



Project: TINLEY MANOR SOUTH BANKS,
KWADUKUZA.

Tinley Manor South Banks - Traffic
Impact Assessment

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LIST OF ACRONYMS

THD	Tongaat Hulett Developments
SANRAL	South African National Roads Agency Limited
KZNDOT	Kwa-Zulu Natal Department of Transport
ILEMBE	Ilembe District Municipality
KWADUKUZA	KwaDukuza Municipality
TIA	Traffic Impact Assessment
Veh/h	Vehicles per hour

1. Introduction

1.1 Project Overview

Tongaat Hulett Developments (THD) owns a large tract of land in the vicinity of Tinley Manor village, east and south of the town of KwaDukuza (formerly Stanger) on the KwaZulu-Natal north coast. The majority of the land owned by Tongaat Hulett lies east of the N2 National Road, between the freeway and the Indian Ocean but there are also pockets of land, owned by THD, to the west of the N2.

The land lies in a strip along the coastline, approximately two and a half kilometres wide and it extends from the north end of Sheffield Beach in the south to approximately one and a half kilometres north of the village of Tinley Manor, - a distance of approximately six kilometres. This gives an approximate area of 1 500 hectares, overall.

The Umhlali River forms a fairly wide flood plain/estuary between the N2 and the ocean, roughly bisecting the proposed land holding centrally. Figure 1 below shows the locality of the THD land in the vicinity of Tinley Manor.



Figure 1: Locality Plan of THD owned land.

1.2 Scope of Study

THD proposes to develop a section of their land south of the Umhlali River, shown in Figure 2 below. This section of land is referred to as Tinley Manor South Banks. The proposed development is to consist of:

- Private resorts
- Semi-public resorts
- Private residential units
- Mixed residential units
- Mixed use units i.e. offices, commercial & residential.

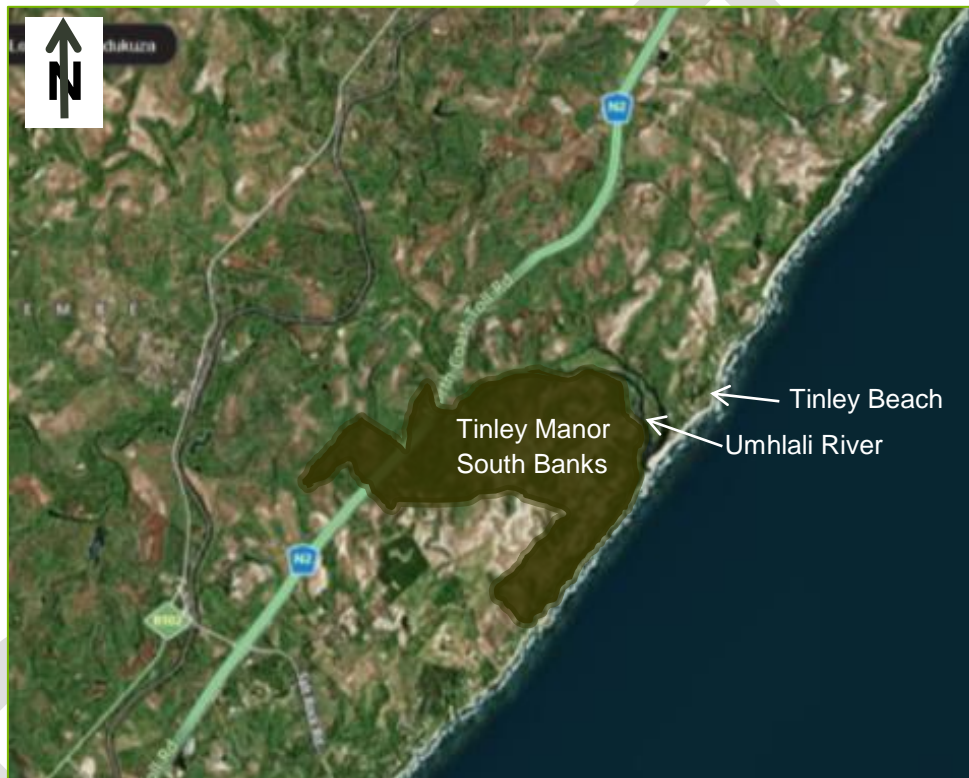


Figure 2: Section of THD land proposed to be developed, Tinley Manor South Banks.

Aurecon SA (Pty) Ltd was commissioned by THD to undertake a Traffic Impact Assessment for the proposed South Banks development as part of the Environmental Impact Assessment for the development. Note:

- The Umhlali River splits the Tinley Manor precinct roughly in half and the area to the north (including the existing village of Tinley Manor) has its own access road, P467, which links with the N2 by means of a diamond interchange.
- There has been no planning, in recent times, for the area of land north of the Umhlali River owned by THD.
- There is no intention, at this stage, to bridge the river flood plain and indeed this may never happen.
- The South Banks development will therefore be developed ahead of and isolated from, the area of land owned by THD north of the river.

1.3 Previous Report

A status quo traffic report was submitted to THD by Aurecon titled “*Status Quo Report on Transport in the Tinley Manor Precinct*” report number 6478/108498 in January 2013.

The report analysed:

- Existing road networks.
- Existing traffic flows
- Level of service of existing road network elements
- Future developments in the area
- Planned new interchange

1.4 Aims and Objectives

The aims and objectives of this study are as follows:

- Analyse the existing traffic flows on the affected road network at critical intersections.
- Define the efficiency of the current operation of these critical intersections.
- Determine and quantify the traffic generated by the proposed new development on the internal road network.
- Define road reserve requirements and propose internal road widths and movement patterns within the proposed development.
- Determine and quantify the traffic generated by the proposed new development on the external road network.
- Consider all possible future planning for the study area.
- Import generated traffic volumes and their distributions of other major locally planned developments and incorporate these to the affected road network.
- Determine and quantify the impact of the traffic generated by all these proposed developments on the surrounding road network.
- Propose road network improvements.
- Propose mitigating recommendations and upgrades to address any safety and capacity issues that may be identified on both the internal and external road networks.
- Propose recommendations on access requirements.
- Liaise with the relevant stakeholders to ensure integrative planning for the area.
- Analyse the background traffic over the full period of analysis and test this traffic growth with the major locally planned developments affecting the road network in the vicinity of Tinley manor.
- Determine and quantify the impact of the traffic generated by all these proposed developments on the surrounding road network.
- Propose road network improvements.

1.5 General

The traffic impact assessment forming the subject of this report has been carried out generally in accordance with DoT report RR93/635, Manual for Traffic Impact Studies as well as the recommended guidelines for trip generation, Trip Generation Rates, 2nd Edition, 1995. Both documents are published by the Department of Transport, these guidelines being the accepted norms for this country. Reference was also made to “Trip Generation Manual”, produced by the US Institute of Transportation Engineers (1991).

The analysis methods and procedures have been undertaken using the methods of the Highway Capacity Manual and the computer programme "SIDRA" developed by the Australian Road Research Board along with Akcelic and Associates which is recognised as one of the foremost traffic analysis tools in the world today.

2. Existing Road Network

The figure below shows the local and regional existing road network.

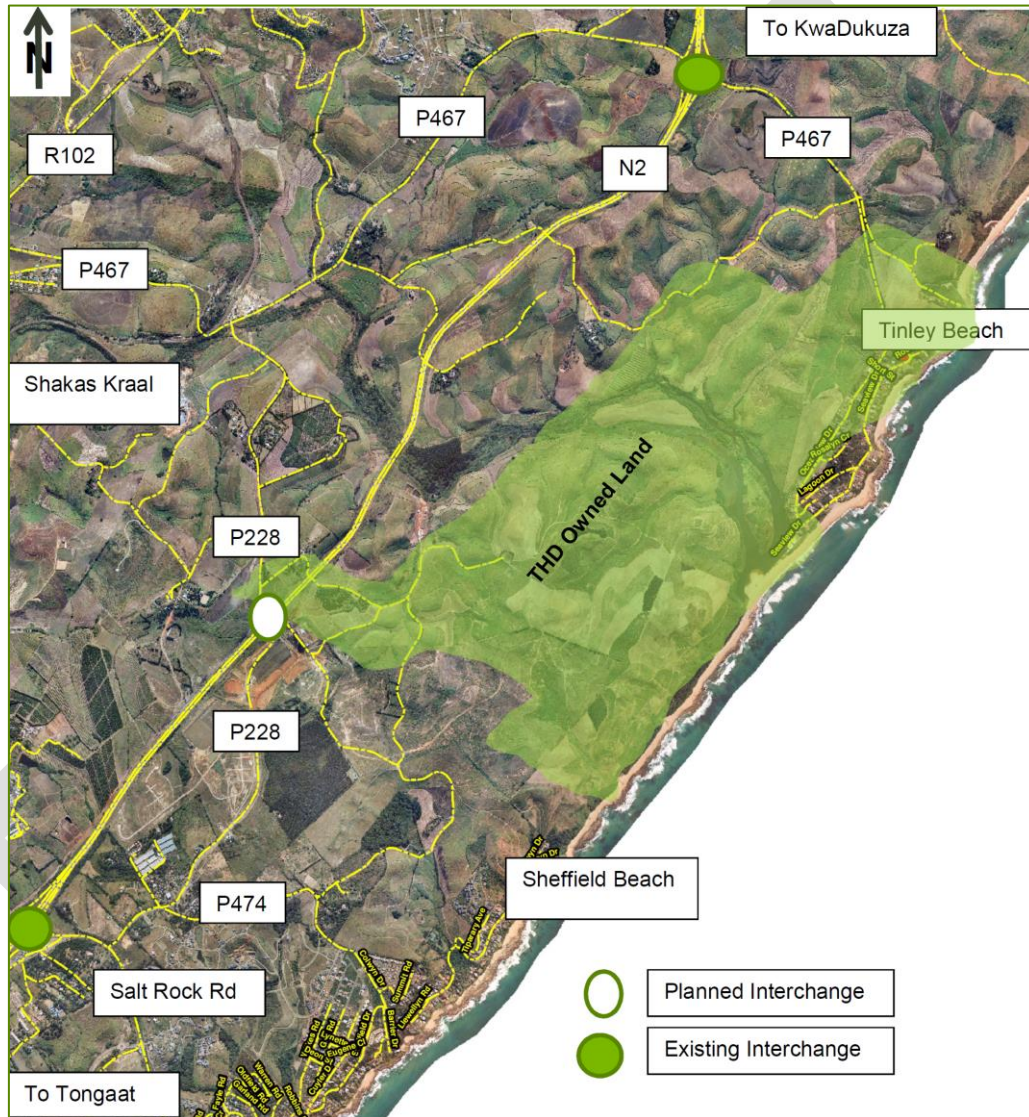



Figure 3: Existing Road Network

2.1 Road Descriptions

2.1.1 National Road 2 (N2)

The N2 runs from Cape Town in the south and it follows the east coast through the Cape Province and KwaZulu-Natal before terminating at the Swaziland border near Golela. In the vicinity of the proposed development, the N2 effectively forms the western boundary of the development and the Indian Ocean, some two and a half kilometres away, forms the eastern boundary.



The N2 is a dual carriageway freeway with 2 lanes in each direction in this area and a speed limit of 120km/h. It falls under the jurisdiction of the South African National Roads Agency Limited (SANRAL).

Of interest to this project are the following diamond interchanges on the N2:

- Salt Rock Road (P330) / Shakaskraal interchange in the south (existing).
- Tinley interchange (P467) in the north (existing).
- P228 interchange towards Sheffield Beach (planned).

The planned future Sheffield Beach diamond interchange is located between the other two interchanges (Salt Rock interchange and Tinley interchange), situated approximately 2.6 kilometres north of the Salt Rock interchange where road P228 crosses over the N2. This planned interchange will be discussed and analysed later in this report.

2.1.2 Provincial Road R102

The R102, which was the old national road, generally runs parallel to and west of, the N2 and it passes through villages / towns such as Tongaat, Shakaskraal and Stanger. Although an important route in itself, the R102 will not play a major role in the transport network relating to the Tinley Manor development because it is too far west to have an influence.

2.1.3 Provincial Road P467

P467 is presently the only external link serving Tinley Beach Village and it runs from the R102 at Shakaskraal in the west, through to Tinley Beach Village in the east. There is a diamond interchange at the N2 where P467 crosses the N2. P467 is a two way two lane road from the N2 to Tinley Beach.

2.1.4 Seaview Drive

Seaview Drive is the main north south road through the village of Tinley Beach and it runs from P467, through the village, to the Umhlali River in the south. There is no crossing over the Umhlali River except for the N2, further west.

2.1.5 Provincial Road P330 (Salt Rock Road)

P330, or the Salt Rock Road, lies at the southern end of the greater study area and it runs from the R102 in the west to Salt Rock village in the east. There is a diamond interchange at the N2 where P330 crosses it. P330 terminates as it enters Salt Rock and it runs eastwards to the coast where it becomes Basil Hulett Drive. It then turns south and runs through Umhlali Beach where it becomes Ocean Drive.

2.1.6 Provincial Road P474

P474 branches off P330, above, and proceeds eastwards to the north end of Salt Rock and the south end of Sheffield Beach. It becomes Colwyn Drive as it travels north through Sheffield Beach where it finally terminates.

2.1.7 Provincial Road P228

P228 branches off P474 and proceeds northwards parallel to the N2 then it swings west and crosses over the N2 and proceeds westwards to an intersection with P467 at Tinley Manor railway station. P228 is a surfaced road for a few hundred metres from P467 and then it has a gravel surface as it proceeds north and west, crossing the N2. The new diamond interchange is to be constructed at this crossing.

2.2 North - South Road Link Parallel to N2

Since development in this region of the north coast took off, the KwaDukuza planners have requested that each development, east of the N2, make allowance for a continuous north – south route linking between adjacent developments and providing continuity of movement at a local level, east of the N2.

There is a stagger (to the west when heading north) at P330, to the beginning of P474 which it follows until the junction with P228 which it follows northwards to Seaton Delaval where it presently ends.

The roads linkage to the north of the Umhlali River is not dependant or required by this development. The applicant is however willing to provide the opportunity for such a link to be constructed at some point in the future if and when required by the relevant authority.

2.3 Access to proposed and existing developments from N2

This area of the North Coast is expanding rapidly and numerous upmarket residential estates have been established and/or planned in recent years, shown below:




Figure 4: Adjacent and surrounding developments.

Clearly, this number of significantly sized developments will impact on the existing road layout and it is likely that internal and external infrastructure will have to be planned to carry future flows.

If we consider these developments from the south, it is clear that Simbithi and Mount Richmore will use either P339 (south-west of Figure 3 – west of Figure 4) or P330 (Salt Rock Road) to get to the N2 and will therefore not affect access to/from the proposed Tinley Manor development.

Dunkirk, Brettonwood, Croc Farm and Zululami will access the N2 via P474 and P330, again not affecting access to/from Tinley Manor but probably absorbing most of the spare capacity on P330 and its diamond interchange on N2.

Thus, to the east of N2, only Seaton Delaval will interface with Tinley Manor, as will Nkwazi and Palm Lakes, both situated west of N2 all as major generators of traffic in the locality that are predicted to



access the N2 to and from the proposed new diamond interchange. As stated earlier this proposed interchange will be discussed and analysed later in the report.

2.4 Planned Changes to local Road Network

The biggest planned changes to the existing road network in the vicinity of the site from approved developments are as follows:

- The upgrade of MR330 to a 4-lane road from the Salt Rock interchange on the N2 to MR228 which is a condition of approval for the Richmond development, the Brettenwood Estate commercial development and for a new shopping centre located at the northeast quadrant of the Salt Rock interchange on the N2.
- The upgrade of MR228 from MR330 to MR474 which is a condition of approval for the Brettenwood Estate commercial development.
- The upgrade of MR228 from MR474 to the Palermo access in the Seaton Delaval Development which is a condition of approval for the first 600 residential units of the Seaton Delaval development.
- The proposed new Sheffield Beach interchange on the N2 located at the existing MR228 bridge over the N2 which is a condition of approval of the remaining 700 residential units of the Seaton Delaval development.

2.5 Tinley Manor Village

The existing beach village of Tinley Manor, north of the Umhlahi River, is quite small, being approximately two kilometres in length and around 300 metres in width. It consists of two primary roads that run parallel to the coastline with Seaview Drive being the closest to the ocean and providing access to sea front properties. Oceanview Drive is situated one block further inland and it serves residential properties along its length.

Both of these roads connect to provincial road P467 in the north which is the only external connector for Tinley Manor, running north-west from the village to a diamond interchange on the N2 and onwards towards the R102 and Shakaskraal as shown in figure 3.

3. Existing Traffic Conditions

The contents of this chapter have mainly (with additions) been extracted, verbatim, from Aurecon South Africa (Pty) Ltd report number 6478/108498/1 of August 2012 entitled “Status Quo Report on Transport in the Tinley Manor Precinct”.

3.1 Critical Intersections

As a starting point, towards documenting existing traffic conditions in the overall area, traffic counts were carried out by Bala Survey and Research on 13 August 2012 at the following locations which were deemed as being the critical intersections affecting the efficiency of the local road network.

