114	0	194	646
16h00	19	0	0	0	47	13	0	0	0	3	48	0	130	620
16h15	28	0	1	0	41	14	0	0	0	3	89	0	176	645
16h30	15	0	0	0	42	18	0	0	0	1	118	0	194	694
16h45	31	0	1	0	53	22	0	0	0	2	254	0	363	863
17h00	37	0	1	0	49	13	0	0	0	0	108	0	208	941
17h15	48	0	6	0	37	16	0	0	0	0	87	0	194	959
17h30	27	0	3	0	35	20	0	0	0	2	78	0	165	930
17h45	25	0	1	0	57	18	0	0	0	0	55	0	156	723
18h00	19	0	0	0	23	7	0	0	0	0	85	0	134	649
<b>TOTAAL</b>	<b>854</b>	<b>0</b>	<b>56</b>	<b>0</b>	<b>2948</b>	<b>868</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>63</b>	<b>2990</b>	<b>0</b>	<b>7779</b>	

MOSSEL BAY MUNICIPALITY  
 TRAFFIC IMPACT ASSESSMENT  
 DANA BAY ALTERNATIVE ACCESS

Heavy:

VERKEERSTELLING TE: Dana Bay Access			AANTAL VOERTUIG: 1177			LEËR NO.: C1759								
STASIE : 1			TIPE VERKEER : Heavy traffic											
DATUM : 21/5/2019														
KWARTIER VOLUMES														
KWARTIER EINDIG	NOORD			N2			Herbertsdale			N2			TOTAAL	BEW. UUR VOLUME
	Links	Deur	Regs	Links	OOS Deur	Regs	Links	SUID Deur	Regs	Links	WES Deur	Regs		
06h15	2	0	0	0	5	2	0	0	0	0	12	0	21	
06h30	1	0	0	0	8	0	0	0	0	1	11	0	21	
06h45	2	0	0	0	14	0	0	0	0	1	13	0	30	
07h00	2	0	0	0	8	1	0	0	0	0	7	0	18	90
07h15	2	0	0	0	5	5	0	0	0	0	10	0	22	91
07h30	2	0	0	0	11	6	0	0	0	0	5	0	24	94
07h45	3	0	1	0	10	1	0	0	0	0	11	0	26	90
08h00	7	0	1	0	14	1	0	0	0	0	6	0	29	101
08h15	3	0	1	0	10	2	0	0	0	0	7	0	23	102
08h30	0	0	0	0	13	2	0	0	0	0	8	0	23	101
08h45	2	0	0	0	15	3	0	0	0	0	10	0	30	105
09h00	2	0	1	0	16	0	0	0	0	1	10	0	30	106
09h15	5	0	0	0	11	4	0	0	0	0	8	0	28	111
09h30	2	0	2	0	8	2	0	0	0	1	5	0	20	108
09h45	1	0	1	0	14	1	0	0	0	2	8	0	27	105
10h00	1	0	1	0	21	4	0	0	0	0	9	0	36	111
10h15	5	0	1	0	11	4	0	0	0	1	7	0	29	112
10h30	1	0	1	0	4	0	0	0	0	0	5	0	11	103
10h45	1	0	1	0	13	2	0	0	0	0	13	0	30	106
11h00	3	0	1	0	8	0	0	0	0	0	13	0	25	95
11h15	0	0	0	0	10	1	0	0	0	1	9	0	21	87
11h30	7	0	0	0	14	5	0	0	0	0	13	0	39	115
11h45	0	0	1	0	7	7	0	0	0	1	10	0	26	111
12h00	1	0	2	0	7	2	0	0	0	0	5	0	17	103
12h15	3	0	2	0	15	0	0	0	0	1	13	0	34	116
12h30	2	0	0	0	12	1	0	0	0	0	8	0	23	100
12h45	1	0	0	0	12	1	0	0	0	0	7	0	21	95
13h00	1	0	1	0	11	4	0	0	0	0	7	0	24	102
13h15	2	0	0	0	13	1	0	0	0	0	7	0	23	91
13h30	1	0	2	0	13	0	0	0	0	1	9	0	26	94
13h45	2	0	1	0	21	2	0	0	0	0	5	0	31	104
14h00	1	0	1	0	11	3	0	0	0	1	6	0	23	103
14h15	2	0	2	0	9	6	0	0	0	2	9	0	30	110
14h30	3	0	0	0	10	1	0	0	0	1	11	0	26	110
14h45	3	0	0	0	8	3	0	0	0	2	10	0	26	105
15h00	2	0	2	0	12	5	0	0	0	1	8	0	30	112
15h15	2	0	0	0	11	2	0	0	0	0	8	0	23	105
15h30	5	0	0	0	11	3	0	0	0	0	7	0	26	105
15h45	4	0	0	0	6	1	0	0	0	0	13	0	24	103
16h00	3	0	0	0	2	0	0	0	0	0	5	0	10	83
16h15	2	0	0	0	8	8	0	0	0	0	6	0	24	84
16h30	0	0	0	0	5	2	0	0	0	0	9	0	16	74
16h45	2	0	0	0	9	4	0	0	0	0	11	0	26	76
17h00	2	0	1	0	7	2	0	0	0	0	4	0	16	82
17h15	3	0	0	0	10	4	0	0	0	0	9	0	26	84
17h30	0	0	0	0	5	1	0	0	0	0	7	0	13	81
17h45	0	0	1	0	17	2	0	0	0	0	3	0	23	78
18h00	1	0	0	0	7	0	0	0	0	0	19	0	27	89
<b>TOTAAL</b>	<b>102</b>	<b>0</b>	<b>28</b>	<b>0</b>	<b>502</b>	<b>111</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>416</b>	<b>0</b>	<b>1177</b>	

Mossel Bay N2 On and Off Ramps





Verkeerstelling/Traffic Count

Projek No.:

Plek/Location:

N/BAA1: N2 / LOUIS FOURE / R103 / 201 -'BAY CAMPS.

Datum/Date:

23/01/2020

Teller/Counter:

T.E. GIEWELAAR

Tyd	OPRIT NA MOSSELBAY				AFRIT NA GEORGE							
	3 L		1		4 ↑		12 ↑					
	L	H	L	H	L	H	L	H	L	H	L	H
06:00 - 06:15	5	0	9	5	25	3	13	18				
06:15 - 06:30	23	1	26	10	66	7	28	28				
06:30 - 06:45	59	2	46	18	143	8	52	40				
06:45 - 07:00	115	2	78	27	224	12	75	49				
07:00 - 07:15	194	3	110	37	318	15	90	53				
07:15 - 07:30	293	5	166	48	488	16	118	65				
07:30 - 07:45	346	8	212	49	537	17	154	73				
07:45 - 08:00	400	9	266	57	638	18	173	83				
08:00 - 08:15	435	14	306	65	687	21	213	89				
08:15 - 08:30	469	20	345	76	740	24	247	94				
08:30 - 08:45	509	24	390	81	788	27	273	99				
08:45 - 09:00	556	31	430	92	842	32	320	110				
09:00 - 09:15	593	35	481	99	882	35	344	118				
09:15 - 09:30	638	37	547	109	922	38	372	126				
09:30 - 09:45	659	37	584	121	970	40	407	138				
09:45 - 10:00	713	41	656	132	1016	42	445	147				
10:00 - 10:15	747	45	701	137	1047	44	486	152				
10:15 - 10:30	772	48	747	145	1090	50	524	161				
10:30 - 10:45	822	53	821	155	1138	55	564	167				
10:45 - 11:00	862	56	874	162	1179	61	601	180				
11:00 - 11:15	905	62	928	174	1214	63	623	188				
11:15 - 11:30	941	64	966	180	1241	67	655	195				
11:30 - 11:45	982	65	1015	185	1288	73	698	206				
11:45 - 12:00	1023	66	1061	190	1331	76	727	211				