- N2/Salt Rock interchange (P330) (both intersections)
- N2/Tinley Manor (P467) interchange (both intersections)
- The P330/P474 intersection
- The P474/P228 intersection
- The P228/P467 intersection

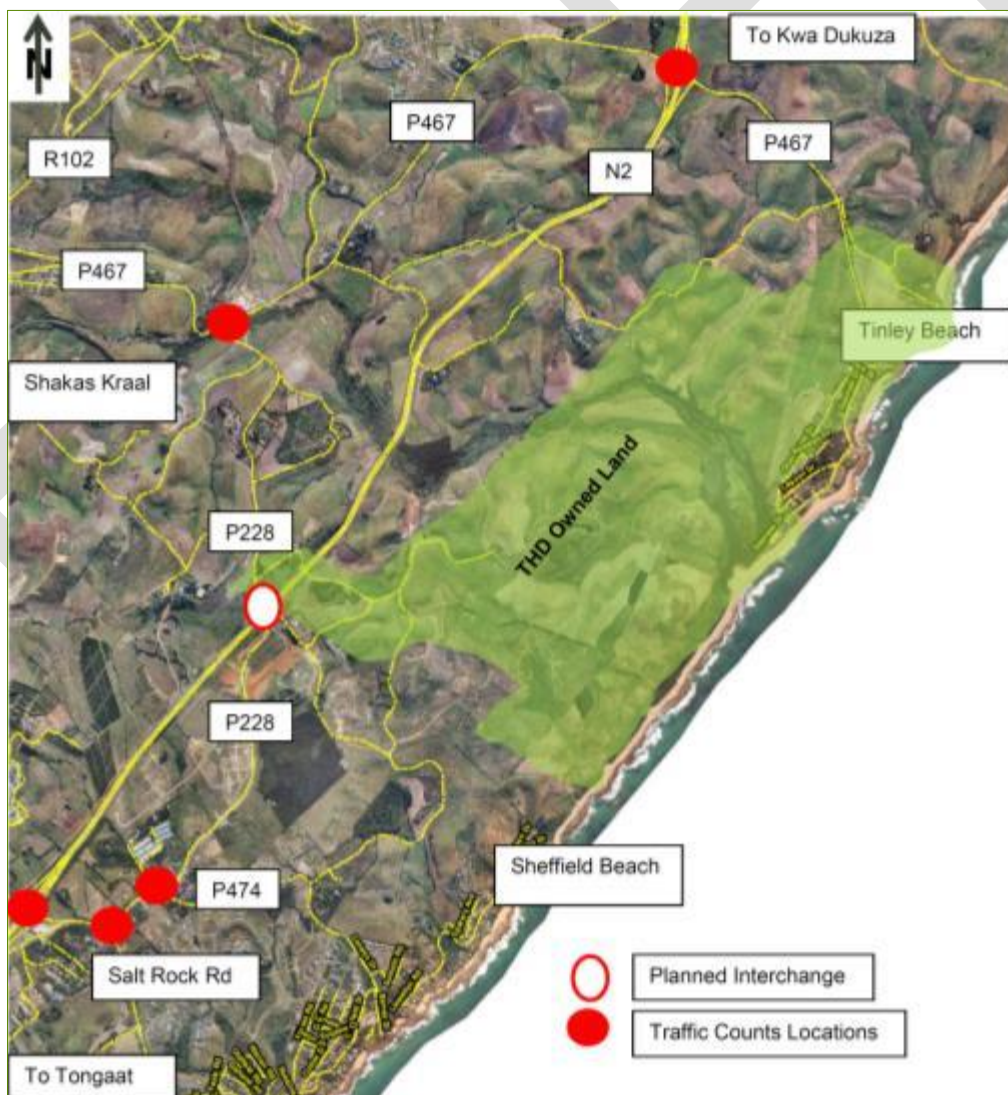


Figure 5: Traffic Count Locations

3.2 National Route 2 (N2) Traffic Counts

In addition to the traffic count locations as shown in figure 5 previously, traffic counts on the N2 were extracted from the SANRAL 2011 yearbook at the following locations:

- Salt Rock interchange
- Umhlali River
- Mvoti Toll Plaza

Note: The information extracted from the SANRAL yearbook sites should be treated with caution as the flows represent highest hourly volume by direction but not hourly volumes that correspond with the counted flows. They are indicative only.

During the analysis of the proposed Sheffield Interchange, it was felt that the traffic counts from 2011 were not an accurate indication of the current volumes of traffic on the N2. Therefore traffic counts were also carried out on the N2 both in the northbound and southbound direction in each lane where the P228 crosses over the N2 by Bala Survey and Research on 16th January 2014 as indicated on Figure 5 at the location "Planned Interchange".

The AM and PM peak hours were found to be from 07:00 to 08:00 and from 16:15 to 17:15 and the traffic volumes on the local road network during these peak hours are as shown below in Figure 6.

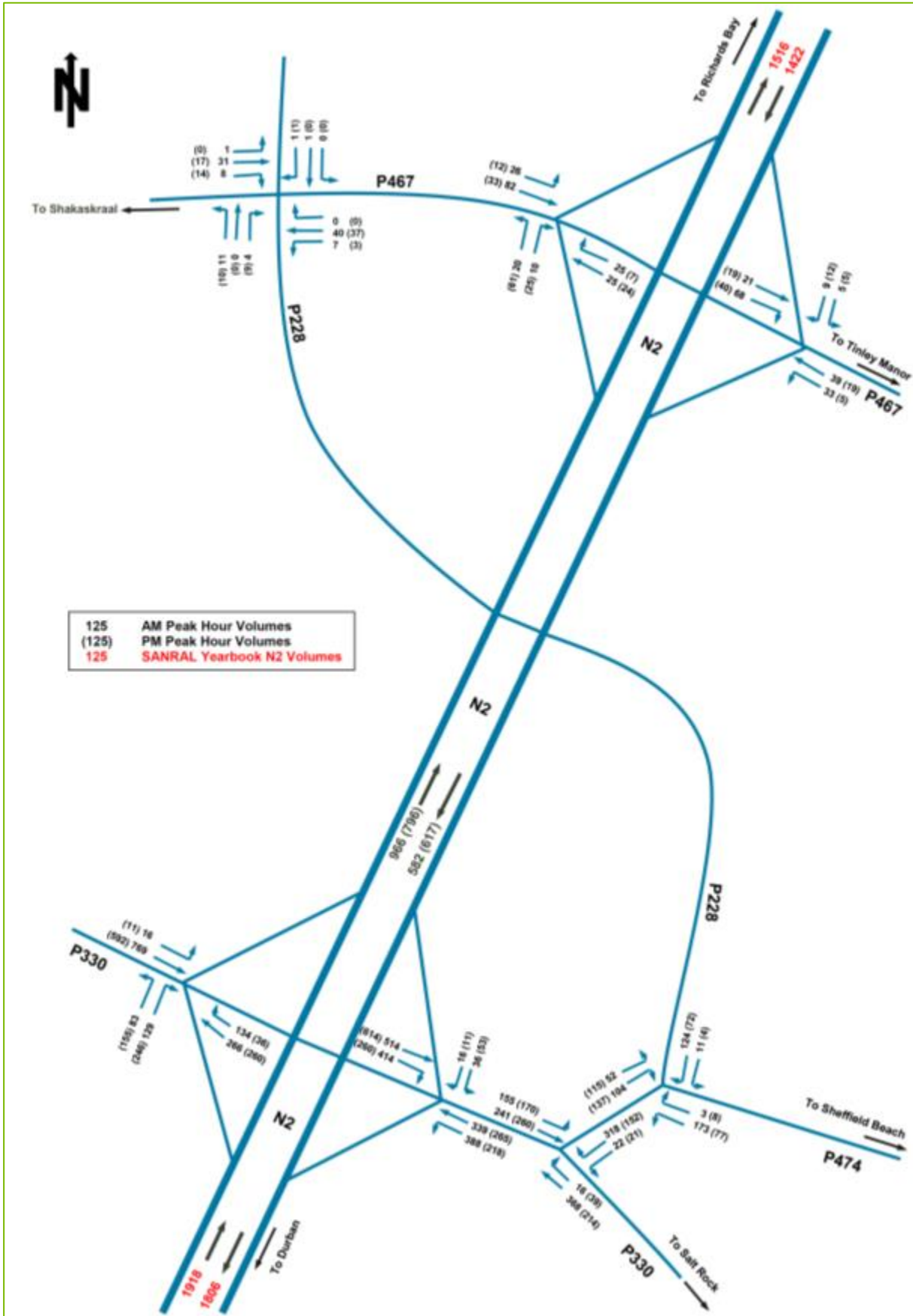


Figure 6: Existing peak hour traffic flows

3.3 Method of analysis

The existing traffic flows were analysed using the computer suite SIDRA to indicate the Level of Service (LOS) of traffic operations on the various elements of the road network.

Level of Service (LOS) is defined as a qualitative measure of the operational conditions within a traffic stream as perceived by road users. This definition generally describes these traffic conditions in terms of speed, travel times, freedom to manoeuvre, traffic interruptions, comfort, convenience and safety. There are six levels of service used to describe the quality of travel on the road network. Each of these levels is given a letter designation from A to F, with LOS A representing the best (free-flow) operating conditions while LOS F represents the least desirable (severely congested) conditions.

The road network surrounding the proposed Tinley Manor Development will be analysed in detail and the current levels of service on the existing road network will be discussed. The levels of service at each intersection will be presented schematically. The following legend will be used to depict the LOS of each movement at the intersections.

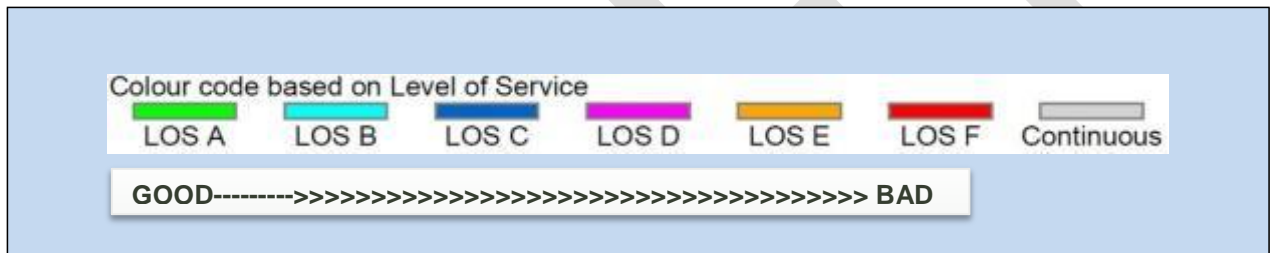


Figure 7: Legend for LOS schematics

3.4 Intersection geometry and LOS

3.4.1 P330 (Salt Rock Road) / N2 Interchange – West - STOP

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P330/N2 interchange west junction are shown below. This is a priority junction.

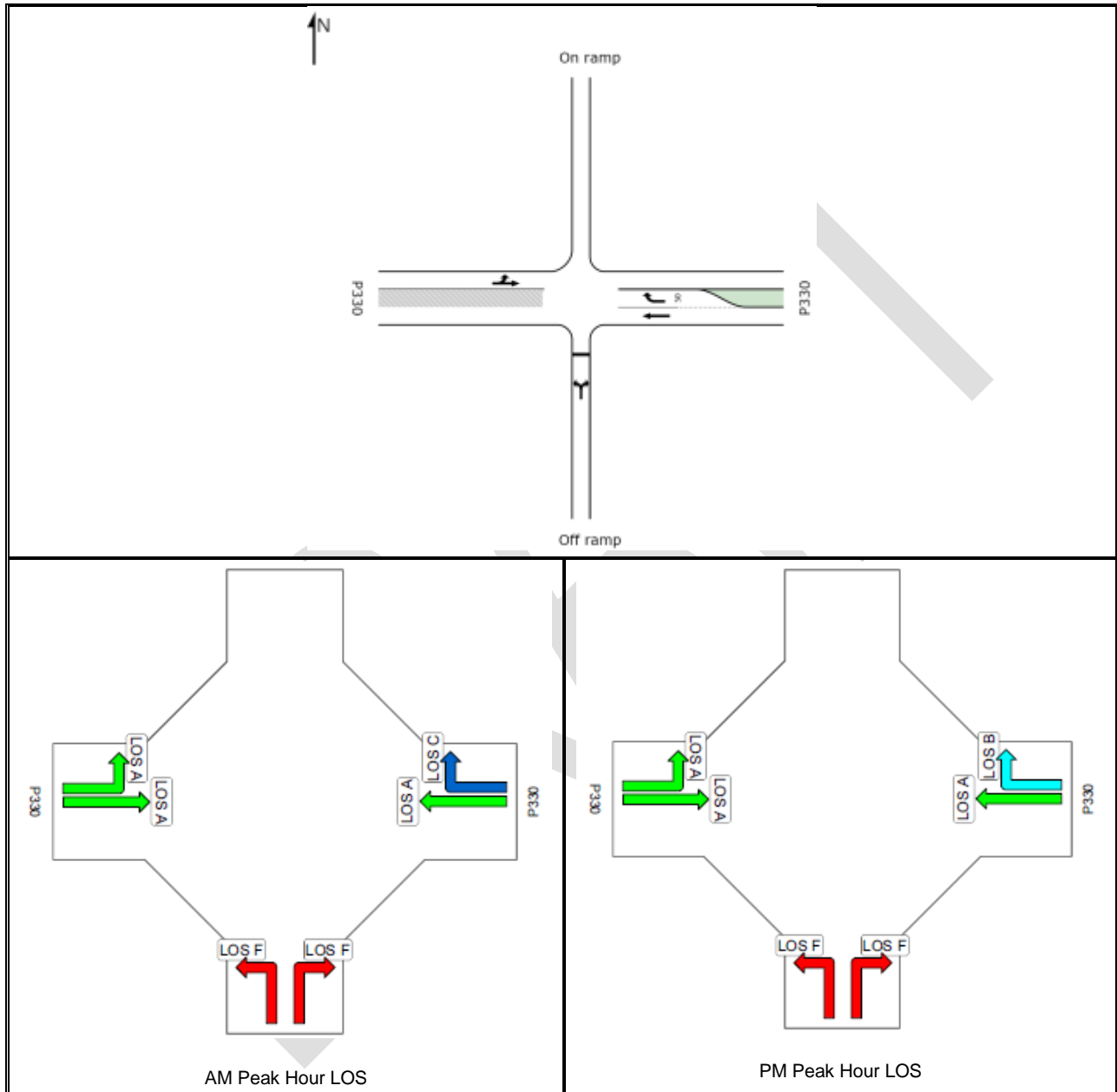


Table 1: Geometry and LOS at P330/N2 interchange, west

It can be seen that, in both peak hours, the level of service on the northbound off ramp is F for both the left and right turn movements while the through movements on P330 are operating at very good levels of service. This is fairly typical of a priority junction where there are high volumes on the through road. The AM LOS F and PM LOS F exhibit long queue lengths and traffic signalling of this intersection is recommended immediately. This will now be investigated.

3.4.2 P330 (Salt Rock Road) / N2 Interchange – West – Traffic Signals

Below shows a potential upgrade to this intersection investigating the implementation of traffic signals.

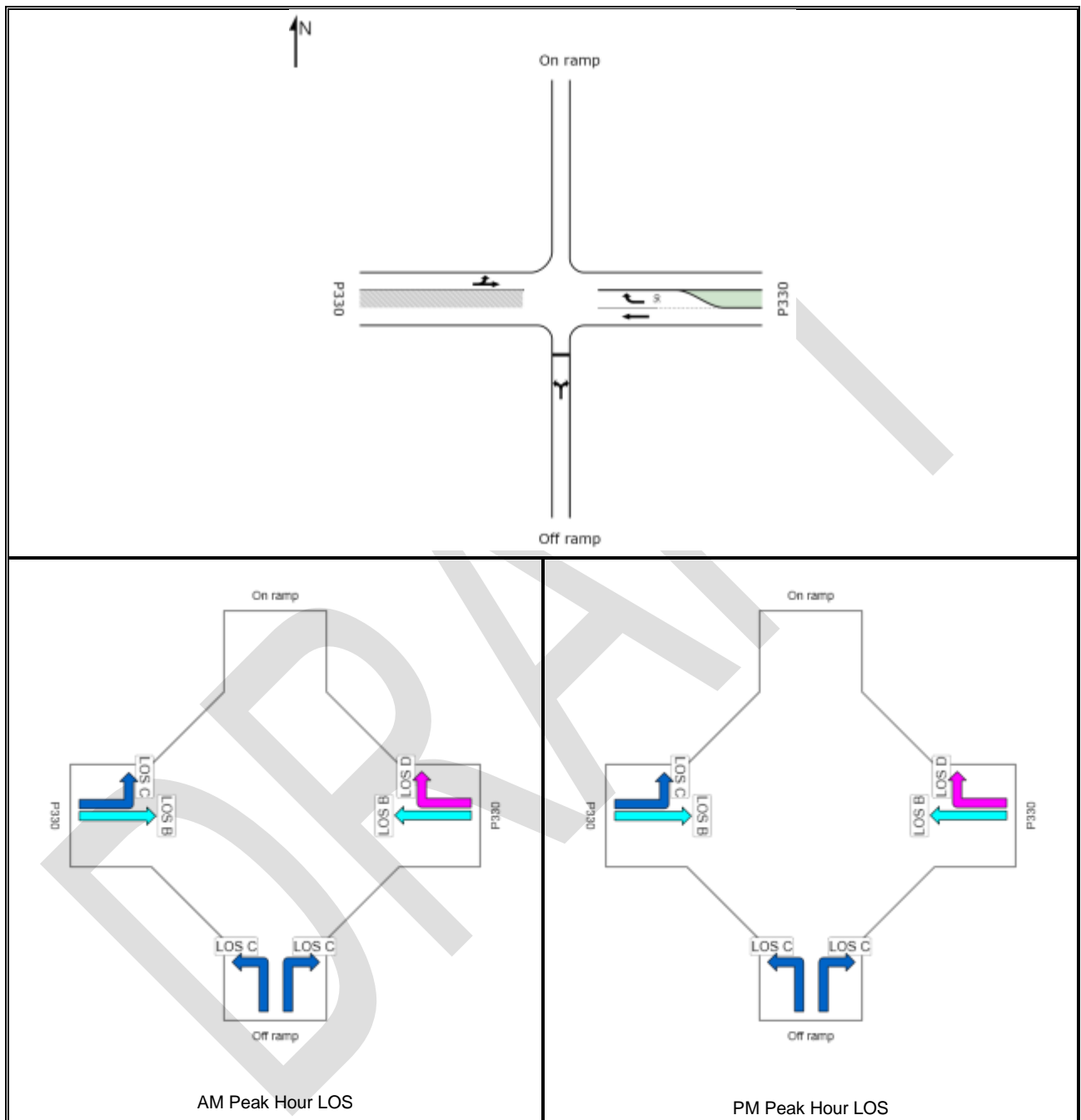


Table 2: Geometry and LOS at P330/N2 Interchange, west – traffic signal implementation

The existing geometry of the intersection is maintained. Although it may be advisable to have separate right and left turn lanes at the south approach to further increase the intersection's capacity.