**Verkeerstelling/Traffic Count**

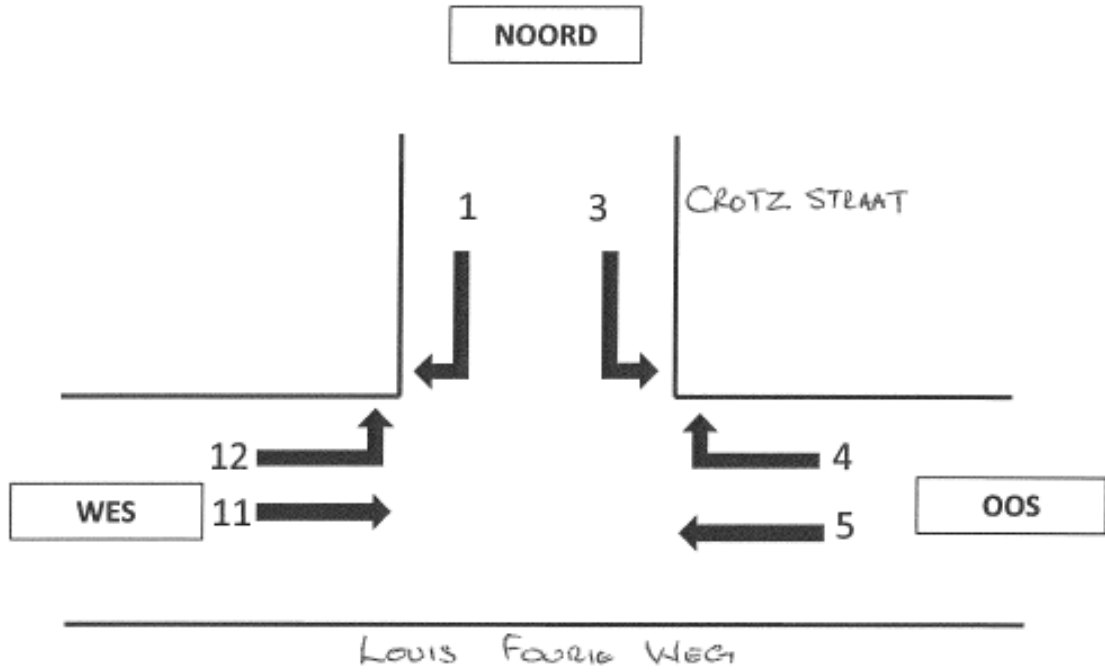
Projek No.: \_\_\_\_\_  
 Plek/Location: \_\_\_\_\_  
 Datum/Date: \_\_\_\_\_  
 Teller/Counter: \_\_\_\_\_

Tyd													
12:00 - 12:15	1063	70	1103	201	1379	81	773	219					
12:15 - 12:30	1100	73	1138	208	1410	84	812	223					
12:30 - 12:45	1134	74	1188	215	1452	91	861	228					
12:45 - 13:00	1168	76	1224	225	1486	93	903	239					
13:00 - 13:15	1219	78	1276	231	1530	99	942	244					
13:15 - 13:30	1259	80	1311	239	1567	104	988	253					
13:30 - 13:45	1308	81	1345	251	1627	107	1045	262					
13:45 - 14:00	1369	83	1400	262	1677	110	1092	272					
14:00 - 14:15	1414	86	1432	269	1728	114	1137	288					
14:15 - 14:30	1480	87	1465	280	1802	121	1174	292					
14:30 - 14:45	1521	89	1490	288	1867	127	1215	306					
14:45 - 15:00	1549	90	1522	291	1901	132	1260	318					
15:00 - 15:15	1600	91	1561	297	1961	134	1316	328					
15:15 - 15:30	1654	94	1609	305	2010	136	1356	338					
15:30 - 15:45	1692	95	1633	308	2060	137	1401	349					
15:45 - 16:00	1739	97	1663	316	2099	141	1440	359					
16:00 - 16:15	1790	98	1694	319	2167	149	1488	367					
16:15 - 16:30	1916	102	1736	330	2223	152	1538	375					
16:30 - 16:45	1952	102	1750	332	2290	158	1620	386					
16:45 - 17:00	2022	104	1781	342	2353	161	1671	389					
17:00 - 17:15	2186	107	1831	347	2424	165	1721	394					
17:15 - 17:30	2261	108	1862	355	2477	167	1767	405					
17:30 - 17:45	2368	112	1896	362	2511	171	1795	411					
17:45 - 18:00	2418	113	1920	378	2531	171	1814	413					

**R102 (Louis Fourie Road) and Crotz Road**

MOSSELBAAI : 6/4/2016

**VERKEERSTELLING: KRUISING**



SMEC: Verkeerstelling/Traffic Count



Projek Nr.:

Plek/Location:

MOSELBAY: KRUSING: L.FOURIE/CROTZ

Datum/Date:

6 APRIL 2016

Teller/Counter:

MELVIN TAMBOER / J. E. GIEWELAR

Tyd	CROTZ Rd (Noord)				LOUIS FOURIE (Oos)				LOUIS FOURIE (Wes)			
	←		→		↑		←		→		↑	
	1		3		4		5		11		12	
	L	H	L	H	L	H	L	H	L	H	L	H
06:00 - 06:15	8	0	7	0	13	1	14	0	19	3	16	0
06:15 - 06:30	29	1	33	1	30	4	43	0	37	7	20	0
06:30 - 06:45	49	3	60	3	42	4	79	1	66	7	38	0
06:45 - 07:00	80	6	79	3	61	5	142	2	153	7	46	1
07:00 - 07:15	112	8	95	4	87	7	237	6	334	8	81	4
07:15 - 07:30	135	9	114	4	130	9	435	9	566	10	107	4
07:30 - 07:45	170	9	146	4	160	9	618	10	662	12	136	4
07:45 - 08:00	204	9	174	4	174	9	735	10	780	18	156	4
08:00 - 08:15	222	9	190	4	193	9	841	12	889	18	183	5
08:15 - 08:30	232	9	202	4	203	9	910	17	959	22	202	5
08:30 - 08:45	243	9	216	4	209	9	989	20	1039	25	210	5
08:45 - 09:00	250	9	220	4	222	9	1039	24	1123	30	222	6
09:00 - 09:15	258	9	236	4	230	9	1114	34	1196	33	230	7
09:15 - 09:30	261	9	240	4	234	9	1161	41	1257	36	235	10
09:30 - 09:45	268	9	251	5	241	9	1245	42	1343	41	252	12
09:45 - 10:00	278	10	256	5	248	10	1319	43	1435	47	266	12
10:00 - 10:15	282	10	262	5	254	10	1368	47	1472	48	269	12
10:15 - 10:30	292	11	267	5	264	11	1428	52	1573	53	278	13
10:30 - 10:45	302	13	278	5	272	11	1491	59	1658	59	286	14
10:45 - 11:00	313	13	285	6	276	11	1570	61	1742	64	298	14
11:00 - 11:15	322	14	294	6	283	11	1654	70	1835	65	304	14
11:15 - 11:30	328	16	301	6	291	11	1716	72	1899	69	308	14
11:30 - 11:45	336	19	313	6	298	11	1781	77	1982	72	321	14
11:45 - 12:00	338	19	319	6	301	11	1835	78	2057	78	331	14

*J. E. Giewelar*  
6/4/2016

SMEC: Verkeerstelling/Traffic Count

Projek Nr.: \_\_\_\_\_  
 Plek/Location: \_\_\_\_\_  
 Datum/Date: \_\_\_\_\_  
 Teller/Counter: \_\_\_\_\_



Tyd	C20TZ 20 (North)				L. FOSJIE WEG (OOS)				L. FOSJIE WEG (WES)			
	L		R		L		R		L		R	
	1	2	3	4	5	6	7	8	9	10	11	12
12:00 - 12:15	347	21	326	6	307	11	1998	82	2147	82	336	14
12:15 - 12:30	359	22	333	6	312	11	2058	83	2218	91	350	16
12:30 - 12:45	365	22	339	8	318	11	2141	86	2289	93	356	16
12:45 - 13:00	378	22	351	8	327	11	2205	94	2374	96	368	16
13:00 - 13:15	388	23	367	8	340	11	2292	99	2452	100	379	16
13:15 - 13:30	398	24	365	8	352	11	2385	101	2511	101	390	16
13:30 - 13:45	408	25	373	8	363	12	2474	107	2610	103	398	17
13:45 - 14:00	413	25	393	8	373	12	2560	111	2695	105	407	17
14:00 - 14:15	419	25	406	9	383	12	2642	114	2782	108	432	20
14:15 - 14:30	424	26	418	9	398	12	2796	117	2852	116	442	21
14:30 - 14:45	444	27	435	9	411	12	2885	120	2931	120	459	21
14:45 - 15:00	453	29	451	10	420	12	2973	122	2981	122	469	21
15:00 - 15:15	469	29	467	10	434	13	3074	128	3052	126	485	21
15:15 - 15:30	488	31	472	11	446	13	3150	135	3128	130	499	21
15:30 - 15:45	505	31	482	11	463	14	3235	139	3192	135	519	22
15:45 - 16:00	525	31	490	12	473	14	3322	142	3259	137	533	22
16:00 - 16:15	534	31	500	12	487	14	3465	145	3331	141	547	22
16:15 - 16:30	549	32	507	12	505	15	3591	148	3430	143	581	22
16:30 - 16:45	567	33	511	12	526	16	3723	151	3550	145	608	22
16:45 - 17:00	587	33	529	13	556	17	3827	154	3735	149	684	22
17:00 - 17:15	609	33	550	13	588	17	3967	158	3895	150	728	22
17:15 - 17:30	639	34	570	13	626	17	4111	159	3970	151	776	24
17:30 - 17:45	674	36	588	14	658	18	4207	160	4075	155	816	25
17:45 - 18:00	699	36	599	15	679	18	4269	160	4142	158	853	26

*J.B. Givulga*  
 6/4/2016

## ANNEXURE B: DETAILED SIDRA OUTPUTS

### Dana Bay Flora Road Access as Primary Access

2019 Base Year Traffic

AM:

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: Flora Rd												
1	L2	199	3,0	0,687	20,0	LOS C	17,2	123,5	0,82	0,84	0,82	44,2
3	R2	458	3,0	0,687	20,0	LOS B	17,2	123,5	0,82	0,84	0,82	44,0
Approach		657	3,0	0,687	20,0	LOS B	17,2	123,5	0,82	0,84	0,82	44,1
East: R102												
4	L2	253	3,0	0,692	27,6	LOS C	14,2	102,0	0,92	0,84	0,94	43,3
5	T1	698	3,0	0,692	22,0	LOS C	14,6	104,5	0,92	0,82	0,93	52,2
Approach		951	3,0	0,692	23,5	LOS C	14,6	104,5	0,92	0,82	0,94	49,5
West: R102												
11	T1	420	3,0	0,538	21,4	LOS C	10,5	75,0	0,87	0,74	0,87	53,7
12	R2	64	3,0	0,538	36,3	LOS D	3,7	26,5	0,96	0,79	0,97	38,9
Approach		484	3,0	0,538	23,3	LOS C	10,5	75,0	0,88	0,75	0,88	51,2
All Vehicles		2092	3,0	0,692	22,4	LOS C	17,2	123,5	0,88	0,81	0,89	48,0

PM:

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: Flora Rd												
1	L2	64	3,0	0,695	35,8	LOS D	9,0	64,7	0,98	0,86	1,06	37,1
3	R2	201	3,0	0,695	35,7	LOS D	9,0	64,7	0,98	0,86	1,06	37,0
Approach		266	3,0	0,695	35,7	LOS D	9,0	64,7	0,98	0,86	1,06	37,0
East: R102												
4	L2	503	3,0	0,730	28,1	LOS C	15,7	112,9	0,93	0,87	0,98	40,2
5	T1	371	3,0	0,511	19,3	LOS B	10,1	72,5	0,84	0,72	0,84	56,2
Approach		874	3,0	0,730	24,4	LOS C	15,7	112,9	0,89	0,81	0,92	45,7
West: R102												
11	T1	712	3,0	0,477	7,3	LOS A	10,9	78,3	0,59	0,53	0,59	67,5
12	R2	188	3,0	0,477	15,8	LOS B	4,1	29,3	0,83	0,77	0,83	49,0
Approach		900	3,0	0,477	9,1	LOS A	10,9	78,3	0,64	0,58	0,64	62,6
All Vehicles		2040	3,0	0,730	19,1	LOS B	15,7	112,9	0,79	0,71	0,81	50,1

## Dana Bay Alternate Access as Secondary Access

### Secondary Access: Priority Controlled Intersection

2024 Design Year + Phase 1 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	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: Access Road												
1	L2	33	3,0	0,114	10,2	LOS B	0,4	2,6	0,60	0,91	0,60	46,8
2	T1	6	3,0	0,114	55,8	LOS F	0,4	2,6	0,60	0,91	0,60	47,1
3	R2	67	3,0	1,418	508,0	LOS F	17,2	123,5	1,00	1,93	5,13	6,2
Approach		106	3,0	1,418	327,0	LOS F	17,2	123,5	0,85	1,55	3,46	9,1
East: N2												
4	L2	33	3,0	0,017	5,6	LOS A	0,0	0,0	0,00	0,58	0,00	53,5
5	T1	696	3,0	0,172	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	99,9
6	R2	184	3,0	0,241	7,5	LOS A	0,9	6,7	0,40	0,66	0,40	52,1
Approach		913	3,0	0,241	1,7	NA	0,9	6,7	0,08	0,15	0,08	82,1
North: R327												
7	L2	92	3,0	0,163	8,8	LOS A	0,6	4,0	0,32	0,87	0,32	49,6
8	T1	6	3,0	0,163	61,3	LOS F	0,6	4,0	0,32	0,87	0,32	49,9
9	R2	10	3,0	0,174	69,8	LOS F	0,5	3,5	0,93	1,01	0,96	28,2
Approach		108	3,0	0,174	17,1	LOS C	0,6	4,0	0,37	0,88	0,38	46,3
West: N2												
10	L2	9	3,0	0,005	5,6	LOS A	0,0	0,0	0,00	0,58	0,00	53,5
11	T1	236	3,0	0,058	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	100,0
12	R2	17	3,0	0,043	12,3	LOS B	0,1	1,0	0,62	0,82	0,62	48,7
Approach		261	3,0	0,058	1,0	NA	0,1	1,0	0,04	0,07	0,04	91,1
All Vehicles		1388	3,0	1,418	27,5	NA	17,2	123,5	0,15	0,30	0,35	49,7

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total	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: Access Road												
1	L2	13	3,0	0,094	8,8	LOS A	0,3	2,0	0,53	0,83	0,53	42,8
2	T1	6	3,0	0,094	60,6	LOS F	0,3	2,0	0,53	0,83	0,53	43,0
3	R2	19	3,0	0,584	170,2	LOS F	1,7	12,5	0,98	1,06	1,24	15,9
Approach		38	3,0	0,584	97,1	LOS F	1,7	12,5	0,76	0,94	0,89	23,2
East: N2												
4	L2	70	3,0	0,036	5,6	LOS A	0,0	0,0	0,00	0,58	0,00	53,5
5	T1	267	3,0	0,066	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
6	R2	102	3,0	0,275	14,6	LOS B	1,0	7,4	0,70	0,91	0,81	47,3
Approach		439	3,0	0,275	4,3	NA	1,0	7,4	0,16	0,30	0,19	55,4
North: R327												
7	L2	173	3,0	0,318	11,4	LOS B	1,4	9,7	0,57	0,99	0,65	48,8
8	T1	6	3,0	0,318	79,0	LOS F	1,4	9,7	0,57	0,99	0,65	49,1
9	R2	11	3,0	0,201	74,0	LOS F	0,6	4,1	0,94	1,01	0,98	27,4
Approach		190	3,0	0,318	17,0	LOS C	1,4	9,7	0,59	0,99	0,67	46,6
West: N2												
10	L2	3	3,0	0,002	5,6	LOS A	0,0	0,0	0,00	0,58	0,00	53,5
11	T1	754	3,0	0,186	0,0	LOS A	0,0	0,0	0,00	0,00	0,00	60,0
12	R2	34	3,0	0,050	7,8	LOS A	0,2	1,2	0,41	0,65	0,41	51,8
Approach		792	3,0	0,186	0,4	NA	0,2	1,2	0,02	0,03	0,02	59,5
All Vehicles		1459	3,0	0,584	6,2	NA	1,7	12,5	0,16	0,26	0,18	54,2