As can be seen from the LOS diagrams in Table 2 above, signalisation significantly increases the efficiency of this intersection. There is also spare capacity in the intersection for future traffic growth upon implementation of traffic signals.

3.4.3 P330/N2 Interchange – East - STOP

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P330/N2 interchange east junction are shown below. This is a priority junction.

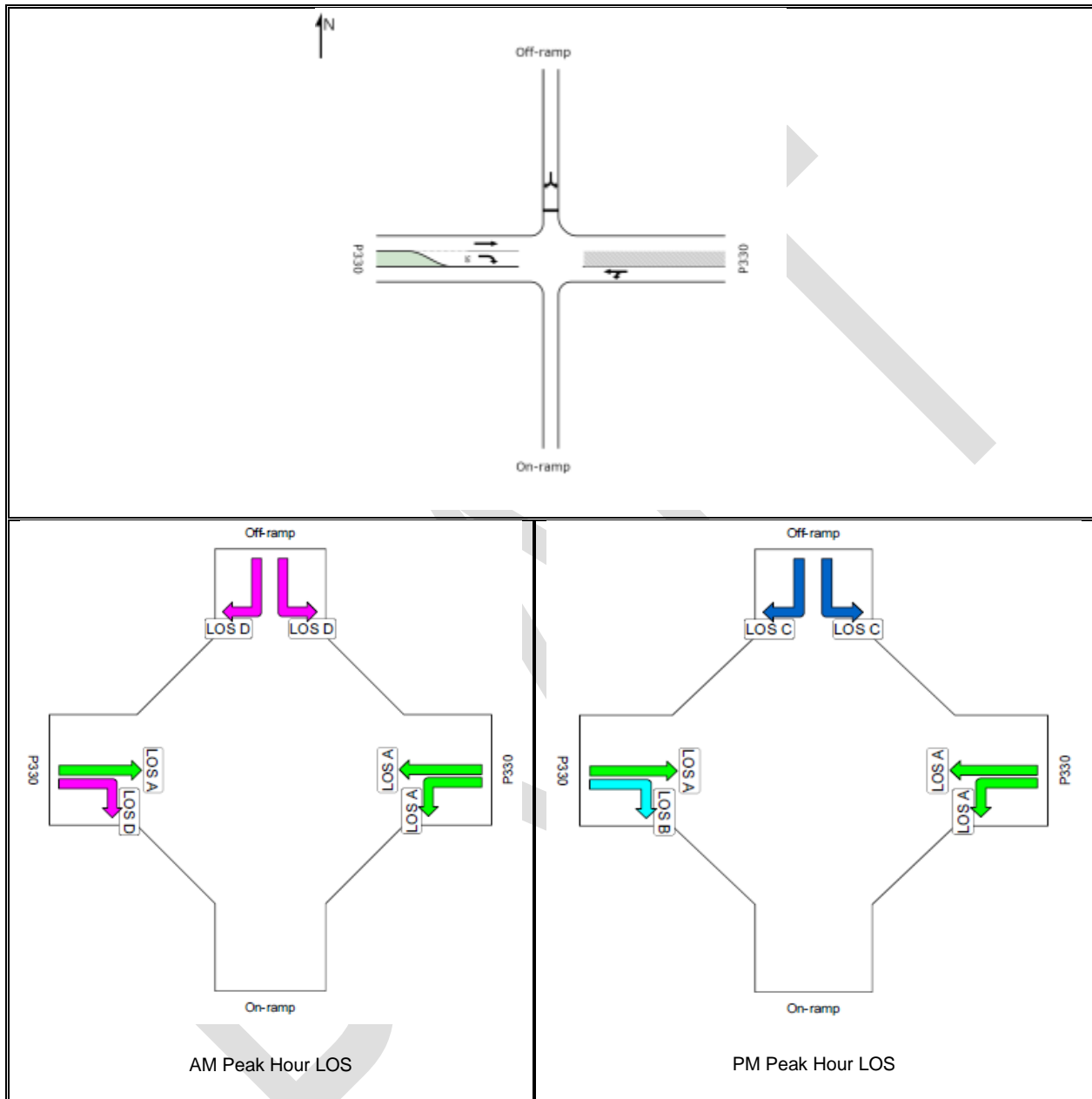


Table 3: Geometry and LOS diagrams at P330/N2 interchange, East

It can be seen that all Levels of Service are acceptable although there are several movements operating at LOS D in the AM peak hour which is an indication that there is not much spare capacity at this intersection.

Based on uniformity and future traffic growth it is recommended that this East intersection of the diamond interchange be signalled simultaneously with the West intersections signalisation.

3.4.4 P330/P474 Intersection - STOP

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P330/P474 intersection are shown below. This is a priority junction.

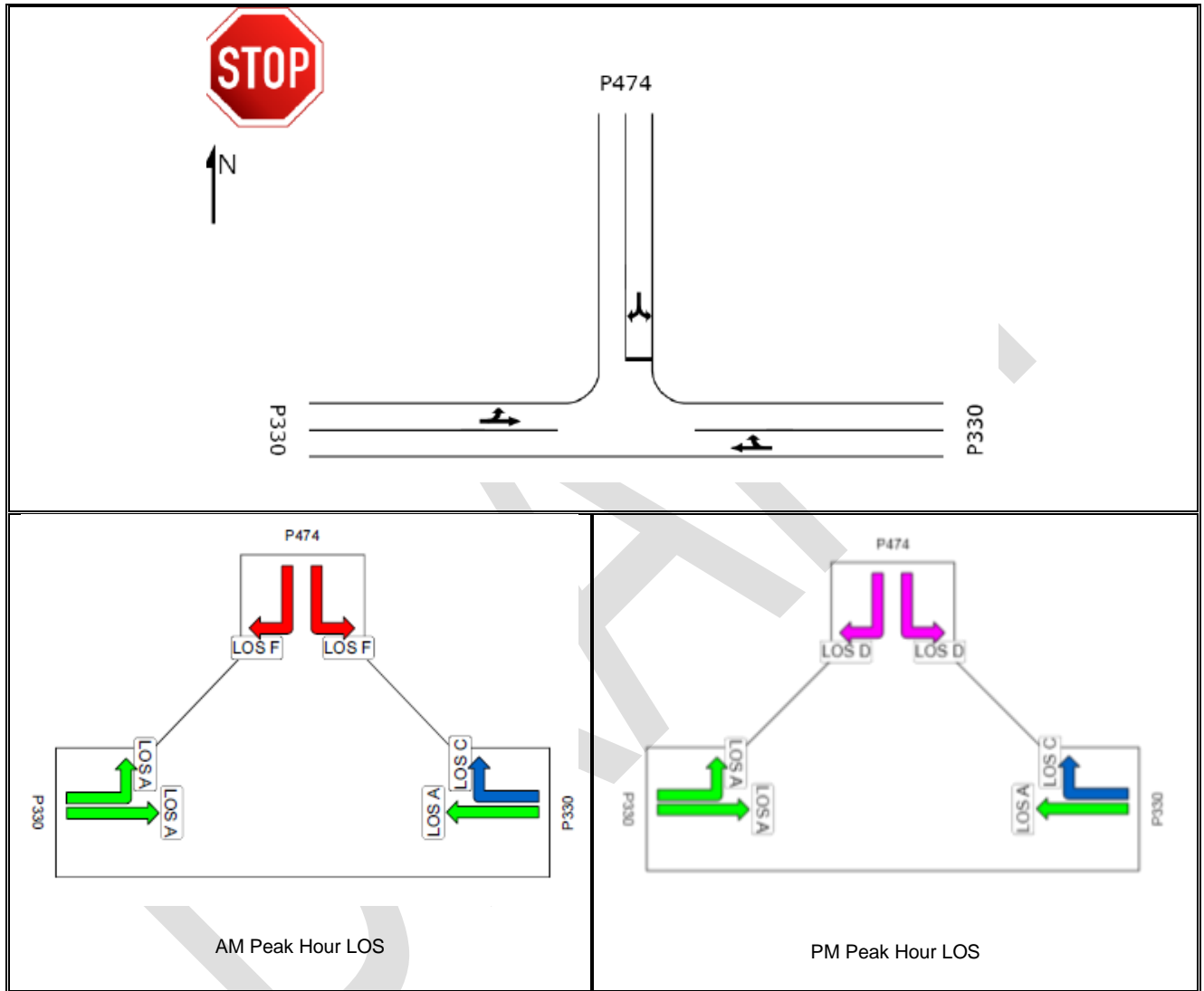


Table 4: Geometry and LOS at P330/P474 intersection

It can be seen that the P474 approach is operating at LOS F in the AM peak hour which is because of the fairly heavy and continuous through flows on P330. There is also a high right turn volume from the P474 onto the P330. The indications are that this intersection presently requires upgrading.

Investigation into a proposed upgrade follows.

3.4.5 P330/P474 Intersection – Proposed upgrade to traffic signals

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P330/P474 intersection are shown below. This is a priority junction.

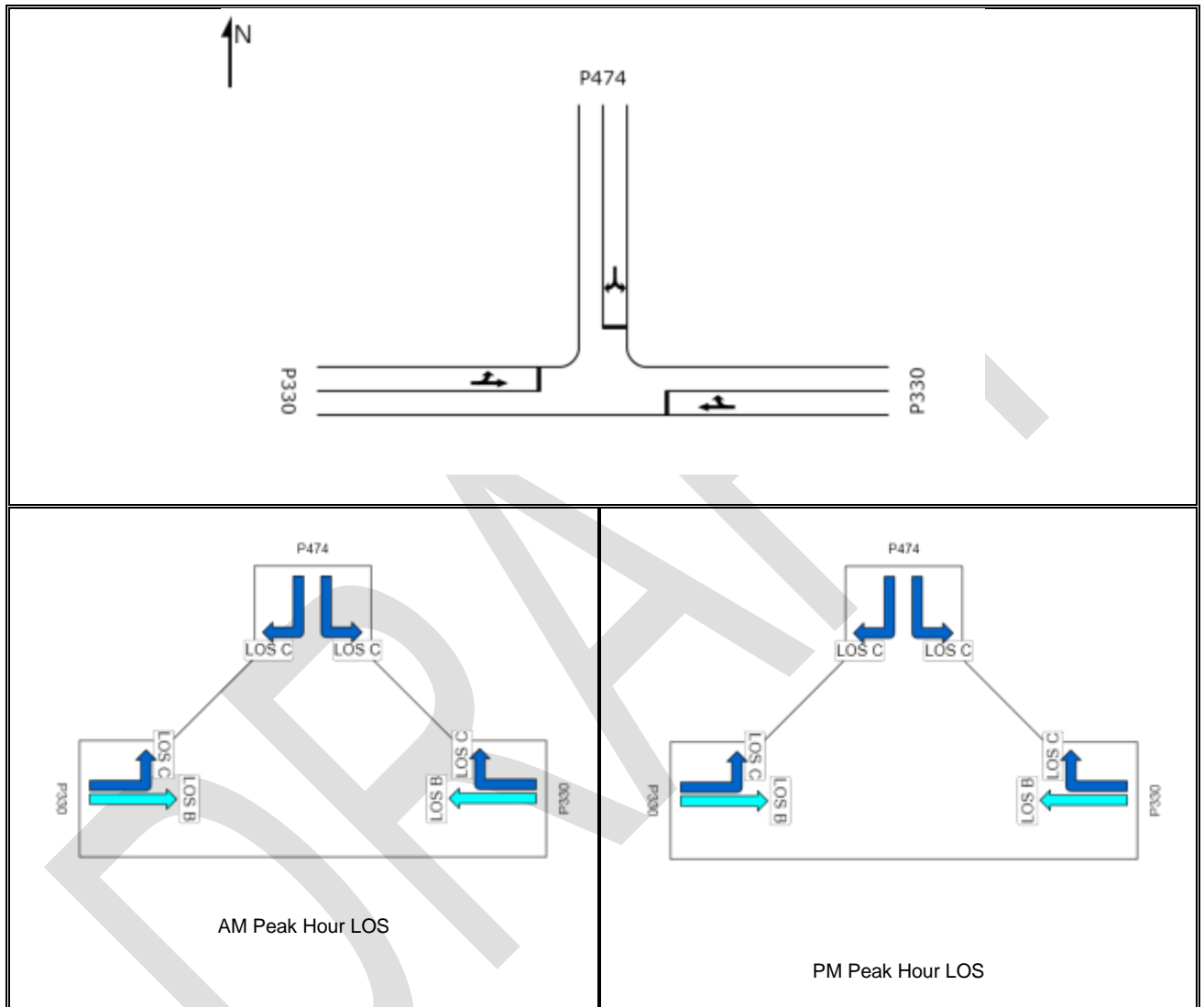


Table 5: Geometry and LOS at P330/P474 intersection upgrade to traffic signals

The existing geometry of the intersection is maintained. Although it may be advisable to have separate right and left turn lanes at the south approach to further increase the intersections capacity.

As can be seen from the LOS diagrams in Table 5 above, signalisation significantly increases the efficiency of this intersection. There is also spare capacity in the intersection for future traffic growth upon implementation of traffic signals.

3.4.6 P474 / P228 Intersection

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P474/P228 intersection are shown below. This is a priority junction.

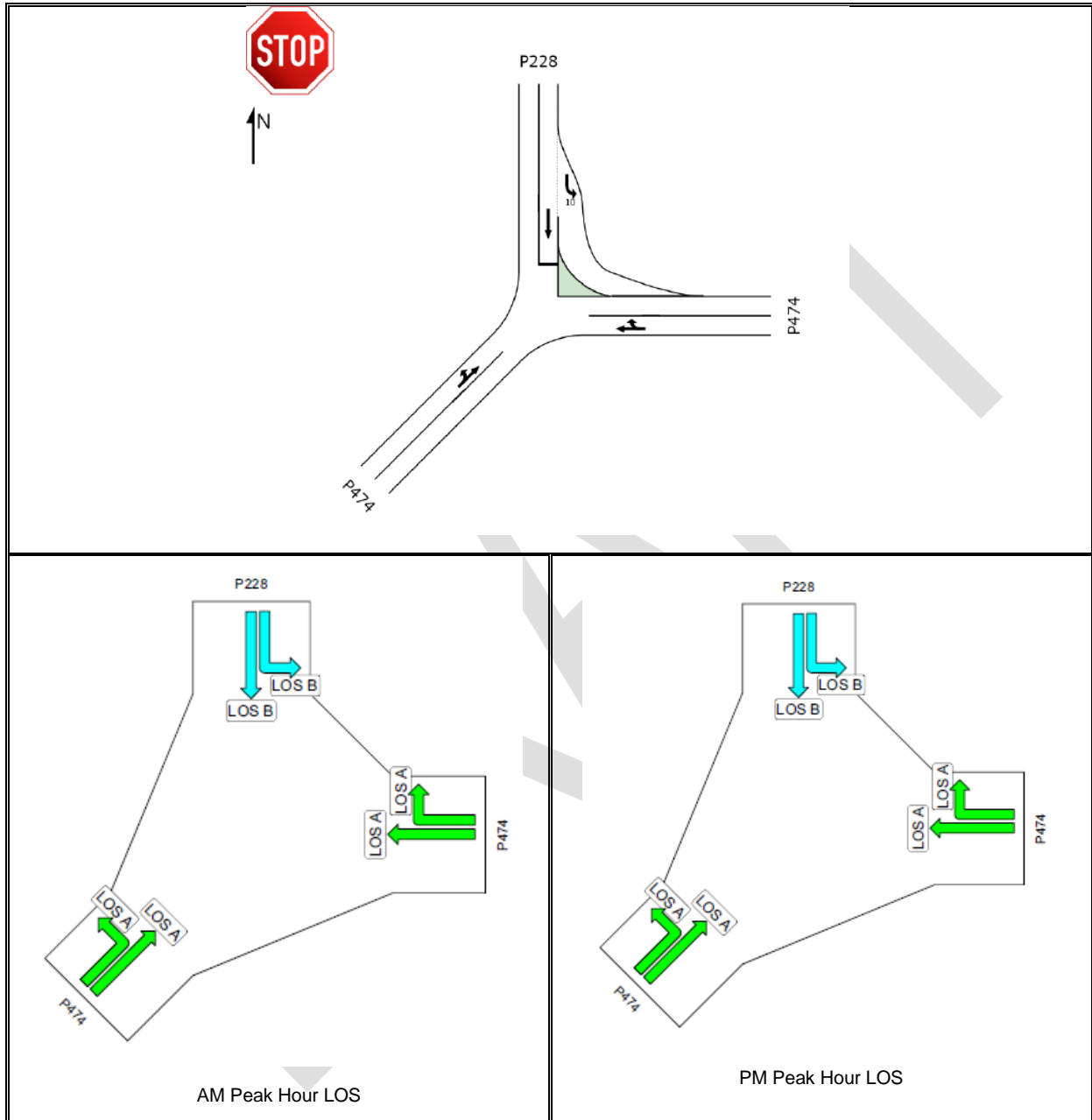


Table 6: Intersection geometry and LOS

It can be seen that all levels of service are good at this lightly trafficked intersection. There is also sufficient capacity for future traffic growth.

3.4.7 4.1.5 P467/N2 Interchange West - STOP

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P467/N2 interchange west junction are shown below. This is a priority junction.

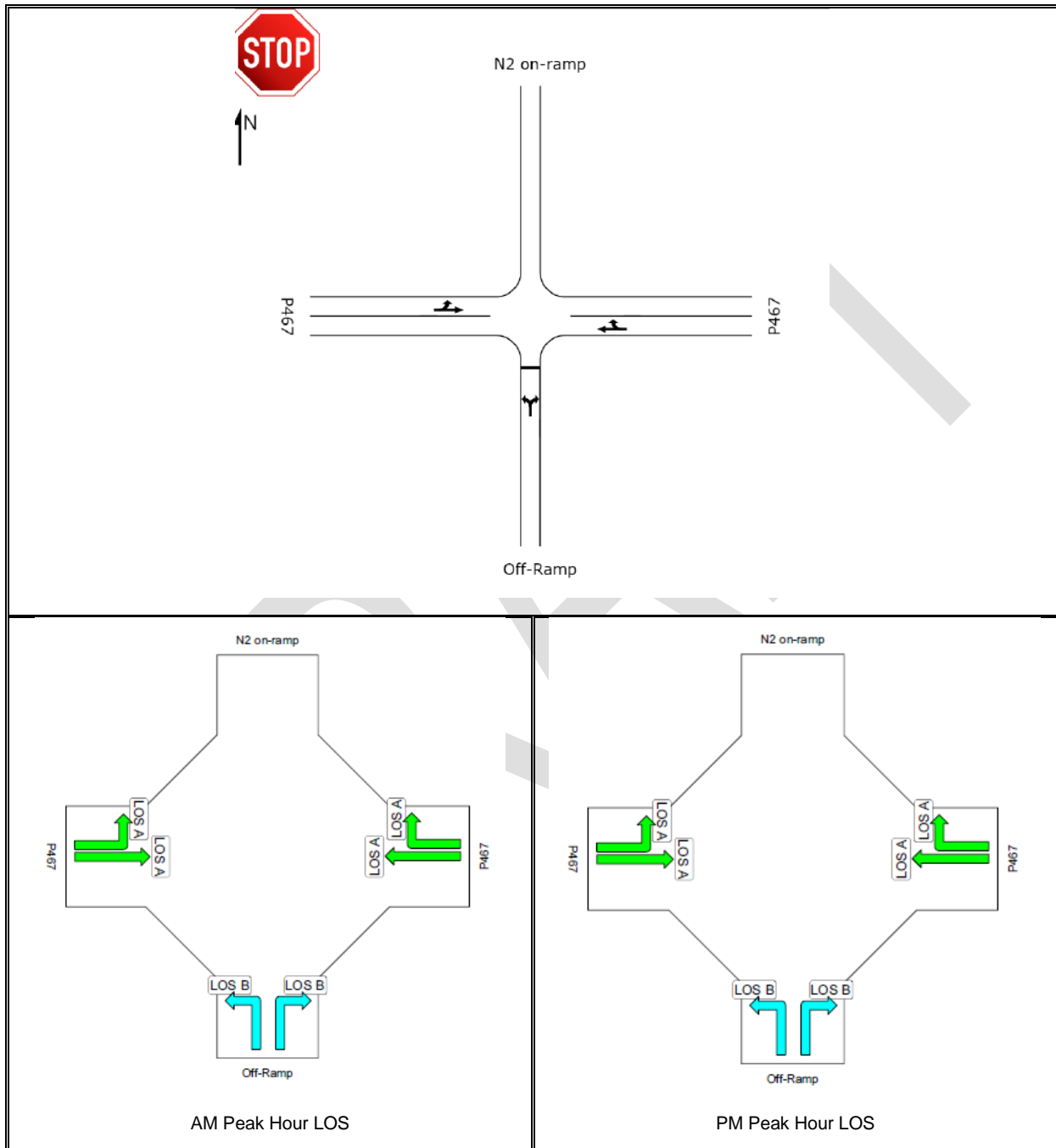


Table 7: Geometry and LOS at P467/N2 interchange west

This intersection operates at good Levels of Service in both peak hours, primarily due to the low traffic volumes experienced at present. There is sufficient capacity to handle future traffic growth.

3.4.8 P467/N2 Interchange East - STOP

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P467/N2 interchange east junction are shown below. This is a priority junction.

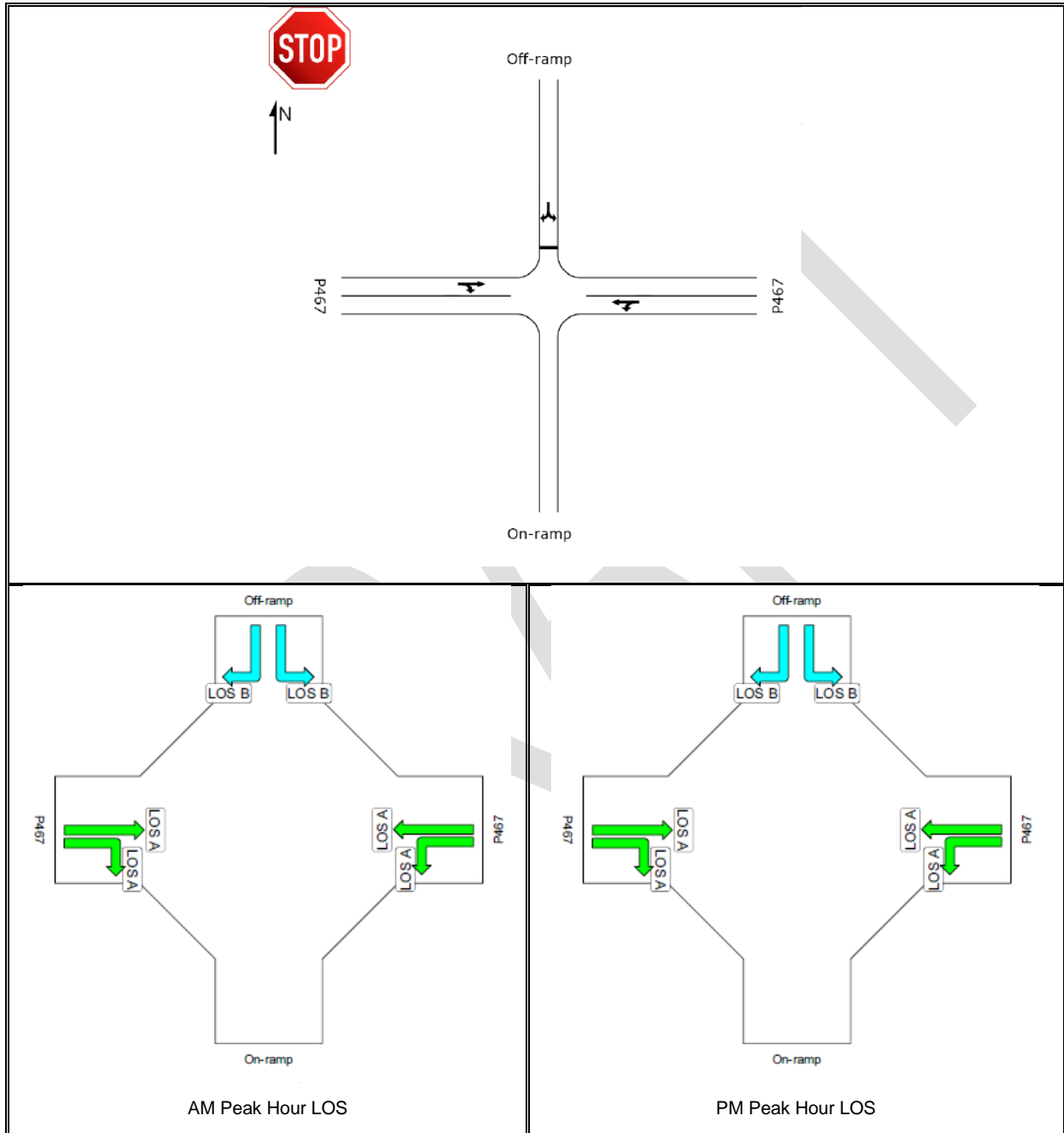


Table 8: Geometry and LOS of P467/N2 interchange east.

It can be seen that all Levels of Service are excellent at this lightly trafficked intersection. There is sufficient capacity to handle future traffic growth.

3.4.9 P228/P467 Intersection

The intersection geometry and SIDRA analyses of the AM and PM peak hours at the P228/P467 are shown below. This is a priority junction.

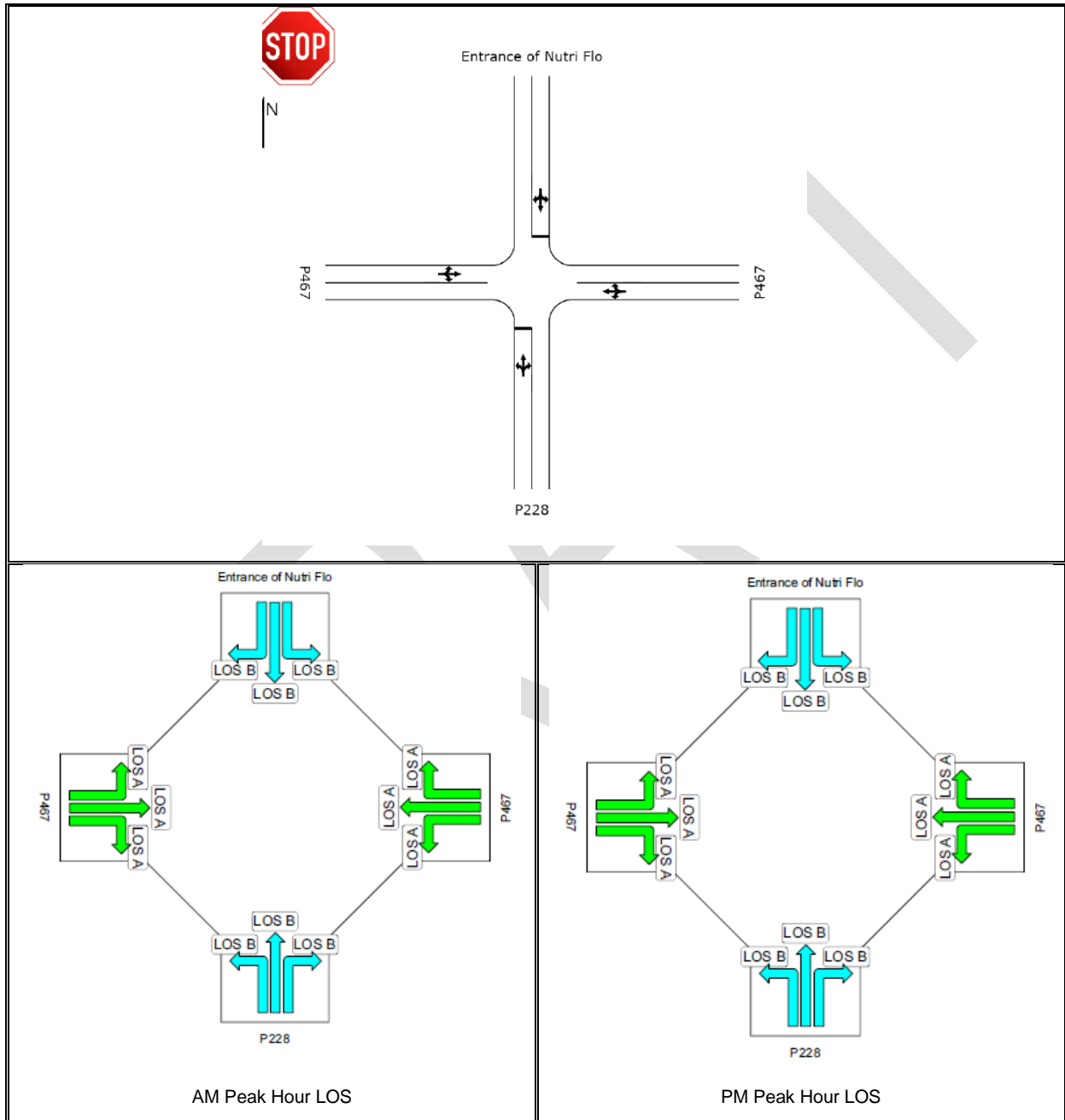


Table 9: Geometry and LOS of P228/P467 intersection

It can be seen that all Levels of Service are excellent at this lightly trafficked intersection.

3.5 Summary of Existing Traffic Conditions

The following table summarises the existing (2012) conditions at the various intersections.

INTERSECTION	OPERATING CONDITIONS (2012)	Worst LOS	
		AM	PM
P330 / N2 ramps Salt Rock Interchange West side of N2	Good conditions on P330 but congestion/delays on off-ramp. Needs signalisation.	F	F
P330 / N2 ramps Salt Rock Interchange East side of N2	Acceptable conditions throughout but ramp movements nearing capacity. Should be signalised at same time as west side.	D	C
P330 / P474	Poor conditions on P474 stop street in AM peak causing delays on minor road. Needs traffic signalisation.	F	D
P474 / P228	Low traffic volumes. Good conditions.	B	B
P467 / N2 ramps Tinley Manor Interchange West side of N2	Low traffic volumes. Good conditions.	B	B
P467 / N2 ramps Tinley Manor Interchange East side of N2	Low traffic volumes. Good conditions.	B	B
P228 / P467	Low traffic volumes. Good conditions.	B	B

Table 10: Summary of existing operating conditions

3.6 Comments and observations

- High volumes of traffic are witnessed approaching from the south via the N2. The LOS F witnessed is primarily due to this. It is recommended that these critical intersections be addressed due to the high growth rate of the area.
- The high volumes of traffic are primarily witnessed in tidal flow, i.e. outgoing trips from the residential developments in the AM peak hour and inbound trips towards the residential developments in the PM peak hour.
- Congestion and delays at lightly trafficked intersections are likely to increase due to the construction of several new residential estates in the area.

4. Proposed Mixed Use Development

4.1 Development Potential

As stated earlier, THD proposes to develop a large section of their land known as Tinley Manor South Banks. Tinley Manor South Banks will be a new residential, resort and commercial estate with a mix of lifestyle options including food production zones, integrated through a well-designed, high quality, safe and secure network of public spaces and commercial and social facilities. It will have a human scaled settlement form that promotes the use of non-motorised transport, social engagement and community cohesion as well as care for the environment and the sustainable use of natural resources.

The site structure is predetermined largely by the geographic elements of the site i.e. Ecology, topography, geology and hydrology. These have been integrated into an open space network which along with existing and proposed movement corridors creates developable pockets of land. The ocean, Umhlahi River, the adjacent proposed development Seaton Delaval and the N2 are the main boundaries of the site, whilst the internal wetland systems and associated geophysical attributes of the locality into development blocks. Table 11 below shows the summarised land use schedule for the proposed Tinley manor South Banks Development.

	Area/ Ha	% Total	% Dev	FAR	Bulk (m ²)	Units	Height (Storeys)
Total Site Area	437.00						
Open Space System	278.30	61.8	0.0				
Residential 1 (High Density Residential)	33.50	7.7	21.4	1.0	335000	(75units/ha) 2513	2 to 6
Residential 2 (Low -Medium Residential)	64	14.6	40.9	0.5	320000	(35units/ha) 1120	max 3
Low Impact Mixed Use	2.90	0.7	1.9	1.0	29000	(60%res @75 units/ha) = 131 units	max 3
Medium Impact Mixed Use	17.80	4.1	11.4	1.0	178800	(40%res @75 units/ha) = 534 units	2 to 6
Resort 1	31.6	7.2	20.2	0.25	79000	55m ² /room 1436rooms	max 4
Resort 2	2.80	0.6	1.8	0.25	7000	55m ² /room 127rooms	max 4
Service Area and Nursery	6.10	1.4	3.9				
TOTAL DEVELOPABLE	158.70	36.32	100		948800	4298 units 1563 resort rooms	

Table 11: Land Use Schedule for the Proposed Tinley Manor Development

- Residential 1 (High Density): Two precincts that consist of clusters of a high density of residential developments to accommodate building heights up to six stories.
- Residential 2 (Low to Medium Density): Five precincts each made up of one to three distinct housing clusters.
- Low Impact Mixed Use: A centrally located commercial and community node along with high density housing.
- Medium Impact Mixed Use: Located outside the main estate consisting of commercial and residential components.
- Resort: Five precincts that aim to optimise coastal frontage.
- Service Area & Nursery: This area aims to provide for the maintenance and operational requirements of the estate.