**Secondary Access: Diamond Interchange (North Terminal)**

2024 Design Year + Phase 1 Development Trips

AM:

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: Bridge													
2	T1	5	3.0	0.024	3.0	LOS A	0.3	1.9	0.30	0.56	0.30	49.9	
3	R2	63	3.0	0.046	8.7	LOS A	0.5	3.5	0.31	0.63	0.31	46.1	
Approach		68	3.0	0.046	8.2	LOS A	0.5	3.5	0.31	0.63	0.31	46.4	
North: R327													
7	L2	87	3.0	0.071	12.2	LOS B	1.4	10.4	0.40	0.67	0.40	48.7	
8	T1	15	3.0	0.011	6.4	LOS A	0.2	1.7	0.38	0.27	0.38	51.1	
Approach		102	3.0	0.071	11.4	LOS B	1.4	10.4	0.40	0.61	0.40	49.0	
West: N2 Off-Ramp													
10	L2	8	3.0	0.040	43.8	LOS D	0.4	2.7	0.91	0.66	0.91	34.5	
11	T1	1	3.0	0.040	38.2	LOS D	0.4	2.7	0.91	0.66	0.91	35.1	
12	R2	16	3.0	0.067	44.0	LOS D	0.6	4.5	0.91	0.69	0.91	26.3	
Approach		25	3.0	0.067	43.7	LOS D	0.6	4.5	0.91	0.68	0.91	29.9	
All Vehicles		196	3.0	0.071	14.5	LOS B	1.4	10.4	0.44	0.62	0.44	44.8	

PM:

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: Bridge													
2	T1	5	3.0	0.008	3.9	LOS A	0.1	1.0	0.26	0.39	0.26	51.1	
3	R2	18	3.0	0.016	10.0	LOS A	0.2	1.5	0.28	0.59	0.28	45.2	
Approach		23	3.0	0.016	8.6	LOS A	0.2	1.5	0.27	0.55	0.27	46.4	
North: R327													
7	L2	164	3.0	0.113	9.9	LOS A	2.6	18.3	0.29	0.65	0.29	50.3	
8	T1	16	3.0	0.010	3.9	LOS A	0.2	1.6	0.26	0.19	0.26	54.2	
Approach		180	3.0	0.113	9.3	LOS A	2.6	18.3	0.29	0.61	0.29	50.5	
West: N2 Off-Ramp													
10	L2	3	3.0	0.014	52.0	LOS D	0.2	1.5	0.87	0.62	0.87	32.2	
11	T1	1	3.0	0.014	46.5	LOS D	0.2	1.5	0.87	0.62	0.87	32.8	
12	R2	33	3.0	0.113	53.4	LOS D	1.7	12.0	0.90	0.72	0.90	23.7	
Approach		37	3.0	0.113	53.1	LOS D	1.7	12.0	0.90	0.71	0.90	24.9	
All Vehicles		240	3.0	0.113	16.0	LOS B	2.6	18.3	0.38	0.62	0.38	45.0	

2029 Planning Year + Phase 1+2 Development Trips

AM:

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: Bridge													
2	T1	5	3.0	0.047	4.9	LOS A	0.8	5.4	0.34	0.62	0.34	47.2	
3	R2	126	3.0	0.090	10.7	LOS B	1.4	10.2	0.35	0.66	0.35	44.1	
Approach		132	3.0	0.090	10.5	LOS B	1.4	10.2	0.35	0.66	0.35	44.2	
North: R327													
7	L2	98	3.0	0.091	18.5	LOS B	2.6	18.7	0.49	0.69	0.49	45.0	
8	T1	16	3.0	0.014	12.3	LOS B	0.4	2.9	0.46	0.33	0.46	44.9	
Approach		114	3.0	0.091	17.6	LOS B	2.6	18.7	0.49	0.64	0.49	45.0	
West: N2 Off-Ramp													
10	L2	9	3.0	0.030	48.6	LOS D	0.5	3.6	0.85	0.67	0.85	33.0	
11	T1	1	3.0	0.030	43.0	LOS D	0.5	3.6	0.85	0.67	0.85	33.6	
12	R2	32	3.0	0.089	49.3	LOS D	1.5	11.0	0.86	0.72	0.86	24.8	
Approach		42	3.0	0.089	49.0	LOS D	1.5	11.0	0.86	0.71	0.86	27.2	
All Vehicles		287	3.0	0.091	19.0	LOS B	2.6	18.7	0.48	0.66	0.48	41.0	

PM:

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: Bridge													
2	T1	5	3.0	0.018	8.2	LOS A	0.3	2.3	0.38	0.54	0.38	45.3	
3	R2	36	3.0	0.034	14.2	LOS B	0.5	3.9	0.39	0.64	0.39	41.5	
Approach		41	3.0	0.034	13.4	LOS B	0.5	3.9	0.39	0.62	0.39	41.9	
North: R327													
7	L2	186	3.0	0.145	13.3	LOS B	3.9	28.1	0.39	0.68	0.39	48.1	
8	T1	18	3.0	0.013	7.0	LOS A	0.3	2.4	0.35	0.26	0.35	50.4	
Approach		204	3.0	0.145	12.8	LOS B	3.9	28.1	0.39	0.64	0.39	48.2	
West: N2 Off-Ramp													
10	L2	4	3.0	0.012	42.9	LOS D	0.2	1.7	0.79	0.62	0.79	34.9	
11	T1	1	3.0	0.012	37.4	LOS D	0.2	1.7	0.79	0.62	0.79	35.6	
12	R2	66	3.0	0.147	44.7	LOS D	3.1	22.1	0.83	0.75	0.83	26.1	
Approach		72	3.0	0.147	44.5	LOS D	3.1	22.1	0.83	0.74	0.83	26.9	
All Vehicles		317	3.0	0.147	20.0	LOS C	3.9	28.1	0.49	0.66	0.49	42.0	

**Secondary Access: Diamond Interchange (South Terminal)**

2024 Design Year + Phase 1 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	32	3.0	0.125	48.0	LOS D	2.4	17.0	0.86	0.70	0.86	33.6
2	T1	68	3.0	0.125	42.4	LOS D	2.4	17.5	0.86	0.66	0.86	27.6
Approach		100	3.0	0.125	44.1	LOS D	2.4	17.5	0.86	0.68	0.86	29.9
East: N2 Off-Ramp												
4	L2	32	3.0	0.012	11.2	LOS B	0.3	1.9	0.31	0.62	0.31	49.4
6	R2	175	3.0	0.129	11.7	LOS B	3.3	23.6	0.35	0.68	0.35	42.9
Approach		206	3.0	0.129	11.7	LOS B	3.3	23.6	0.35	0.67	0.35	44.2
North: Bridge												
8	T1	5	3.0	0.013	40.8	LOS D	0.2	1.7	0.82	0.55	0.82	28.5
9	R2	9	3.0	0.037	49.1	LOS D	0.5	3.3	0.85	0.68	0.85	25.0
Approach		15	3.0	0.037	46.2	LOS D	0.5	3.3	0.84	0.63	0.84	26.1
All Vehicles		321	3.0	0.129	23.4	LOS C	3.3	23.6	0.53	0.67	0.53	37.2