4.2 Schematic Layout

A schematic layout of the proposed development is shown below in figure 8.

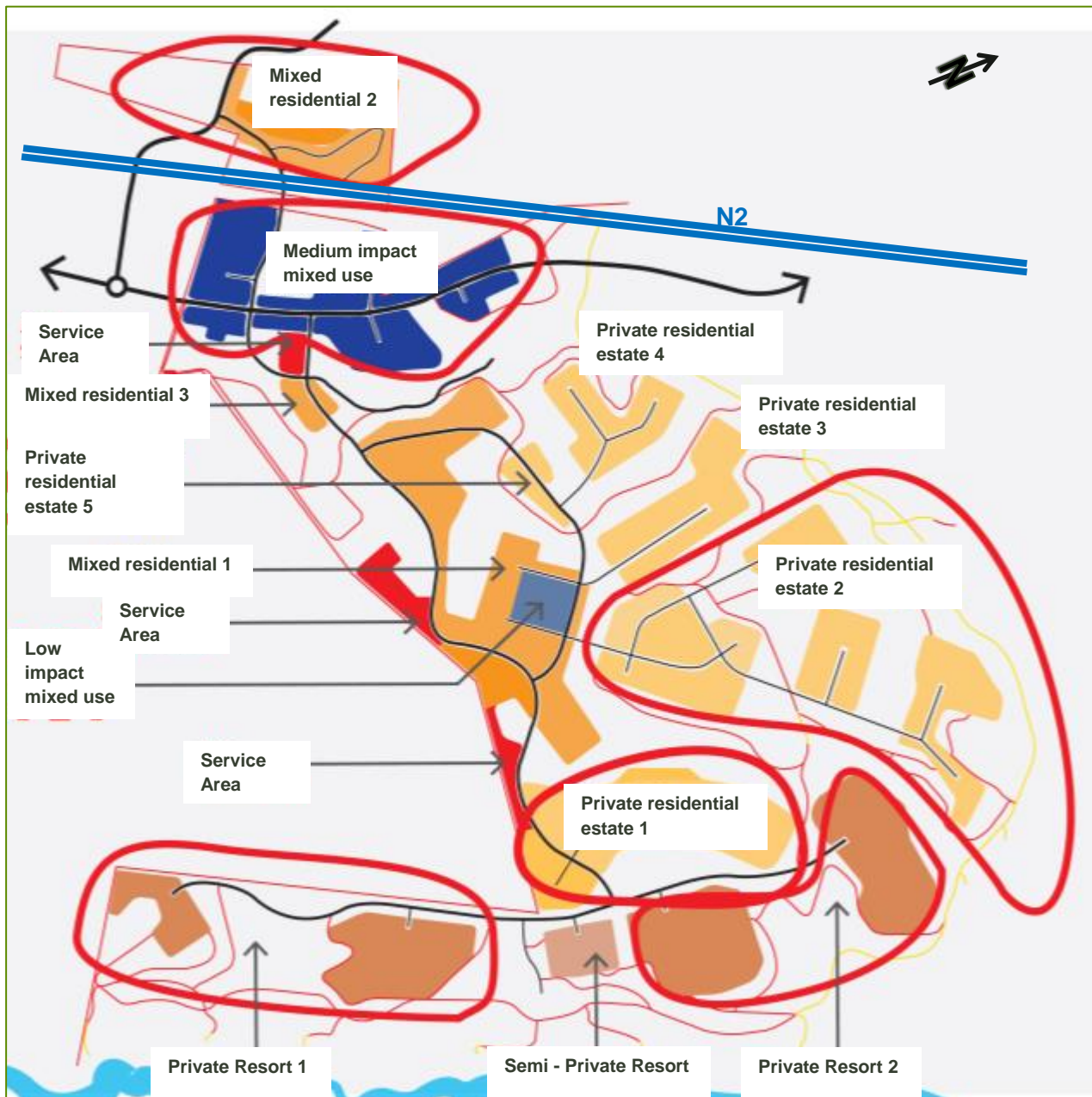



Figure 8: Layout of proposed development

(source: Royal Haskoning DHV)

4.3 Vehicular Access

The majority of the Tinley Manor South Banks Development lies east of the N2. Most of the traffic generated by the development is predicted to arrive and depart to and from north and south on the N2.

The primary access point to the development is from the proposed Sheffield Beach interchange on the N2 and then east onto the P228. Entrance to the development is on the north end of P228. A small proportion of the trips generated by this section of the development are also predicted to arrive from



Umhlahi and Salt rock in the south. This traffic will use the P330 and P474 traversing eastbound from these towns and then north parallel the N2 on the P228.

A minor number of trips are also expected to arrive from further inland in the west. This traffic will use the P467 and traverse eastbound over the N2 on the P228 and into the development.

A portion of the residential development is located west of the N2. The traffic generated by this portion is also expected to use the proposed Sheffield Beach interchange with the N2, east via the P228 and into the development.

4.4 Pedestrian Access

The majority of the pedestrian traffic generated by this proposed development is expected to originate from the semi-rural and informal residential areas situated between the town of Kwa Dukuza and the site. Most of these pedestrians will be arriving from west of the N2. The proposed Sheffield Beach interchange is to provide a pedestrian walkway. The main pedestrian access is to be alongside the main access road with dedicated pedestrian walk ways provided.

4.5 Traffic Generation

This section predicts realistic volumes of traffic likely to be generated by the proposed Tinley Manor South Banks Development. Careful consideration and engineering judgement have been applied to the trip generation rates that are listed in the South African Trip Generation Manual and the “Trip Generation Manual”, produced by the US Institute of Transportation Engineers (1991). Trip generation rates that were recommended in the Traffic Impact Assessments of similar developments in the locality were also used as guidelines and indicators to achieve the most realistic and accurate volume traffic to be generated by Tinley Manor South Banks Development.

It was deemed necessary to apply a reduced trip generation rate for the residential component of the development. The South African Trip Generation manual indicates a rate of 1.5 two way trips per dwelling unit for high income residential and 1.1 two way trips per dwelling unit for cluster housing in the AM and PM peak hours respectively.

A reduced trip generation rate of 0.75 two way trips per dwelling unit has been applied (as was done for inter alia Seaton Delaval, Palm Lakes and to an extent Inkwazi, all being the adjacent major traffic generating developments). The logic behind this is as follows:

- Internal trips, possibly not by vehicle, for people who live and work in the development.
- People who work from home which is an increasing phenomenon linked to the information era.
- Homes that are not permanently occupied such as holiday homes and second homes.
- Homes occupied by retired people which do not generate peak hour trips.

The trip generation rates of the commercial and office precincts of the proposed development have not been reduced and have been extracted from the South African Trip Generation manual. The trip generation rate of the resort precinct was not available in the South African Trip Generation manual and has hence been extracted from “Trip Generation Manual”, produced by the US Institute of Transportation Engineers (1991).

The following illustrates the anticipated generated peak hour trips per component of the development (see Figure 8).

4.5.1 Private residential estate (1) – 19.4 ha & 340 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 255 trips**

4.5.2 Private residential estate (2) – 27.7 ha & 485 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 364 trips**

4.5.3 Private residential estate (3) – 8.9 ha & 156 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 117 trips**

4.5.4 Private residential estate (4) – 6.6 ha & 115 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 87 trips**

4.5.5 Private residential estate (5) – 1.4 ha & 24 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 18 trips**

4.5.6 Mixed residential estate (1) – 21.7 ha & 1628 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 1221 trips**

4.5.7 Mixed residential estate (2) – 10.4 ha & 780 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 585 trips**

4.5.8 Mixed residential estate (3) – 1.4 ha & 105 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75veh/h two-way per dwelling unit for the weekday peak hour = 79 trips**

4.5.9 Medium impact mixed use – Commercial component – 5.34 ha

- Directional split: AM (50 in: 50 out), PM (50 in: 50 out).
- 30% of 17.8 ha = 5.34 ha. Less 50% (Parking and unused) = 2.67 ha GLA
- Therefore GLA = 26 700m²
- Fri PM: 7.01 trips/100m², Sat AM: 11.76 trips/100m²
- **Therefore Fri PM: 1874 trips & Sat AM: 3140 trips**

4.5.10 Medium impact mixed use – Offices component – 5.34 ha

- Directional split: AM (85 in: 15 out), PM (15 in: 85 out).
- 30% of 17.8 ha = 5.34 ha. less 50% (Parking and unused) = 2.67 ha GLA
- Therefore GLA = 26 700m²
- **2.3 veh/h two-way per 100m² of GLA for the weekday peak hour = 614 trips**

4.5.11 Medium impact mixed use – Residential component – 7.12 ha & 534 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 401 trips**

4.5.12 Private resort (1) – 13.2 ha & 600 Rooms

- Directional split: AM/PM (50 in: 50 out).
- **AM : 0.33 veh/h two-way per room for the weekday peak hour = 198 trips**
- **PM : 0.5 veh/h two-way per room for the weekday peak hour = 300 trips**
- SA Trip generation rates – General hotel: 0.7veh/h/room. No value for residential private resort.
- “Manual for Engineering Service Contributions and Traffic Impact Assessments in Gauteng” Hotel (residential): AM 0.4 veh/h/room, PM 0.45 veh/h/room.
- “Institute of transportation engineers” Resort Hotel : AM 0.33 veh/h/room, PM 0.48 veh/h/room

4.5.13 Private resort (2) – 18.5 ha & 840 Rooms

- Directional split: AM/PM (50 in: 50 out)
- **AM : 0.33 veh/h two-way per room for the weekday peak hour = 277 trips**
- **PM : 0.5 veh/h two-way per room for the weekday peak hour = 420 trips**

4.5.14 Semi-private resort – 2.8 ha & 127 Rooms

- Directional split: AM (45 in: 55 out), PM (55 in: 45 out).
- **AM : 0.33 veh/h two-way per room for the weekday peak hour = 42 trips**
- **PM : 0.5 veh/h two-way per room for the weekday peak hour = 64 trips**

4.5.15 Low impact mixed use (residential) – 2.9 ha & 131 Dwelling Units

- Directional split: AM (25 in: 75 out), PM (75 in: 25 out).
- **0.75 veh/h two-way per dwelling unit for the weekday peak hour = 98 trips**

The above trip generation rates are summarised in the table below:

LAND USE	UNITS/GLA	GEN RATE	SPLIT	TRIPS	AM PEAK		PM PEAK	
					IN	OUT	IN	OUT
Private residential estate 1	340 Du / 19.4 Ha	0.75 / du	25 : 75	255	64	191	191	64
Private residential estate 2	485 Du / 27.7 Ha	0.75 / du	25 : 75	364	91	273	273	91
Private residential estate 3	156 Du / 8.9 Ha	0.75 / du	25 : 75	117	29	88	88	29
Private residential estate 4	115 Du / 6.6 Ha	0.75 / du	25 : 75	87	22	65	65	22
Private residential estate 5	24 Du / 1.4 Ha	0.75 / du	25 : 75	18	5	13	13	5
Mixed residential 1	1628 Du / 21.7 Ha	0.75 / du	25 : 75	1221	305	916	916	305
Mixed residential 2	780 Du / 10.4 Ha	0.75 / du	25 : 75	585	146	439	439	146
Mixed residential 3	105 Du / 1.4 Ha	0.75 / du	25 : 75	79	20	61	61	20
Medium impact mixed use (commercial)	30% of 17.8 Ha = 5.34 Ha – 50% (Parking and unused). GLA = 2.67Ha	PM: 224.5 * GLA ^{-0.34} Sat AM: 250.2 * GLA ^{-0.3}	50:50	1874/3140	1570	1570	937	937
Medium impact mixed use (Offices)	30% of 17.8 Ha = 5.34 Ha – 50% (Parking and unused). GLA = 2.67Ha	2.3 / 100m ² GLA	85 : 15	614	522	92	92	522
Medium impact mixed use (residential)	40% of 17.8 Ha = 7.12 Ha / 534 Du	0.75 / du	25:75	401	100	301	301	100
Private resort 1	600 rooms /13.2 Ha	0.33 (0.5) / room	50 : 50	198/ 300	99	99	150	150
Private resort 2	840 rooms /18.5 Ha	0.33 (0.5) / room	50 : 50	277/ 420	138	139	210	210
Semi private resort	127 rooms / 2.8 Ha	0.33 (0.5) / room	55 : 45	42/ 64	19	23	35	28
Low impact mixed use (residential)	131 Du / 2.9 Ha	0.75 / du	25 : 75	98	25	73	73	25
Total					3155	4343	3844	2654

Table 12: Summary of trip generation Tinley Manor South Banks Development

4.6 Trip Distribution

The distribution of the generated trips to the internal and external road network is to be as follows:

TRIP ORIGIN / END	LAND USE		
	Residential	Resort	Commercial / Office
To / from South via N2/P228	60%	70%	10%
To / from Umhlali via P474, P330	2%	2%	5%
To / from Salt Rock via P330	3%	3%	4%
To / from North via N2	18%	12%	3%
To / from west via P228	2%	8%	4%
Internal	15%	5%	75%
Total	100%	100%	100%

Table 13: Trip distribution in percentages Tinley Manor South Banks Development

4.6.1 Residential

The majority of the residential generated traffic is expected to be commuter trips southbound on the N2 towards Ballito/eThekweni in the AM peak hour and back into the development in the PM peak hour. 18% of the traffic is expected to and from north via the N2 towards KwaDukuza and 15% internal trips within the development.

4.6.2 Resort

The majority of the resort generated traffic is expected to be from the greater Durban area. A small percentage is also expected from Northern KZN.

4.6.3 Commercial & Office

It is predicted that the majority of the offices and commercial dwellings are to be owned or rented by residents within the development. A small percentage of low and middle class employees are expected to commute daily, hence representing the external trips generated by this node.

The traffic distribution shown above in Table 13 may now be applied to the peak hour traffic volumes to exhibit the number of peak hour trips to and from each direction of the external road network as shown below.

TRIP ORIGIN / END	LAND USE											
	Residential				Resort				Commercial / Office			
	AM		PM		AM		PM		AM		PM	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
To / from South via N2/P228	484	1452	1452	484	179	183	277	272	209	166	103	146
To / from Umhlali via P474, P330	16	48	48	16	5	5	8	8	105	83	51	73
To / from Salt Rock via P330	24	73	73	24	8	8	12	12	73	58	36	51
To / from North via N2	145	436	436	145	31	31	47	47	52	42	26	36
To / from west via P228	16	48	48	16	20	21	32	31	84	66	41	58
Total	686	2057	2057	686	243	248	375	369	523	416	257	365

Table 14: Trip distribution in traffic volumes Tinley Manor South Banks Development

4.7 Integrated Development Planning & Public Transport Network

The investigation of the impact of traffic generated by Tinley Manor South Banks on the external road network requires comprehensive understanding and integration of existing and planned future major developments that generate large volumes of traffic. It is obvious that these large developments will have a significant impact on the local and surrounding road network.

Seaton Delaval (formerly Sheffield Beach) is planned on the east side of the N2 adjacent to Tinley Manor South Banks. West of the N2 are the planned developments of Inkwazi and Palm Lakes. The Traffic Impact Assessments of these developments were used to extract the trip generation and trip distribution rates respectively, which are summarised later in this chapter. The traffic generated from these developments was then added to the traffic generated by Tinley Manor South Banks and the road network analysed. (to follow further in the report)

The “mini town” nature of these developments shows a similar traffic movement pattern. The following can be noted:

- A high percentage of external trips are daily commuter trips southbound on the N2 towards eThekweni, hence tidal flow out in the AM peak hour and back in the PM peak hour.
- A high percentage of all trips are internal trips, possibly not by vehicle, for people who live and work in the development.
- The remaining small percentage of all trips is to and from KwaDukuza in the north as well as to and from neighbouring beach towns of Ballito and Salt Rock.

It is this distinct trend of large volumes of traffic commuting daily to and from eThekweni that motivates a substantial upgrade to the public transport network of the area. It is likely that the Ilembe Municipality will develop something along the lines of the Integrated Rapid Public Transport Network (IRPTN) in the north to cater for these large “mini-town” developments.

It is hence predicted that the traffic generated by these developments will decrease as an increased number of middle to upper income households use public transport for daily commuter trips. This reduction can also be applied to local trips generated by these developments as a comprehensive public transport network upgrade is predicted to be in order. Thus all external trips generated by proposed major developments are estimated to be decreased by 10 percent to show a realistic traffic generation model.

The following table shows the total volumes of traffic generated by Tinley Manor South Banks Development after a reduction of external trips by 10 percent due to the upgrade of the local and external public transport network.

TRIP ORIGIN / END	AM		PM	
	IN	OUT	IN	OUT
To / from South via N2/P228	785	1621	1648	812
To / from Umhlali via P474, P330	113	123	97	87
To / from Salt Rock via P330	95	125	108	78
To / from North via N2	205	458	458	205
To / from west via P228	108	122	109	95

Table 15: Total traffic volumes to and from Tinley Manor South Banks onto external network

4.8 Internal Road Network

The internal road layout of the development was planned in conjunction with the type of land use, volumes of traffic and visual appeal aspects. Traffic generated by each land use within the development was calculated and then distributed onto the proposed internal layout. The traffic produced by each land use was superimposed onto the feeder roads within the development. This was then used to depict the total and hence highest volumes of traffic at the access point of the development. These volumes of traffic provided the number of lanes and road reserve widths required to cater for the traffic generated within the development. Shown below are the road categories within the proposed development.

4.8.1 Internal Road Categories

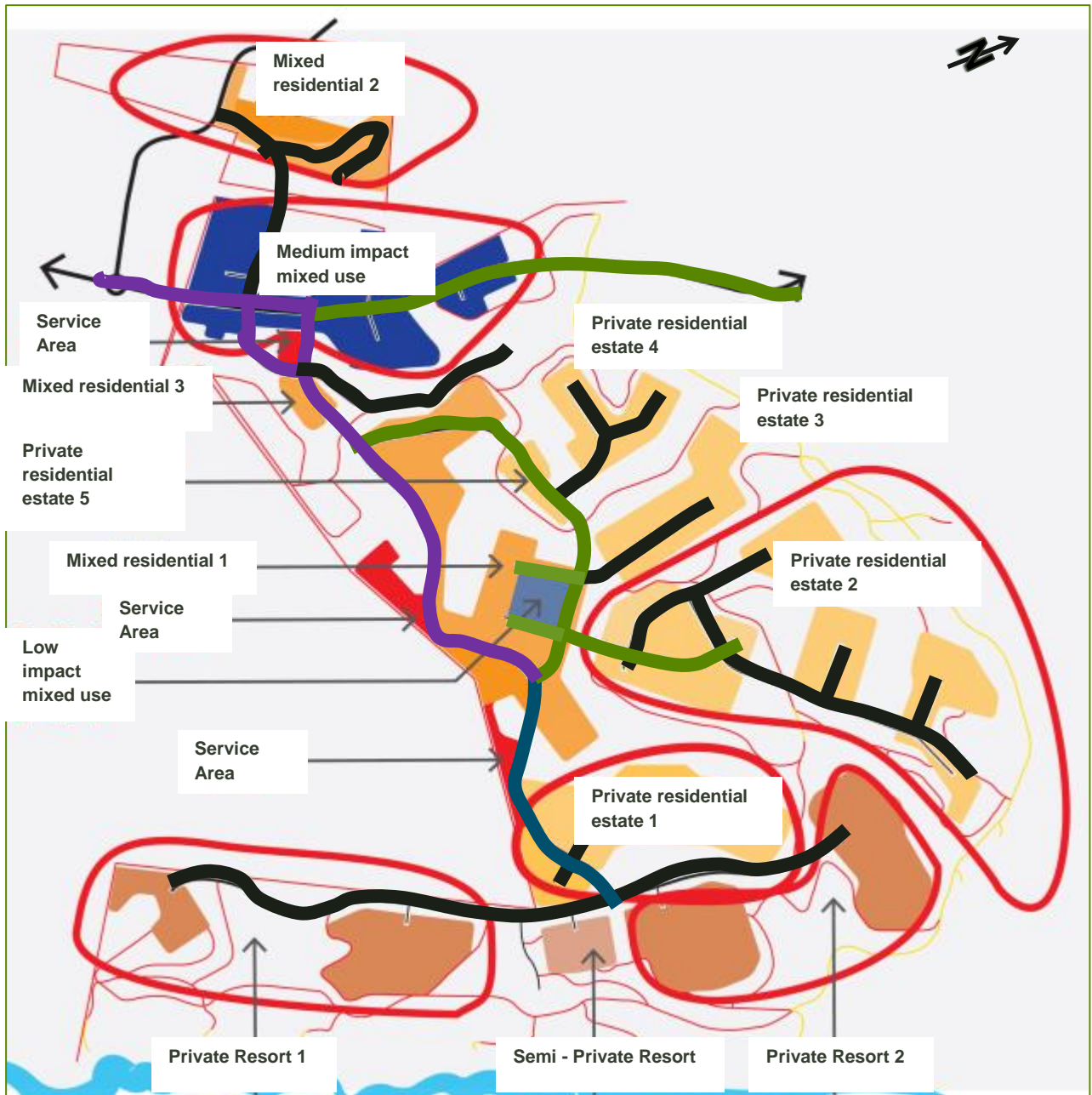






Figure 9: Tinley Manor South Banks Road Categories

KEY	
	Access Lane
	2 Lanes 2 Way
	4 Lanes Undivided
	Dual Carriageway

4.8.2 Internal Road Descriptions

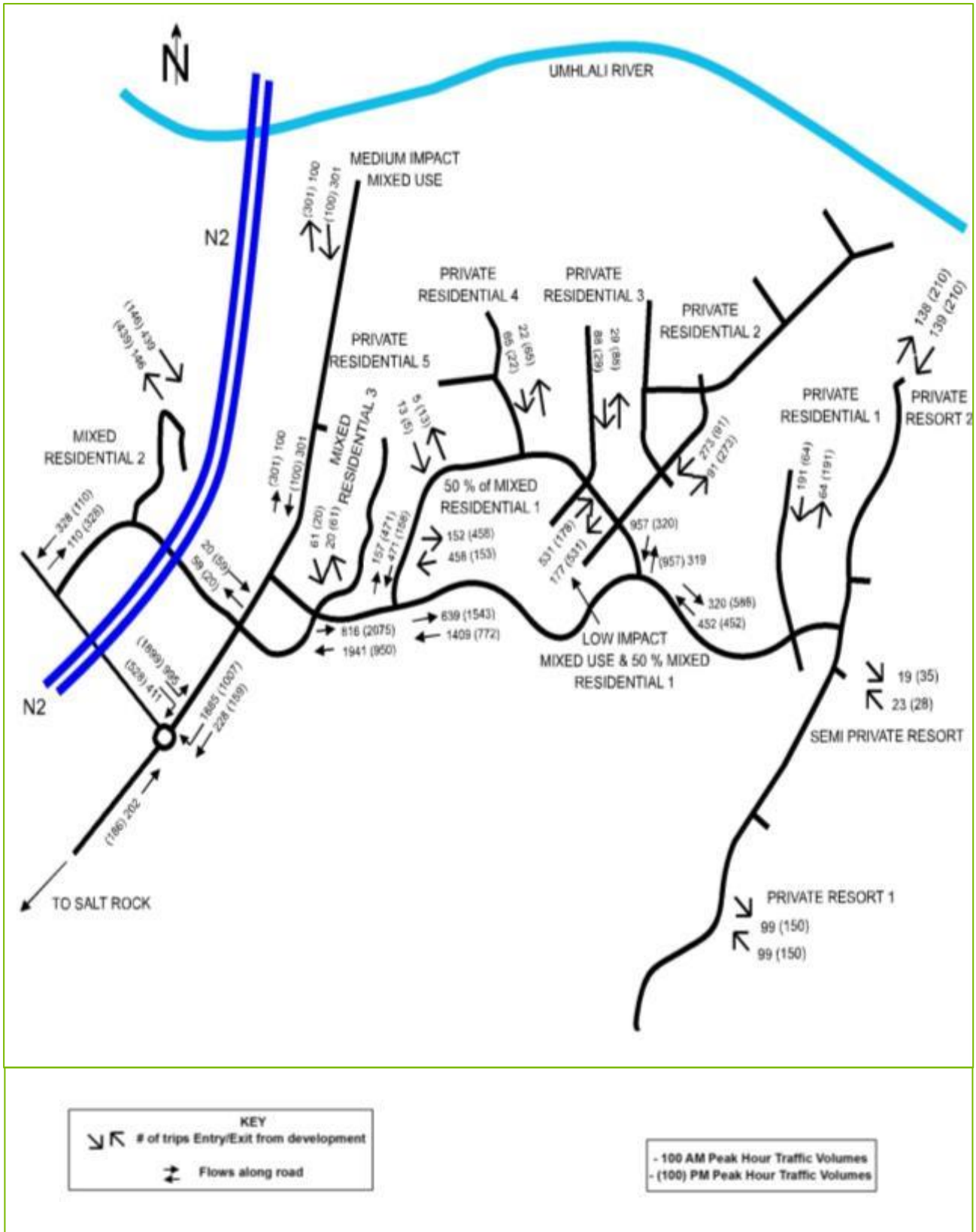
The table below shows the road category, road reserve widths, road verge elements and capacity of these roads within the Tinley Manor South Banks Development.

Type of road	Road Reserve	Elements	Reference	Capacity	Comments
Dual c/way 4 lanes (Two lanes in each direction with centre median)	28 m	4 x 3.4 lanes = 13.6m 2m median = 2.0 m 2x6.2m verges = 12.4m <u>This consists of:</u> (2x1.5m s/walks= 3m with drain pipes & manholes underneath) (2x3m underground services =6 m) (3.4m widening allowance for right turn)	UTG 1- UTG 1- UTG 1-	3600 passenger car units in both directions. (not each direction)	Allowance for right turn lane
4-lane undivided (Two lanes in each direction with NO centre median)	22 m	4 x 3.2m lanes = 12.8m 2x4.5m verges = 9.0m <u>This consists of:</u> (2x1.5m s/walks= 3m with drain pipes & manholes underneath) (2x3m underground services =6 m)	UTG 5 UTG 5	2400 passenger car units in both directions. (not each direction)	Special treatment needed for right turns.
2-lane, 2-way (One lane in each direction with NO centre median)	16 m	2 x 3.1 lanes = 6.2m 2x4.5m verges = 9.0m <u>This consists of:</u> (2x1.5m s/walks with drain pipes & manholes underneath = 3m) (2x3m underground services =6 m)	UTG 5 UTG 5	700 passenger car units in both directions. (not each direction)	No right turn lane
Access lane (One narrow residential lane in each direction)	13 m	2 x 2.8m lanes = 5.6m 2x3.5m verges = 7.0m <u>This consists of:</u> (2x1.5m s/walks with drain pipes & manholes underneath = 3m) (2x2m underground services =4 m)	UTG 7 UTG 7	350 passenger car units in both directions. (not each direction)	No right turn lane

Figure 10: Internal Road Descriptions

4.8.3 Traffic Volumes on internal

The volumes of traffic generated by the Tinley Manor South Banks Development on the internal road network are shown below.



4.9 Seaton Delaval

Data extracted and summarised from the “Proposed Seaton Delaval development near Sheffield beach, KZN” traffic impact assessment produced by BCP Engineers in October 2007 is shown below. The information listed in this section will be used as reference for this document and also to superimpose the traffic produced by Seaton Delaval onto the traffic generated by Tinley Manor South Banks.

4.9.1 Proposed Development:

- Residential Estate: 938 Units
- Hotel & Conference facilities: 200 Rooms & 50 Delegates
- Tourist/Convenience centre: ± 500m² GLA

4.9.2 Development Access

The main access to the development is via the proposed roundabout intersection on a realigned portion of P228 with the various legs of the intersection as follows:

- South approach: Realigned P228
- East approach: Proposed residential development
- North approach: Hotel, conference centre, tourist centre and Tinley Manor South Banks
- West approach: P 228 / New proposed interchange access

4.9.3 Trip generation & distribution

Land Use	Units / GLA	Gen. Rate	Split	AM Peak		PM Peak	
				IN	OUT	IN	OUT
Residential	938 units	0.75	25:75	176	528	528	176
Hotel	200 rooms	0.7	55:45	77	63	63	77
Conference	50 seats	0.7	100:0	35	0	0	35
Tourist Centre	500m ²	Not available	50:50	30	30	50	50
Total				318	621	641	338

Table 16: Seaton Delaval trip generation

A 10 % reduction in all trips generated is applied due to public transport improvements. The following table shows the total traffic volumes generated by Seaton Delaval onto the external road network.

TRIP ORIGIN / END	AM		PM	
	IN	OUT	IN	OUT
To / from South via N2	185	376	379	188
To / from Umhlali via P474, P330	27	55	55	28
To / from Salt Rock via P330	29	56	58	30
To / from North via N2	31	59	62	35
To / from west via P228	4	4	7	7
To / from Brettenwood and Zululami	3	3	5	5

Table 17: Seaton Delaval trip distribution

4.10 Palm Lakes

Data extracted and summarised from the “Proposed Multi-Node Commercial and Residential Development – Palm Lakes” traffic impact assessment produced by MMC Engineers in 2005 is shown below:

4.10.1 Proposed Development:

- Palm Lakes Residential Estate: 2900 Units
- Royal Palm Corporate Park: 900 units & 289 300 m²
- Forest Office Park: ± 155 375m² GLA

4.10.2 Development Access

The majority of the development is on the west side of the N2. This consists of the residential estate and the corporate park. The east side consists of the forest office park. Access for the office park from the N2 will be via the diamond interchange with access from the P467 east. The western side of the N2 which consists of the corporate park and the residential estate will use this interchange from the west. A portion of the western traffic will also utilise the new proposed diamond interchange via the P228.

4.10.3 Trip generation & distribution

Area	Land use	Units/ GLA	Trip Generation
Palm Lakes Residential Estate	Middle Income Residential	2900 units	0.55 veh/h per unit
Royal Palm Corporate Park	Middle Income residential	900 units	0.55 veh/h per unit
	Wholesale, light industry	289 300m ²	1.16 veh/h per 100m ²
Forest office Park	Office	105 875m ²	1.73 veh/h per 100m ²
	Multi-use centre	49 500m ²	2.25 veh/h per 100m ²
Total			

Table 18: Trip generation for Palm Lakes

AREA	DIRECTION	ROUTE	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
Palm Lakes Residential Estate	NORTH	MR467 - Interchange – N2	132	502	478	140
	SOUTH	MR467 –Interchange – N2	168	395	419	160
	EAST	MR467 through the N2 Interchange	20	60	60	20
	WEST	MR467	80	239	239	80
Royal Palm Corporate Park	NORTH	MR467 - Interchange – N2	836	536	510	886
	SOUTH	MR467 –Interchange – N2	1063	421	447	1013
	EAST	MR467 through the N2 Interchange	127	64	64	127
	WEST	MR467	506	255	255	506
Forest Office Park	NORTH	MR467 - Interchange – N2	700	213	182	816
	SOUTH	MR467 –Interchange – N2	816	182	213	700
	EAST	MR467	117	30	30	117
	WEST	MR467 through the N2 interchange	466	122	122	466

Table 19: Trip distribution and traffic volumes for Palm Lakes

The trip distribution shown above for Palm Lakes does not take into account the proposed new diamond interchange. A revised trip distribution table redistributing traffic generated by Palm Lakes onto the new diamond interchange is shown below. A 10 % reduction in all trips generated is applied due to public transport improvements. The following table shows the total traffic volumes generated by Palm Lakes onto the external road network.

		AM PEAK HOUR		PM PEAK HOUR	
		In	Out	In	Out
SOUTH	P228 –Interchange – N2	147	72	78	135
EAST	P228 through the N2 Interchange	19	11	11	19

Table 20: Revised Palm Lakes traffic distribution

4.11 Inkwazi

Data extracted and summarised from the “Traffic Impact Assessment for the Proposed Inkwazi Estate Mixed Use Development” produced by Africon in January 2009 is shown below. The information listed in this section will be used as reference for this document and also to superimpose the traffic produced by Inkwazi onto the traffic generated by Tinley Manor South Banks.

4.11.1 Proposed Development:

- School
- Worship Site
- High Income Residential Estate: 250 Units
- Middle Income Residential Estate: 1 250 Units
- Commercial site: ± 7 500m² GLA
- Clubhouse & activity node for residents

4.11.2 Development Access

Two access points are planned to serve the proposed mixed development, 350m apart as follows:

- Primary access: MR 228
- Secondary access: MR 228

4.11.3 Trip generation & distribution

Land Use	Units / GLA	Gen. Rate	AM Peak		PM Peak	
			IN	OUT	IN	OUT
Commercial	7490 m ²	4.54 veh/h/100m ²	17	17	170	170
High Income Residential	250	1.28 veh/h/unit	80	239	239	80
Middle Income Residential	1250	0.93 veh/h/unit	291	872	872	291
Primary school	600	0.45 veh/h/unit	135	135	-	-
Total			523	1263	1281	540

Table 21: Trip generation - Inkwazi

DIRECTION	ROUTE	AM PEAK		PM PEAK	
		% In	% Out	% In	% Out
NORTH	MR228 – MR467	5	5	5	5
	MR228 – MR467 – MR2	20	20	20	20
	MR228 – N2	15	15	15	15
SOUTH	MR228 – N2	30	30	30	30
	MR228 – MR467 – MR2	15	15	15	15
EAST	MR228 – MR330	10	10	10	10
WEST	MR228 – MR330	5	5	5	5

Table 22: Trip distribution in percentages – Inkwazi

A 10 % reduction in all trips generated is applied due to public transport improvements. The following table shows the total traffic volumes generated by Inkwazi onto the external road network.

DIRECTION	ROUTE	AM PEAK HOUR		PM PEAK HOUR	
		In	Out	In	Out
NORTH	MR228 – MR467	24	57	58	24
	MR228 – MR467 – MR2	94	227	231	97
	MR228 – N2	71	171	173	73
SOUTH	MR228 – N2	141	341	346	146
	MR228 – MR467 – MR2	71	171	173	73
EAST	MR228 – MR330	47	114	115	49
WEST	MR228 – MR330	24	57	58	24

Table 23: Trip distribution Inkwazi- Total traffic volumes

4.12 Layout of Tinley Manor South Banks Generated Traffic

The traffic generated by the Proposed Tinley Manor South Banks development onto the external road network is shown below.