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	13	3.0	0.066	50.6	LOS D	0.8	6.0	0.90	0.68	0.90	32.7
2	T1	23	3.0	0.066	45.0	LOS D	0.9	6.2	0.90	0.65	0.90	26.7
Approach		36	3.0	0.066	46.9	LOS D	0.9	6.2	0.90	0.66	0.90	29.3
East: N2 Off-Ramp												
4	L2	66	3.0	0.023	9.1	LOS A	0.4	3.1	0.26	0.62	0.26	50.9
6	R2	97	3.0	0.066	9.2	LOS A	1.3	9.4	0.27	0.65	0.27	45.1
Approach		163	3.0	0.066	9.1	LOS A	1.3	9.4	0.27	0.64	0.27	48.0
North: Bridge												
8	T1	5	3.0	0.019	44.2	LOS D	0.2	1.8	0.89	0.58	0.89	27.3
9	R2	11	3.0	0.051	50.8	LOS D	0.5	3.6	0.90	0.68	0.90	24.5
Approach		16	3.0	0.051	48.6	LOS D	0.5	3.6	0.89	0.65	0.89	25.4
All Vehicles		215	3.0	0.066	18.3	LOS B	1.3	9.4	0.42	0.64	0.42	41.4

2029 Planning Year + Phase 1+2 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	63	3.0	0.167	39.4	LOS D	4.1	29.7	0.78	0.71	0.78	36.5
2	T1	132	3.0	0.167	33.8	LOS C	4.3	30.7	0.78	0.64	0.78	30.9
Approach		195	3.0	0.167	35.6	LOS D	4.3	30.7	0.78	0.67	0.78	33.1
East: N2 Off-Ramp												
4	L2	62	3.0	0.026	15.3	LOS B	0.7	5.0	0.42	0.65	0.42	46.8
6	R2	198	3.0	0.168	16.3	LOS B	4.9	35.4	0.46	0.71	0.46	39.4
Approach		260	3.0	0.168	16.1	LOS B	4.9	35.4	0.45	0.70	0.45	41.6
North: Bridge												
8	T1	5	3.0	0.009	31.7	LOS C	0.2	1.5	0.73	0.49	0.73	32.3
9	R2	11	3.0	0.032	41.3	LOS D	0.5	3.3	0.77	0.68	0.77	27.4
Approach		16	3.0	0.032	38.1	LOS D	0.5	3.3	0.76	0.62	0.76	28.9
All Vehicles		471	3.0	0.168	24.9	LOS C	4.9	35.4	0.60	0.68	0.60	37.1

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	25	3.0	0.080	46.6	LOS D	1.5	11.0	0.84	0.69	0.84	33.8
2	T1	41	3.0	0.080	41.0	LOS D	1.6	11.4	0.84	0.63	0.84	28.1
Approach		66	3.0	0.080	43.1	LOS D	1.6	11.4	0.84	0.66	0.84	30.7
East: N2 Off-Ramp												
4	L2	132	3.0	0.049	11.7	LOS B	1.2	8.6	0.34	0.65	0.34	49.1
6	R2	109	3.0	0.082	11.8	LOS B	2.0	14.6	0.35	0.67	0.35	42.8
Approach		241	3.0	0.082	11.8	LOS B	2.0	14.6	0.34	0.66	0.34	46.8
North: Bridge												
8	T1	5	3.0	0.012	39.9	LOS D	0.2	1.7	0.82	0.54	0.82	28.8
9	R2	13	3.0	0.045	47.4	LOS D	0.6	4.3	0.83	0.69	0.83	25.5
Approach		18	3.0	0.045	45.2	LOS D	0.6	4.3	0.83	0.65	0.83	26.4
All Vehicles		325	3.0	0.082	20.0	LOS C	2.0	14.6	0.47	0.66	0.47	41.3

## Dana Bay Alternate Access as Primary Access

### Primary Access: Priority-Controlled

2019 Base Year Traffic

AM:

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
<b>South: Access Road</b>												
1	L2	99	3.0	0.134	10.0	LOS B	0.5	3.5	0.44	0.91	0.44	50.5
2	T1	1	3.0	0.134	62.0	LOS F	0.5	3.5	0.44	0.91	0.44	50.9
3	R2	558	3.0	11.960	9890.4	LOS F	352.5	2530.7	1.00	3.53	12.20	0.4
Approach		658	3.0	11.960	8388.4	LOS F	352.5	2530.7	0.91	3.13	10.42	0.4
<b>East: N2</b>												
4	L2	270	3.0	0.140	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	614	3.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
6	R2	163	3.0	0.206	7.2	LOS A	0.8	5.6	0.36	0.64	0.36	52.3
Approach		1048	3.0	0.206	2.6	NA	0.8	5.6	0.06	0.25	0.06	73.1
<b>North: R327</b>												
7	L2	81	3.0	0.097	8.7	LOS A	0.3	2.5	0.24	0.88	0.24	51.0
8	T1	1	3.0	0.097	77.4	LOS F	0.3	2.5	0.24	0.88	0.24	51.3
9	R2	9	3.0	0.139	61.6	LOS F	0.4	2.8	0.92	1.00	0.92	30.1
Approach		91	3.0	0.139	14.7	LOS B	0.4	2.8	0.31	0.89	0.31	47.7
<b>West: N2</b>												
10	L2	8	3.0	0.004	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
11	T1	208	3.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
12	R2	48	3.0	0.150	15.1	LOS C	0.5	3.4	0.72	0.88	0.72	47.0
Approach		263	3.0	0.150	2.9	NA	0.5	3.4	0.13	0.18	0.13	81.2
All Vehicles		2060	3.0	11.960	2680.8	NA	352.5	2530.7	0.35	1.19	3.38	1.3

PM:

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
<b>South: Access Road</b>												
1	L2	40	3.0	0.063	8.7	LOS A	0.2	1.5	0.29	0.86	0.29	50.1
2	T1	1	3.0	0.063	89.6	LOS F	0.2	1.5	0.29	0.86	0.29	50.4
3	R2	226	3.0	10.543	8643.4	LOS F	154.3	1107.5	1.00	2.23	6.69	0.4
Approach		267	3.0	10.543	7312.6	LOS F	154.3	1107.5	0.89	2.02	5.71	0.5
<b>East: N2</b>												
4	L2	588	3.0	0.304	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
5	T1	236	3.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
6	R2	90	3.0	0.212	12.4	LOS B	0.7	5.3	0.64	0.85	0.66	48.7
Approach		913	3.0	0.304	4.8	NA	0.7	5.3	0.06	0.45	0.06	60.1
<b>North: R327</b>												
7	L2	153	3.0	0.264	10.4	LOS B	0.9	6.7	0.52	0.94	0.52	49.5
8	T1	1	3.0	0.264	261.6	LOS F	0.9	6.7	0.52	0.94	0.52	49.9
9	R2	10	3.0	0.163	65.0	LOS F	0.5	3.3	0.93	1.00	0.94	29.3
Approach		164	3.0	0.264	15.4	LOS C	0.9	6.7	0.55	0.94	0.55	47.5
<b>West: N2</b>												
10	L2	3	3.0	0.002	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	53.5
11	T1	667	3.0	0.165	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	99.9
12	R2	103	3.0	0.323	17.2	LOS C	1.2	8.8	0.76	0.95	0.93	45.8
Approach		773	3.0	0.323	2.3	NA	1.2	8.8	0.10	0.13	0.12	86.0
All Vehicles		2118	3.0	10.543	924.9	NA	154.3	1107.5	0.22	0.57	0.83	3.7