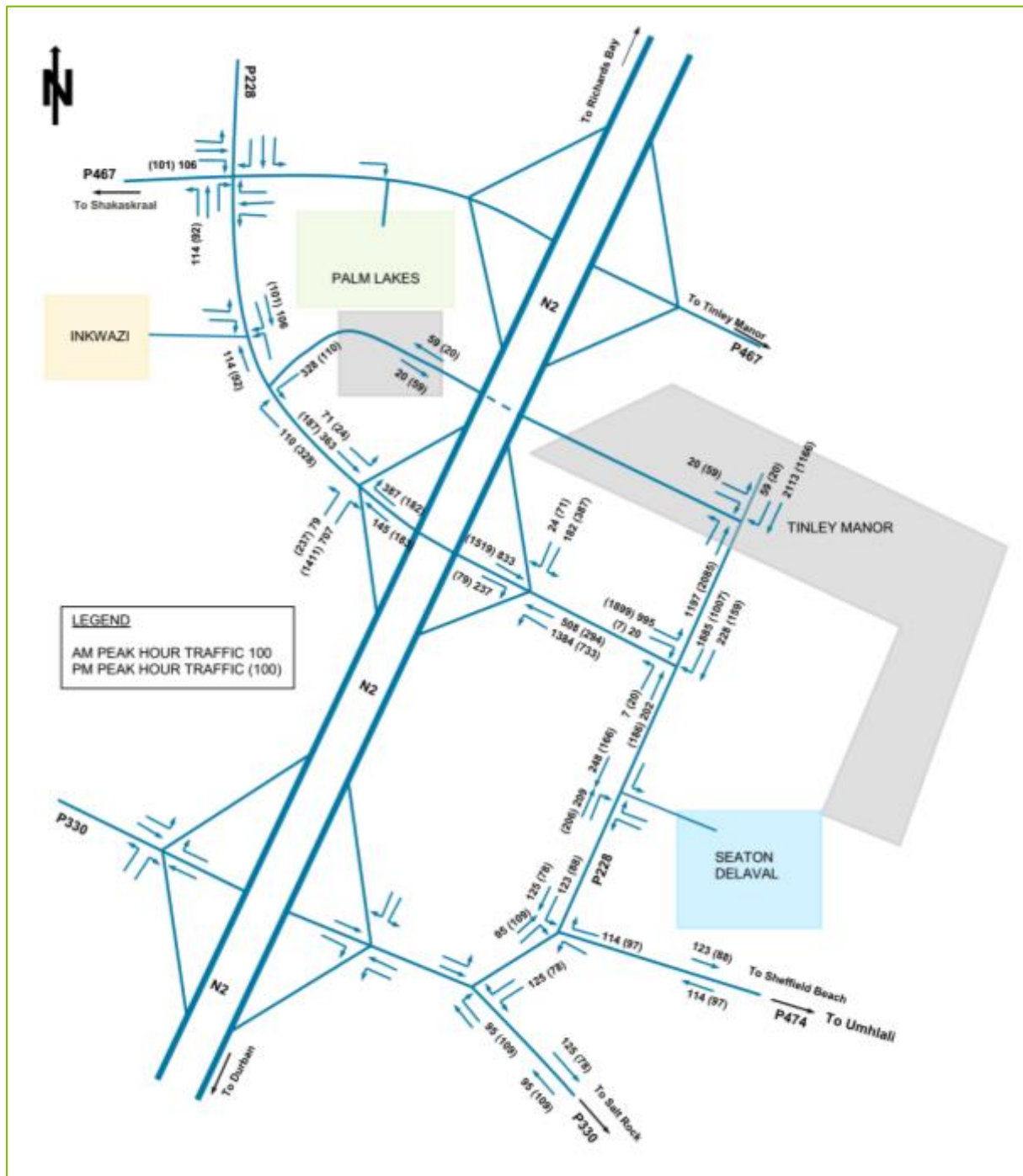


Figure 11: Traffic generated by the proposed Tinley Manor South Banks development

4.13 Layout of Traffic Generated by All New Major Proposed Developments

The traffic generated by the major proposed developments of Tinley Manor South Banks, Seaton Delaval, Inkwazi and Palm Lakes onto the external road network are shown below.

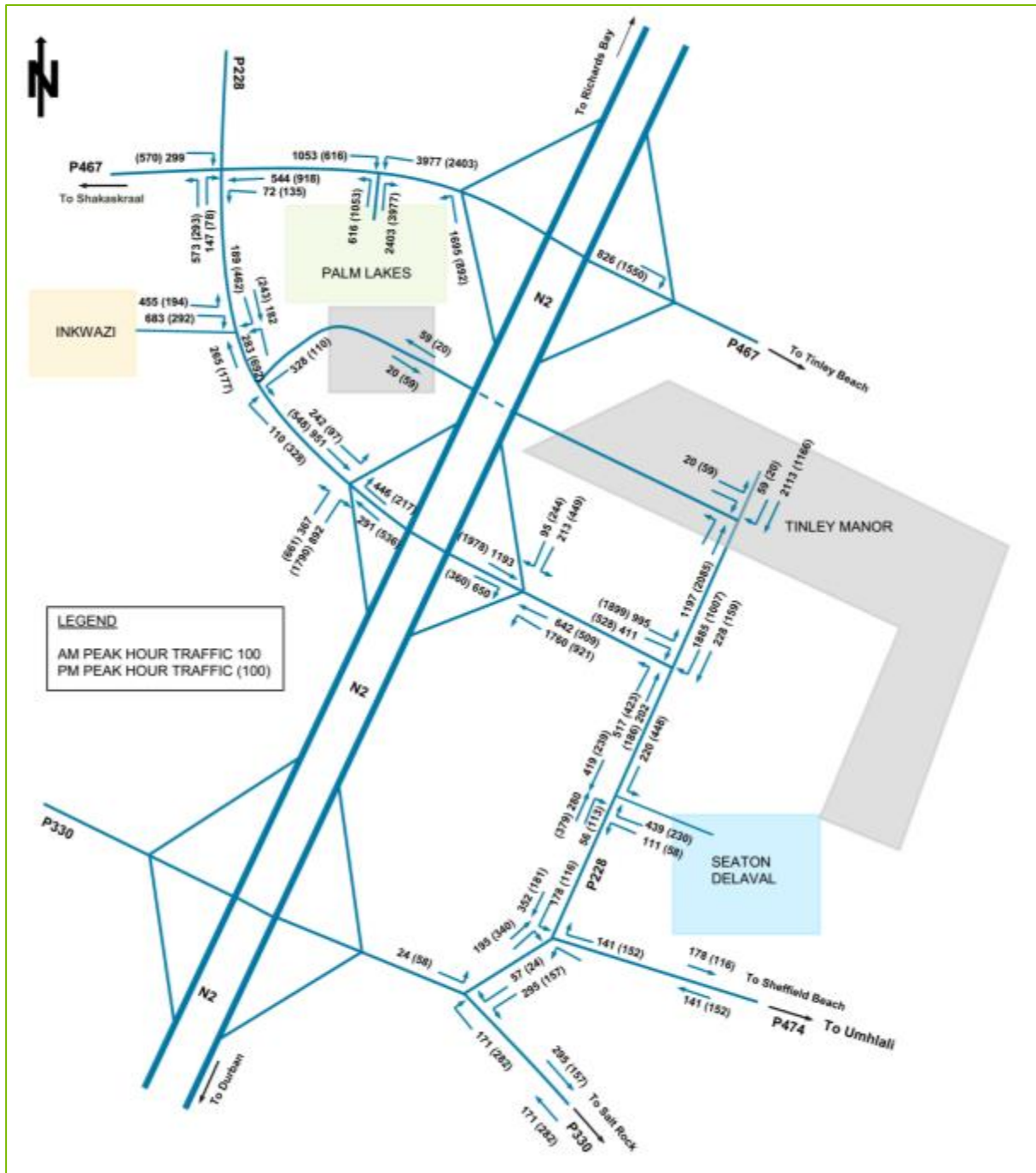


Figure 12: Traffic generated by all new major proposed developments

4.14 Traffic Generated by All Developments & Existing Background Traffic

The traffic generated by the developments of Tinley Manor South Banks, Seaton Delaval, Inkwazi and Palm Lakes onto the external road network added to the existing background traffic, are shown below.

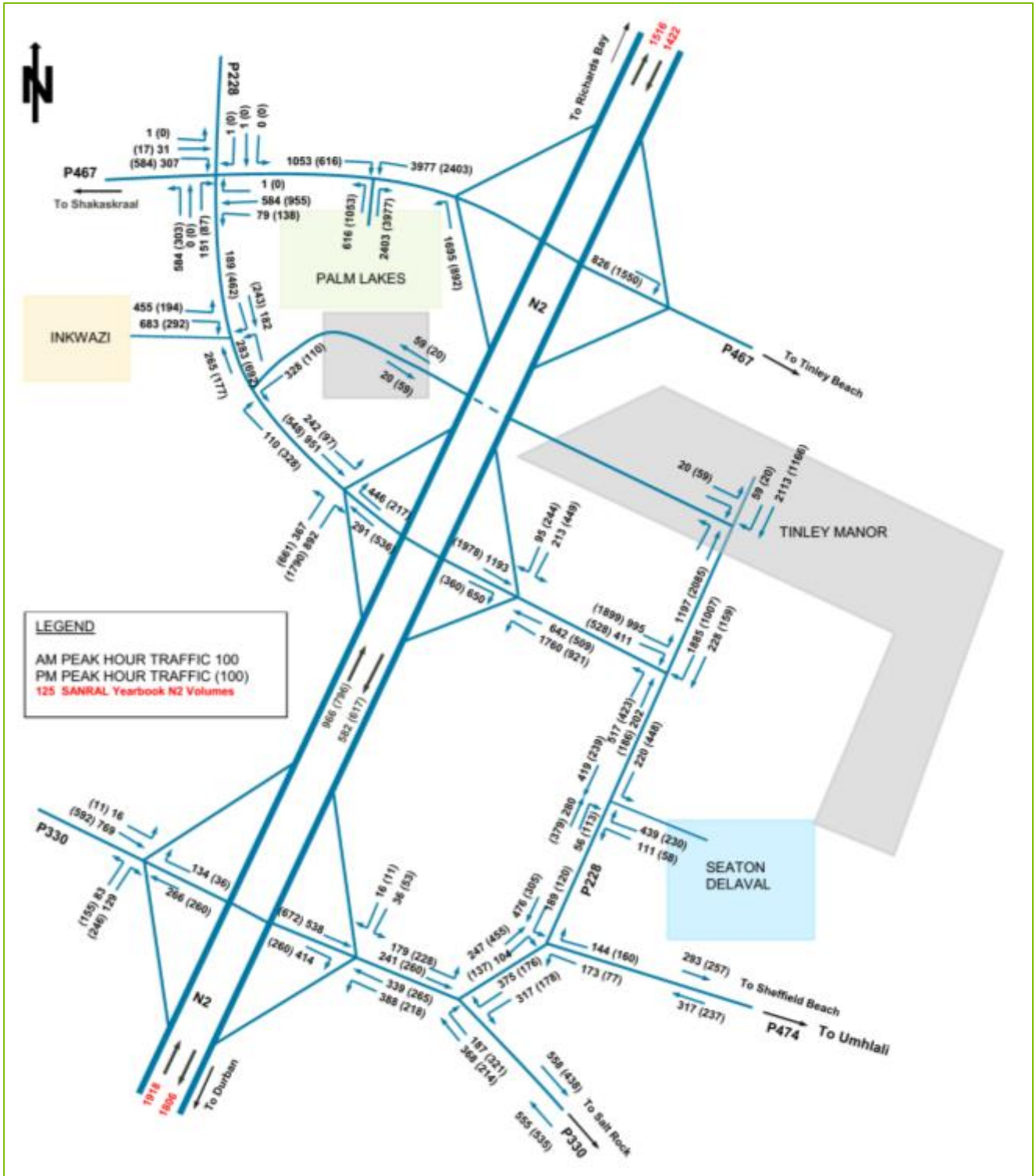


Figure 13: Existing background + proposed developments generated traffic

5. Impact on the External Road Network

This chapter analyses the impact of the traffic generated by Tinley Manor South Banks and all major local developments on the adjacent affected road network.

5.1 Analysis of Intersections – Traffic generated by proposed developments & background traffic

5.1.1 P330/P474 intersection – Traffic Signals

This intersection is tested based on the proposed upgrade from section 3.4.5 of this report.

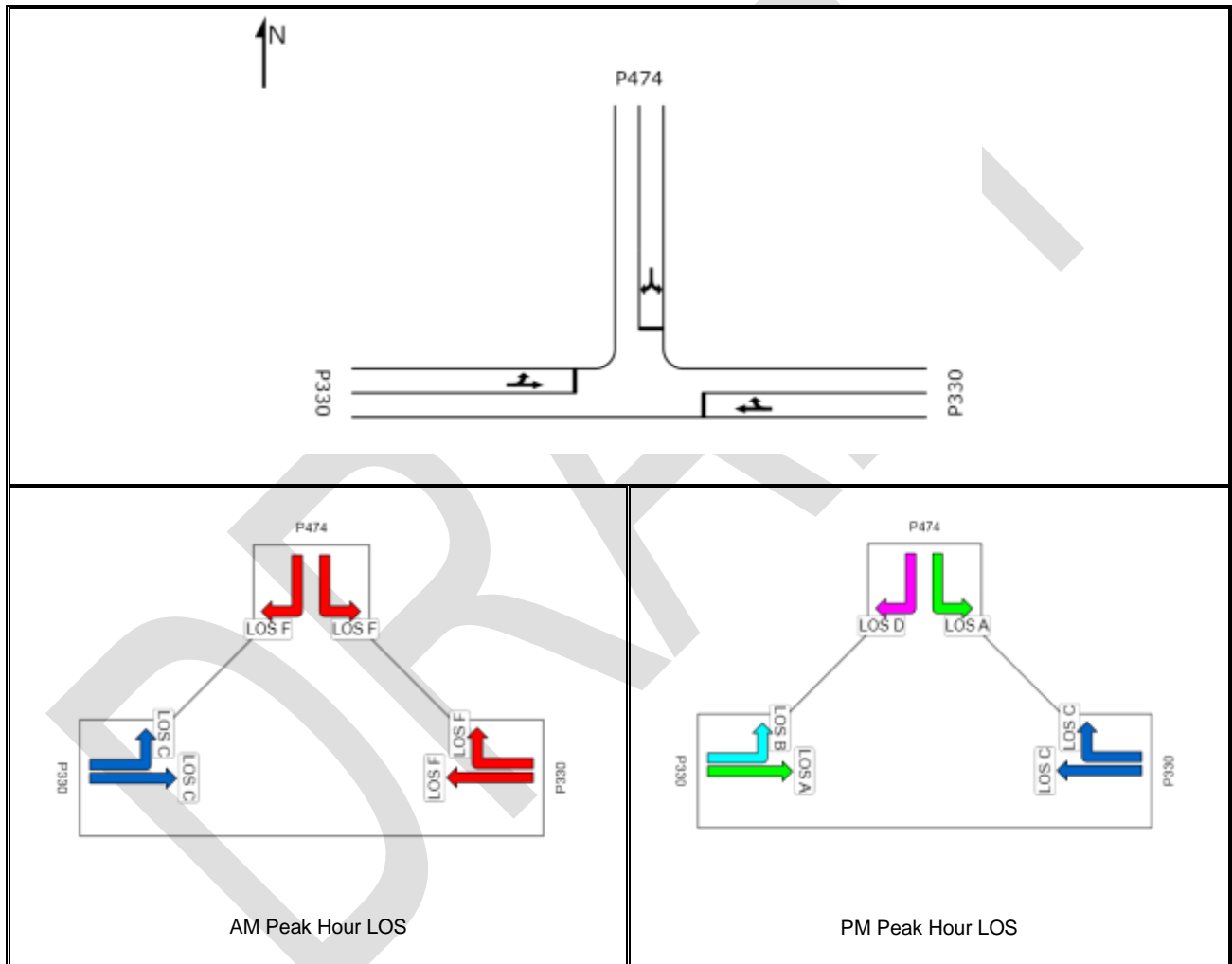


Table 24: Analysis of P330/P474 intersection with background + development traffic

It can be seen that this intersection has reached capacity with the additional trips generated by the proposed developments in the AM peak hour. The queue lengths have increased significantly and are a result of the traffic generated primarily by Tinley Manor and Seaton Delaval. An upgrade of this intersection is recommended with a left slip lane with a 20m taper for the north approach going left. This will now be tested.