**Primary Access: Pointsmen-Controlled Intersection**

2019 Base Year Traffic

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn w/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: Access Road												
1	L2	99	3.0	0,171	53,9	LOS D	6,3	45,3	0,77	0,75	0,77	31,4
2	T1	1	3,0	0,171	48,3	LOS D	6,3	45,3	0,77	0,75	0,77	31,9
3	R2	558	3,0	1,610	628,7	LOS F	142,6	1023,8	1,00	1,81	3,03	5,1
Approach		658	3,0	1,610	541,3	LOS F	142,6	1023,8	0,97	1,65	2,69	5,9
East: N2												
4	L2	270	3,0	0,219	19,8	LOS B	9,6	69,2	0,45	0,71	0,45	44,3
5	T1	614	3,0	0,237	14,4	LOS D	11,1	79,7	0,46	0,40	0,46	71,7
6	R2	163	3,0	0,180	19,6	LOS B	5,6	40,0	0,49	0,70	0,49	44,4
Approach		1048	3,0	0,237	16,6	LOS B	11,1	79,7	0,46	0,53	0,46	57,1
North: R327												
7	L2	81	3,0	0,141	53,4	LOS D	5,1	36,8	0,76	0,74	0,76	31,5
8	T1	1	3,0	0,141	47,8	LOS D	5,1	36,8	0,76	0,74	0,76	32,0
9	R2	9	3,0	0,025	56,4	LOS E	0,6	4,0	0,76	0,67	0,76	30,9
Approach		91	3,0	0,141	53,6	LOS D	5,1	36,8	0,76	0,74	0,76	31,4
West: N2												
10	L2	8	3,0	0,013	51,0	LOS D	0,5	3,3	0,72	0,66	0,72	32,1
11	T1	208	3,0	0,167	48,2	LOS D	6,5	46,9	0,77	0,62	0,77	43,1
12	R2	48	3,0	0,245	57,1	LOS E	3,2	23,1	0,79	0,76	0,79	30,5
Approach		263	3,0	0,245	49,9	LOS D	6,5	46,9	0,77	0,65	0,77	39,7
All Vehicles		2060	3,0	1,610	190,0	LOS F	142,6	1023,8	0,68	0,91	1,23	14,7

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn w/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: Access Road												
1	L2	40	3,0	0,070	52,2	LOS D	2,5	18,0	0,74	0,71	0,74	31,9
2	T1	1	3,0	0,070	46,6	LOS D	2,5	18,0	0,74	0,71	0,74	32,4
3	R2	226	3,0	0,743	74,7	LOS E	18,7	134,3	0,98	0,87	1,02	26,8
Approach		267	3,0	0,743	71,2	LOS E	18,7	134,3	0,94	0,84	0,97	27,5
East: N2												
4	L2	588	3,0	0,519	23,2	LOS C	26,0	186,8	0,56	0,76	0,56	42,5
5	T1	236	3,0	0,091	12,9	LOS B	3,8	27,4	0,41	0,34	0,41	73,8
6	R2	90	3,0	0,127	22,6	LOS C	2,9	21,1	0,62	0,72	0,62	42,9
Approach		913	3,0	0,519	20,5	LOS C	26,0	186,8	0,53	0,65	0,53	47,8
North: R327												
7	L2	153	3,0	0,264	55,5	LOS E	10,1	72,3	0,80	0,78	0,80	30,9
8	T1	1	3,0	0,264	49,9	LOS D	10,1	72,3	0,80	0,78	0,80	31,4
9	R2	10	3,0	0,025	53,2	LOS D	0,6	4,4	0,74	0,67	0,74	31,7
Approach		164	3,0	0,264	55,3	LOS E	10,1	72,3	0,80	0,77	0,80	31,0
West: N2												
10	L2	3	3,0	0,006	50,8	LOS D	0,2	1,4	0,71	0,63	0,71	32,2
11	T1	667	3,0	0,621	55,3	LOS E	28,4	204,0	0,89	0,77	0,89	39,7
12	R2	103	3,0	0,530	62,9	LOS E	7,7	55,5	0,88	0,81	0,88	29,1
Approach		773	3,0	0,621	56,3	LOS E	28,4	204,0	0,89	0,78	0,89	37,8
All Vehicles		2118	3,0	0,743	42,7	LOS D	28,4	204,0	0,73	0,73	0,74	38,8

### Primary Access: Signalised Intersection

#### 2019 Base Year Traffic

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn w/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: Access Road												
1	L2	99	3.0	0.106	16.0	LOS B	1.8	12.9	0.55	0.69	0.55	46.5
2	T1	1	3.0	0.106	10.4	LOS B	1.8	12.9	0.55	0.69	0.55	47.6
3	R2	558	3.0	0.869	25.3	LOS C	17.7	127.1	0.93	0.89	0.97	41.9
Approach		658	3.0	0.869	23.8	LOS C	17.7	127.1	0.88	0.86	0.91	42.5
East: N2												
4	L2	270	3.0	0.386	24.0	LOS C	6.8	49.0	0.77	0.78	0.77	42.1
5	T1	614	3.0	0.417	18.7	LOS B	7.9	56.4	0.78	0.66	0.78	66.1
6	R2	163	3.0	0.353	24.1	LOS C	4.0	28.9	0.84	0.77	0.84	42.1
Approach		1048	3.0	0.417	20.9	LOS C	7.9	56.4	0.79	0.71	0.79	53.5
North: R327												
7	L2	81	3.0	0.087	15.8	LOS B	1.5	10.5	0.54	0.69	0.54	46.6
8	T1	1	3.0	0.087	10.3	LOS B	1.5	10.5	0.54	0.69	0.54	47.7
9	R2	9	3.0	0.014	16.0	LOS B	0.2	1.1	0.53	0.63	0.53	46.8
Approach		91	3.0	0.087	15.8	LOS B	1.5	10.5	0.54	0.68	0.54	46.6
West: N2												
10	L2	8	3.0	0.031	35.3	LOS D	0.2	1.7	0.88	0.66	0.88	37.3
11	T1	208	3.0	0.392	32.1	LOS C	3.4	24.2	0.93	0.73	0.93	53.2
12	R2	48	3.0	0.300	38.0	LOS D	1.6	11.3	0.92	0.74	0.92	36.3
Approach		263	3.0	0.392	33.3	LOS C	3.4	24.2	0.93	0.73	0.93	48.5
All Vehicles		2060	3.0	0.869	23.2	LOS C	17.7	127.1	0.82	0.76	0.83	48.5

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn w/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: Access Road												
1	L2	40	3.0	0.070	36.7	LOS D	1.7	12.0	0.74	0.71	0.74	36.8
2	T1	1	3.0	0.070	31.1	LOS C	1.7	12.0	0.74	0.71	0.74	37.5
3	R2	226	3.0	0.691	51.5	LOS D	12.5	89.4	0.96	0.85	1.00	32.2
Approach		267	3.0	0.691	49.2	LOS D	12.5	89.4	0.93	0.83	0.96	32.9
East: N2												
4	L2	588	3.0	0.658	28.5	LOS C	24.4	175.3	0.77	0.82	0.77	40.1
5	T1	236	3.0	0.116	16.7	LOS B	3.6	25.7	0.56	0.46	0.56	68.5
6	R2	90	3.0	0.237	24.1	LOS C	3.0	21.7	0.60	0.73	0.60	42.1
Approach		913	3.0	0.658	25.0	LOS C	24.4	175.3	0.70	0.72	0.70	45.1
North: R327												
7	L2	153	3.0	0.262	39.0	LOS D	6.8	48.6	0.80	0.77	0.80	35.9
8	T1	1	3.0	0.262	33.4	LOS C	6.8	48.6	0.80	0.77	0.80	36.6
9	R2	10	3.0	0.024	37.2	LOS D	0.4	2.9	0.73	0.67	0.73	36.9
Approach		164	3.0	0.262	38.8	LOS D	6.8	48.6	0.79	0.76	0.79	36.0
West: N2												
10	L2	3	3.0	0.003	15.1	LOS B	0.1	0.5	0.40	0.61	0.40	46.9
11	T1	667	3.0	0.270	11.6	LOS B	8.9	64.2	0.50	0.44	0.50	75.9
12	R2	103	3.0	0.315	22.0	LOS C	2.7	19.1	0.75	0.74	0.75	43.2
Approach		773	3.0	0.315	13.0	LOS B	8.9	64.2	0.53	0.48	0.53	68.7
All Vehicles		2118	3.0	0.691	24.8	LOS C	24.4	175.3	0.68	0.65	0.68	47.9

#### 2024 Design Year + Phase 1 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn w/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: Access Road												
1	L2	199	3.0	0.342	56.9	LOS E	13.4	96.2	0.82	0.79	0.82	30.6
2	T1	1	3.0	0.342	51.3	LOS D	13.4	96.2	0.82	0.79	0.82	31.0
3	R2	1124	3.0	3.321	2164.3	LOS F	431.2	3096.0	1.00	2.53	4.56	1.6
Approach		1324	3.0	3.321	1846.1	LOS F	431.2	3096.0	0.97	2.26	3.99	1.9
East: N2												
4	L2	549	3.0	0.569	22.7	LOS C	23.6	169.5	0.55	0.75	0.55	42.8
5	T1	896	3.0	0.268	14.7	LOS B	12.9	92.5	0.47	0.41	0.47	71.2
6	R2	184	3.0	0.207	19.8	LOS B	6.4	45.7	0.51	0.71	0.51	44.3
Approach		1429	3.0	0.569	18.5	LOS B	23.6	169.5	0.50	0.58	0.50	53.4
North: R327												
7	L2	92	3.0	0.160	53.7	LOS D	5.9	42.1	0.77	0.75	0.77	31.4
8	T1	1	3.0	0.160	48.1	LOS D	5.9	42.1	0.77	0.75	0.77	31.9
9	R2	10	3.0	0.036	63.3	LOS E	0.7	4.9	0.81	0.68	0.81	29.2
Approach		103	3.0	0.160	54.6	LOS D	5.9	42.1	0.77	0.74	0.77	31.2
West: N2												
10	L2	9	3.0	0.015	51.1	LOS D	0.5	3.8	0.72	0.66	0.72	32.1
11	T1	236	3.0	0.190	48.6	LOS D	7.5	53.6	0.78	0.63	0.78	42.9
12	R2	97	3.0	0.728	76.0	LOS E	8.5	61.4	0.95	0.90	1.09	26.4
Approach		341	3.0	0.728	56.4	LOS E	8.5	61.4	0.83	0.71	0.87	36.1
All Vehicles		3198	3.0	3.321	780.6	LOS F	431.2	3096.0	0.74	1.30	2.00	4.3

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
<b>South: Access Road</b>												
1	L2	80	3.0	0.139	53.3	LOS D	5.1	36.3	0.76	0.74	0.76	31.5
2	T1	1	3.0	0.139	47.8	LOS D	5.1	36.3	0.76	0.74	0.76	32.0
3	R2	457	3.0	1.618	636.9	LOS F	117.1	840.9	1.00	1.81	3.06	5.0
Approach		538	3.0	1.618	548.9	LOS F	117.1	840.9	0.96	1.65	2.71	5.8
<b>East: N2</b>												
4	L2	1180	3.0	1.044	117.8	LOS F	151.5	1087.9	1.00	1.11	1.40	20.1
5	T1	267	3.0	0.103	13.0	LOS B	4.4	31.3	0.41	0.34	0.41	73.7
6	R2	102	3.0	0.149	23.9	LOS C	3.4	24.1	0.66	0.73	0.66	42.2
Approach		1549	3.0	1.044	93.6	LOS F	151.5	1087.9	0.88	0.95	1.18	23.9
<b>North: R327</b>												
7	L2	173	3.0	0.299	56.1	LOS E	11.5	82.6	0.81	0.78	0.81	30.8
8	T1	1	3.0	0.299	50.5	LOS D	11.5	82.6	0.81	0.78	0.81	31.3
9	R2	11	3.0	0.030	55.7	LOS E	0.7	5.0	0.75	0.68	0.75	31.1
Approach		186	3.0	0.299	56.1	LOS E	11.5	82.6	0.81	0.78	0.81	30.8
<b>West: N2</b>												
10	L2	3	3.0	0.006	50.8	LOS D	0.2	1.4	0.71	0.63	0.71	32.2
11	T1	754	3.0	0.693	56.8	LOS E	32.6	234.4	0.92	0.80	0.92	39.1
12	R2	208	3.0	4.772	3429.7	LOS F	87.2	625.9	1.00	2.08	5.01	1.0
Approach		966	3.0	4.772	782.6	LOS F	87.2	625.9	0.93	1.07	1.80	4.3
All Vehicles		3238	3.0	4.772	372.5	LOS F	151.5	1087.9	0.90	1.09	1.60	8.4

## Dana Bay Alternate Access as Primary Access

### Primary Access: Diamond Interchange (North Terminal)

2024 Design Year + Phase 1 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
<b>South: Bridge</b>												
2	T1	176	3.0	0.395	4.0	LOS A	4.5	32.0	0.58	0.65	0.58	49.8
3	R2	1065	3.0	0.754	12.1	LOS B	12.2	87.5	0.76	0.81	0.81	43.1
Approach		1241	3.0	0.754	11.0	LOS B	12.2	87.5	0.74	0.79	0.78	43.9
<b>North: R327</b>												
7	L2	87	3.0	0.377	29.2	LOS C	2.1	15.2	0.96	0.76	0.96	39.8
8	T1	11	3.0	0.043	22.0	LOS C	0.2	1.7	0.91	0.61	0.91	37.5
Approach		98	3.0	0.377	28.4	LOS C	2.1	15.2	0.96	0.74	0.96	39.6
<b>West: N2 Off-Ramp</b>												
10	L2	8	3.0	0.041	27.6	LOS C	0.2	1.5	0.91	0.66	0.91	40.7
11	T1	1	3.0	0.041	22.0	LOS C	0.2	1.5	0.91	0.66	0.91	41.6
12	R2	92	3.0	0.395	29.2	LOS C	2.2	16.0	0.96	0.76	0.96	32.0
Approach		101	3.0	0.395	29.0	LOS C	2.2	16.0	0.96	0.75	0.96	33.1
All Vehicles		1440	3.0	0.754	13.4	LOS B	12.2	87.5	0.77	0.78	0.80	42.5

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
<b>South: Bridge</b>												
2	T1	97	3.0	0.222	9.1	LOS A	4.9	35.3	0.44	0.57	0.44	45.1
3	R2	433	3.0	0.424	16.7	LOS B	9.4	67.2	0.51	0.71	0.51	39.7
Approach		529	3.0	0.424	15.3	LOS B	9.4	67.2	0.50	0.69	0.50	40.6
<b>North: R327</b>												
7	L2	164	3.0	0.129	13.6	LOS B	3.5	25.1	0.40	0.68	0.40	47.9
8	T1	12	3.0	0.009	7.3	LOS A	0.2	1.6	0.36	0.25	0.36	50.0
Approach		176	3.0	0.129	13.2	LOS B	3.5	25.1	0.39	0.65	0.39	48.0
<b>West: N2 Off-Ramp</b>												
10	L2	3	3.0	0.009	42.0	LOS D	0.2	1.3	0.78	0.61	0.78	35.3
11	T1	1	3.0	0.009	36.5	LOS D	0.2	1.3	0.78	0.61	0.78	36.0
12	R2	197	3.0	0.422	47.0	LOS D	9.8	70.2	0.89	0.80	0.89	25.4
Approach		201	3.0	0.422	46.9	LOS D	9.8	70.2	0.89	0.80	0.89	25.7
All Vehicles		906	3.0	0.424	21.9	LOS C	9.8	70.2	0.57	0.70	0.57	37.8

2029 Planning Year + Phase 1+2 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Sat'n w/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: Bridge												
2	T1	198	3.0	0.467	3.8	LOS A	8.0	57.6	0.50	0.66	0.50	49.7
3	R2	1601	3.0	0.892	21.3	LOS C	43.4	311.4	0.78	0.88	0.93	36.5
Approach		1799	3.0	0.892	19.4	LOS B	43.4	311.4	0.75	0.85	0.88	37.6
North: R327												
7	L2	98	3.0	0.676	46.5	LOS D	4.1	29.4	1.00	0.83	1.16	32.9
8	T1	11	3.0	0.069	38.8	LOS D	0.4	2.9	0.96	0.64	0.96	29.1
Approach		108	3.0	0.676	47.5	LOS D	4.1	29.4	1.00	0.81	1.14	32.6
West: N2 Off-Ramp												
10	L2	9	3.0	0.054	41.9	LOS D	0.4	2.8	0.93	0.67	0.93	35.1
11	T1	1	3.0	0.054	36.3	LOS D	0.4	2.8	0.93	0.67	0.93	35.8
12	R2	138	3.0	0.714	46.9	LOS D	5.7	41.0	1.00	0.85	1.17	25.4
Approach		148	3.0	0.714	46.5	LOS D	5.7	41.0	1.00	0.84	1.15	26.3
All Vehicles		2056	3.0	0.892	22.8	LOS C	43.4	311.4	0.78	0.85	0.92	36.0

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Sat'n w/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: Bridge												
2	T1	109	3.0	0.333	10.9	LOS B	7.9	56.4	0.50	0.64	0.50	43.1
3	R2	651	3.0	0.637	19.5	LOS B	17.0	122.2	0.62	0.76	0.62	37.7
Approach		760	3.0	0.637	18.2	LOS B	17.0	122.2	0.61	0.75	0.61	38.4
North: R327												
7	L2	186	3.0	0.147	13.7	LOS B	4.0	28.9	0.40	0.68	0.40	47.8
8	T1	13	3.0	0.009	7.3	LOS A	0.2	1.8	0.36	0.26	0.36	50.0
Approach		199	3.0	0.147	13.3	LOS B	4.0	28.9	0.40	0.66	0.40	47.9
West: N2 Off-Ramp												
10	L2	4	3.0	0.011	42.1	LOS D	0.2	1.7	0.78	0.62	0.78	35.2
11	T1	1	3.0	0.011	36.5	LOS D	0.2	1.7	0.78	0.62	0.78	35.9
12	R2	297	3.0	0.636	49.7	LOS D	15.7	112.6	0.95	0.84	0.95	24.6
Approach		302	3.0	0.636	49.6	LOS D	15.7	112.6	0.95	0.83	0.95	24.9
All Vehicles		1261	3.0	0.637	25.0	LOS C	17.0	122.2	0.66	0.75	0.66	35.8

**Primary Access: Interchange (South Terminal)**

2024 Design Year + Phase 1 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	188	3.0	0.498	18.5	LOS B	19.5	139.7	0.59	0.61	0.59	47.2
2	T1	1066	3.0	0.498	12.9	LOS B	19.7	141.8	0.59	0.56	0.59	43.8
Approach		1255	3.0	0.498	13.8	LOS B	19.7	141.8	0.59	0.57	0.59	44.5
East: N2 Off-Ramp												
4	L2	520	3.0	0.490	44.9	LOS D	12.8	91.7	0.89	0.82	0.89	34.0
6	R2	175	3.0	0.329	42.8	LOS D	8.1	58.5	0.84	0.79	0.84	26.7
Approach		695	3.0	0.490	44.3	LOS D	12.8	91.7	0.88	0.81	0.88	32.5
North: Bridge												
8	T1	93	3.0	0.073	9.2	LOS A	2.1	14.9	0.41	0.33	0.41	48.0
9	R2	9	3.0	0.053	25.6	LOS C	0.3	2.3	0.58	0.68	0.58	34.1
Approach		102	3.0	0.073	10.8	LOS B	2.1	14.9	0.43	0.37	0.43	46.2
All Vehicles		2052	3.0	0.498	24.0	LOS C	19.7	141.8	0.68	0.64	0.68	38.7

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	76	3.0	0.459	44.4	LOS D	12.2	87.9	0.88	0.76	0.88	35.4
2	T1	433	3.0	0.459	38.8	LOS D	12.4	89.3	0.88	0.75	0.88	29.0
Approach		508	3.0	0.459	39.6	LOS D	12.4	89.3	0.88	0.75	0.88	30.2
East: N2 Off-Ramp												
4	L2	1118	3.0	0.463	18.1	LOS B	16.9	121.6	0.57	0.76	0.57	45.2
6	R2	97	3.0	0.080	14.8	LOS B	2.2	15.8	0.42	0.68	0.42	40.4
Approach		1215	3.0	0.463	17.8	LOS B	16.9	121.6	0.56	0.75	0.56	44.9
North: Bridge												
8	T1	197	3.0	0.352	37.5	LOS D	9.2	66.2	0.85	0.71	0.85	29.7
9	R2	11	3.0	0.058	51.0	LOS D	0.5	3.8	0.86	0.69	0.86	24.5
Approach		207	3.0	0.352	38.2	LOS D	9.2	66.2	0.85	0.70	0.85	29.4
All Vehicles		1931	3.0	0.463	25.8	LOS C	16.9	121.6	0.67	0.75	0.67	39.4

2029 Planning Year + Phase 1+2 Development Trips

AM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	282	3.0	0.747	22.3	LOS C	37.8	271.5	0.77	0.75	0.77	45.0
2	T1	1601	3.0	0.747	16.7	LOS B	38.4	275.6	0.77	0.73	0.77	40.7
Approach		1883	3.0	0.747	17.6	LOS B	38.4	275.6	0.77	0.73	0.77	41.6
East: N2 Off-Ramp												
4	L2	784	3.0	0.738	49.0	LOS D	21.2	152.4	0.97	0.87	0.99	32.7
6	R2	198	3.0	0.373	43.3	LOS D	9.4	67.2	0.86	0.80	0.86	26.6
Approach		982	3.0	0.738	47.9	LOS D	21.2	152.4	0.95	0.85	0.96	31.7
North: Bridge												
8	T1	138	3.0	0.109	9.5	LOS A	3.2	22.7	0.43	0.35	0.43	47.7
9	R2	11	3.0	0.127	41.4	LOS D	0.5	3.5	0.76	0.72	0.76	27.4
Approach		148	3.0	0.127	11.7	LOS B	3.2	22.7	0.45	0.38	0.45	45.3
All Vehicles		3014	3.0	0.747	27.2	LOS C	38.4	275.6	0.81	0.75	0.81	37.1

PM:

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: New Access												
1	L2	115	3.0	0.723	36.2	LOS D	14.2	101.7	0.97	0.87	1.02	38.4
2	T1	651	3.0	0.723	30.6	LOS C	14.4	103.1	0.97	0.87	1.02	32.4
Approach		765	3.0	0.723	31.4	LOS C	14.4	103.1	0.97	0.87	1.02	33.6
East: N2 Off-Ramp												
4	L2	1679	3.0	0.740	18.5	LOS B	23.8	171.2	0.79	0.84	0.79	45.0
6	R2	109	3.0	0.096	13.2	LOS B	1.8	13.2	0.46	0.69	0.46	41.7
Approach		1788	3.0	0.740	18.2	LOS B	23.8	171.2	0.77	0.83	0.77	44.9
North: Bridge												
8	T1	297	3.0	0.557	27.9	LOS C	10.2	73.2	0.92	0.77	0.92	34.1
9	R2	13	3.0	0.099	43.1	LOS D	0.5	3.4	0.94	0.69	0.94	26.8
Approach		309	3.0	0.557	28.5	LOS C	10.2	73.2	0.92	0.77	0.92	33.8
All Vehicles		2863	3.0	0.740	22.8	LOS C	23.8	171.2	0.84	0.84	0.85	41.0