5.1.2 P330/P474 intersection – Traffic Signals + Slip Lane

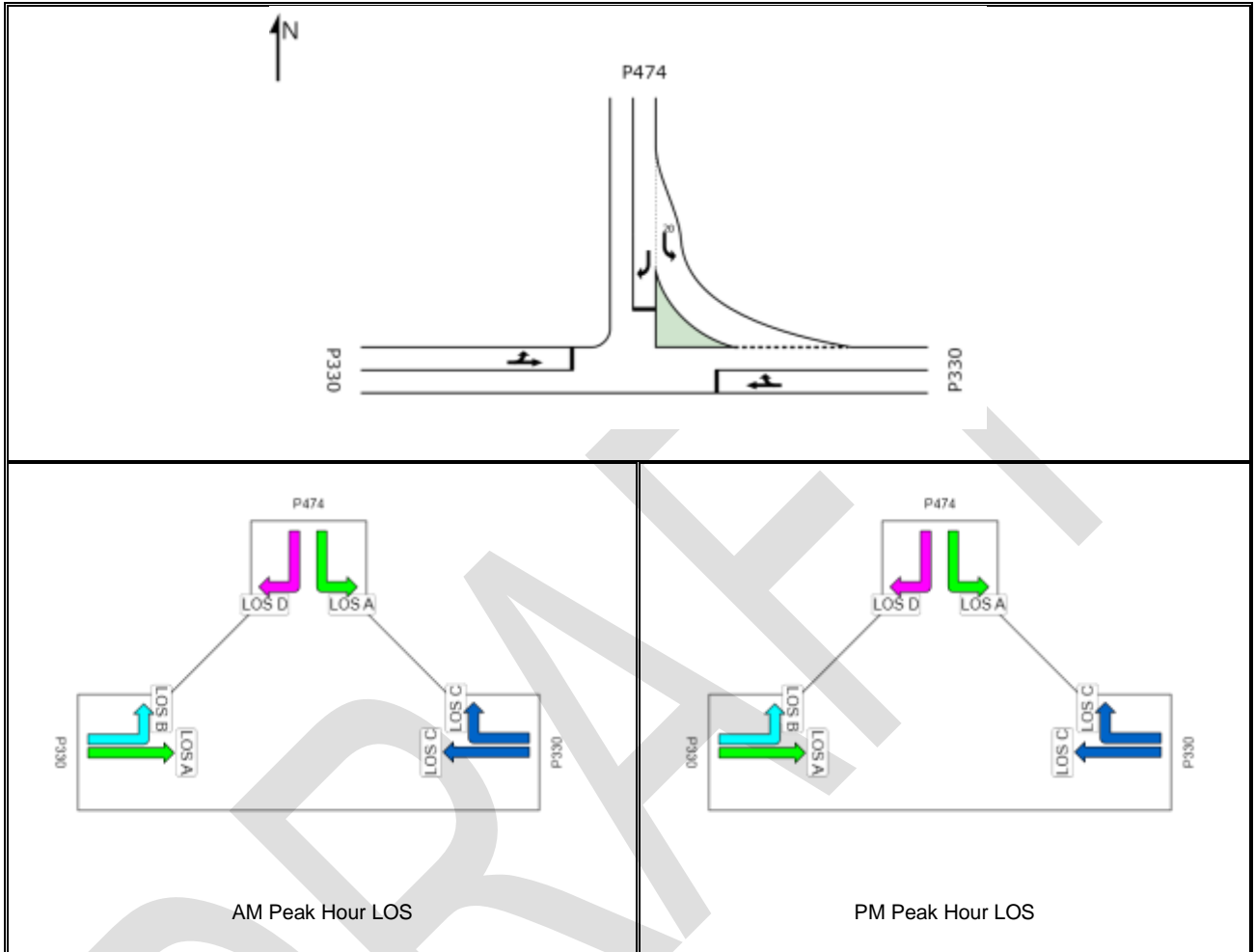


Table 25: Proposed upgrade analysis of P330/P474 intersection with background + development traffic

It can be seen that this intersection now has acceptable levels of service for all movements. The level of service D for the right turn movement is approaching capacity. It exhibits a queue length of 48.5m. It may be that the growth of background traffic over the 10 year analysis period causes this intersection to fail. Recommendations to this will be made in the next chapter.

5.1.3 P474/P228 intersection

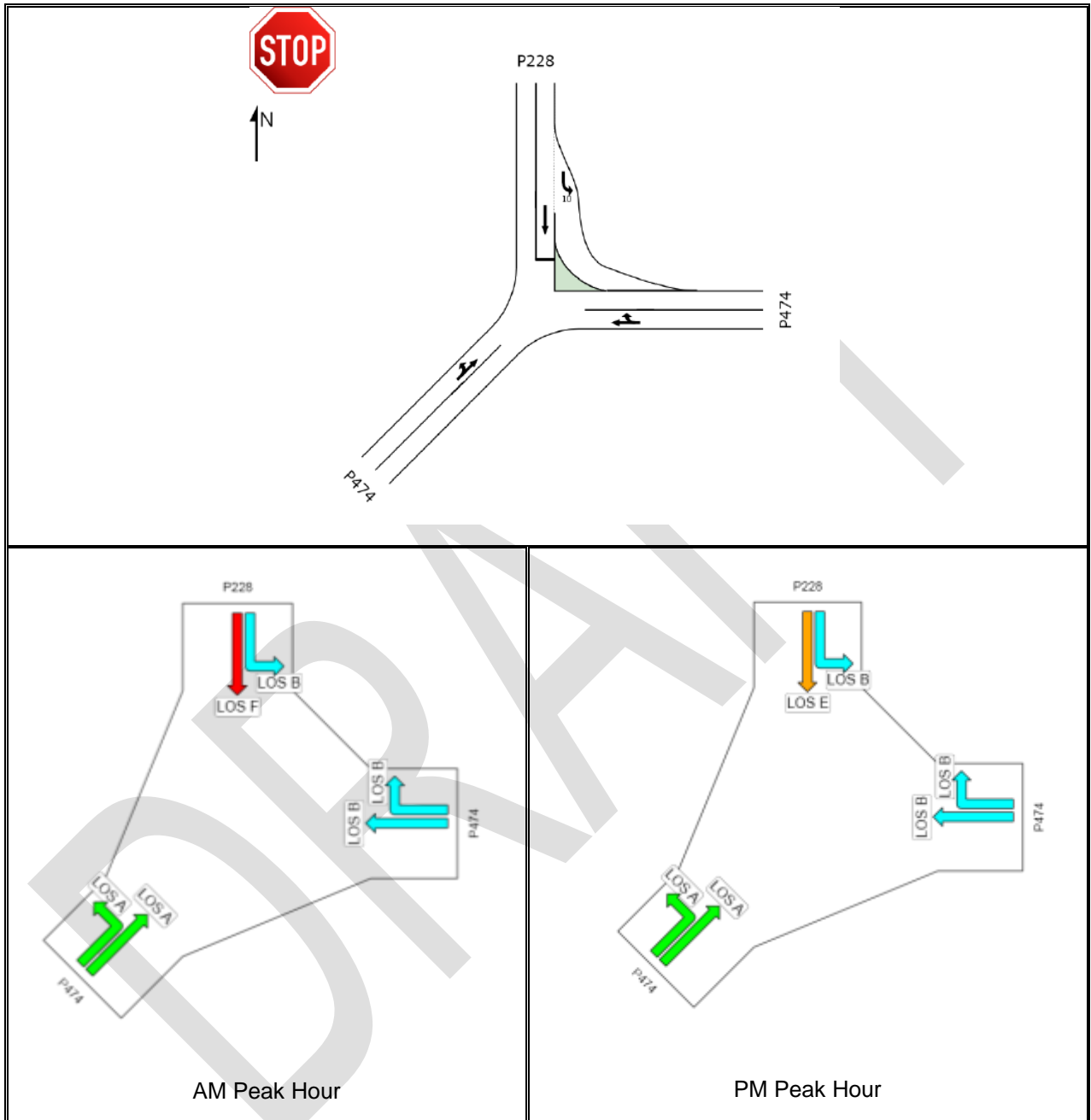


Table 26: Analysis of P228/P474 intersection with background + development traffic

It can be seen that the north approach stop movement exhibits a level of service F with a queue length of 791m and average delay 370 seconds. The existing operating levels as analysed in section 3.4.6 exhibits a LOS B for this movement. This increase is a result of the traffic generated primarily by Tinley Manor & Seaton Delaval. Upgrading of this intersection is recommended. Investigation will be carried out in the 10 year analysis.

5.1.4 P288/P467 intersection

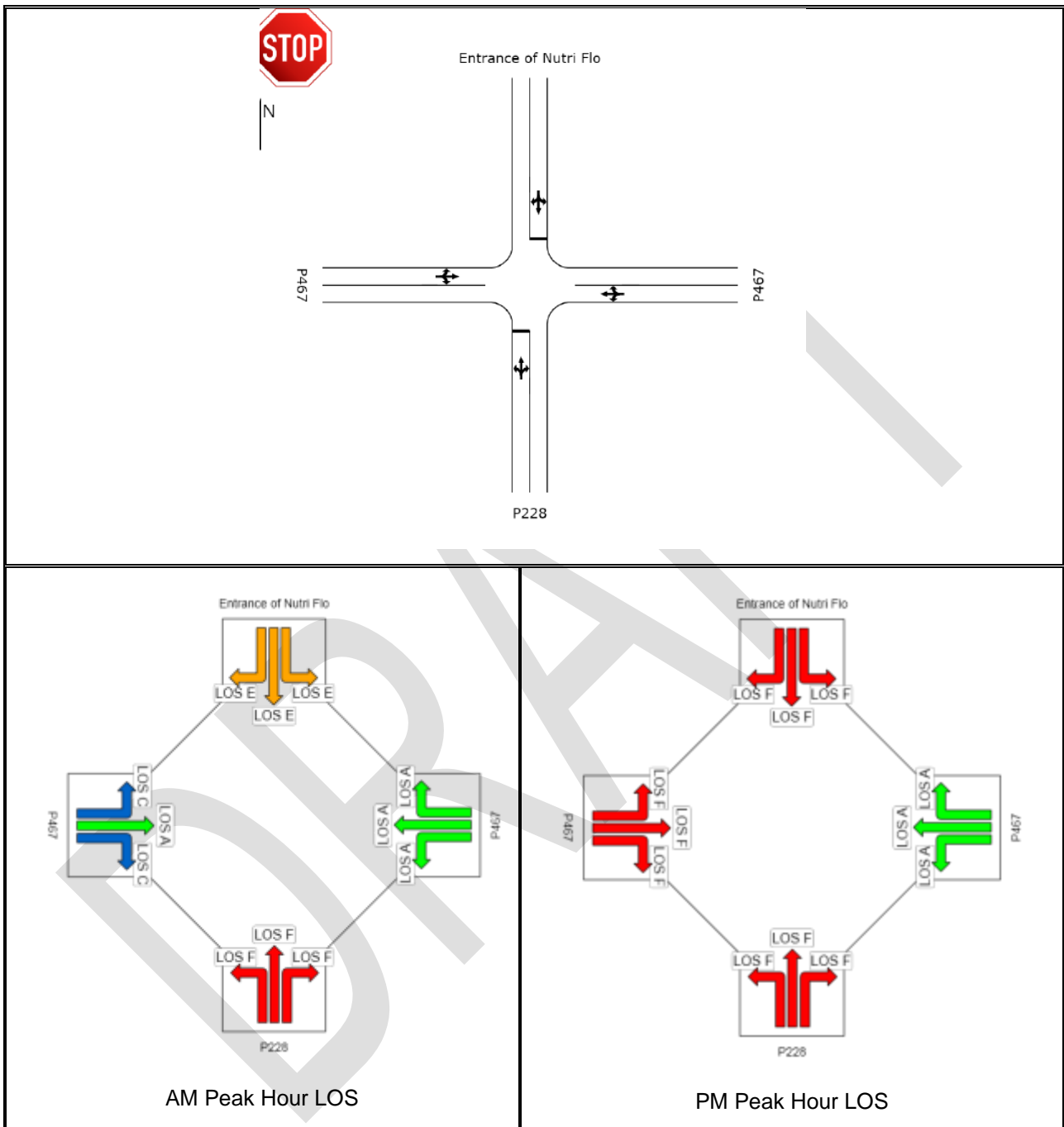


Table 27: Analysis of P228/P467 intersection with background + development traffic

Levels of service F are obtained for several movements throughout. The primary contributor of these high traffic volumes are the developments of Inkwazi and Palm Lakes. A small proportion of traffic at this intersection is generated by Tinley Manor South Banks development. The upgrade of this intersection will be investigated in the next chapter.

5.2 Salt Rock Interchange & Tinley Beach (Palm Lakes) Interchanges

This section refers to the following intersections that were previously analysed using the existing background traffic in section 3.4 of this report:

- P330 / N2 off Ramp – Western (AM & PM)
- P330 / N2 on Ramp – Eastern (AM & PM)
- P467 / N2 off Ramp – Western (AM & PM)
- P467 / N2 on Ramp – Eastern (AM & PM)

Long term traffic planning on the above mentioned intersections is to be carried out as a separate exercise and does not fall under the scope of investigation of this report. The traffic generated by Tinley Manor that accesses these intersections will be negligible and will be minimal in affecting the operations of these intersections.

6. Long Term Background Traffic Growth Analysis

6.1 Traffic Growth & Assessment Years

The Department of Transport “Manual for Traffic Impact Studies” was used to calculate the Assessment Years for the Traffic Impact Study of Tinley Manor South Banks developments. Tinley Manor generates more than 200 two way trips in the peak hour. This requires an assessment period of 10 Years. The following table shows a summary of all major developments assessment years.

Development	Assessment Years
Tinley Manor South Banks	10
Seaton Delaval	5
Palm Lakes	10
Inkwazi	5

Table 28: Summary of assessment years for major developments

Therefore an assessment period of 10 years was chosen for the analysis of all major local developments. It was considered that no additional background traffic would apply to the developments of Seaton Delaval and Inkwazi as they would be operating at full traffic generation 5 years from the base year.

6.2 Traffic Generated by All Developments & 10 Year Background Traffic

The traffic generated by Tinley Manor South Banks, Seaton Delaval, Palm Lakes and Inkwazi, as well as the background traffic grown over 10 years at a growth rate of 2.5 percent is shown below.

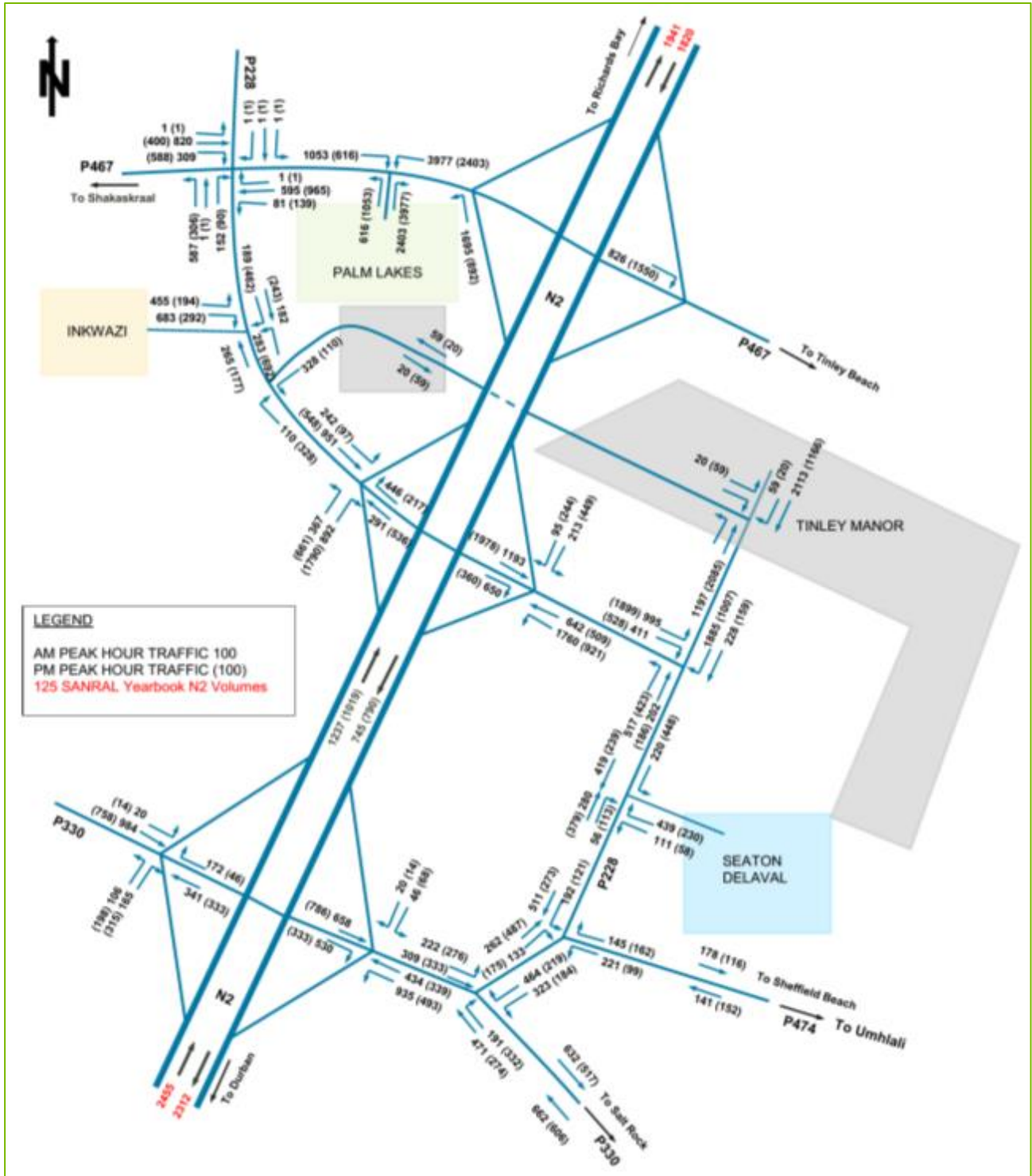


Figure 14: Traffic generated by all developments & 10 year background traffic growth

6.3 Analysis of Intersections – Traffic generated by proposed developments & 10 year background traffic growth

6.3.1 P330/P474 intersection – Traffic Signals + Slip Lane

This intersection is tested based on the proposed upgrade from section 5.1.2 of this report.

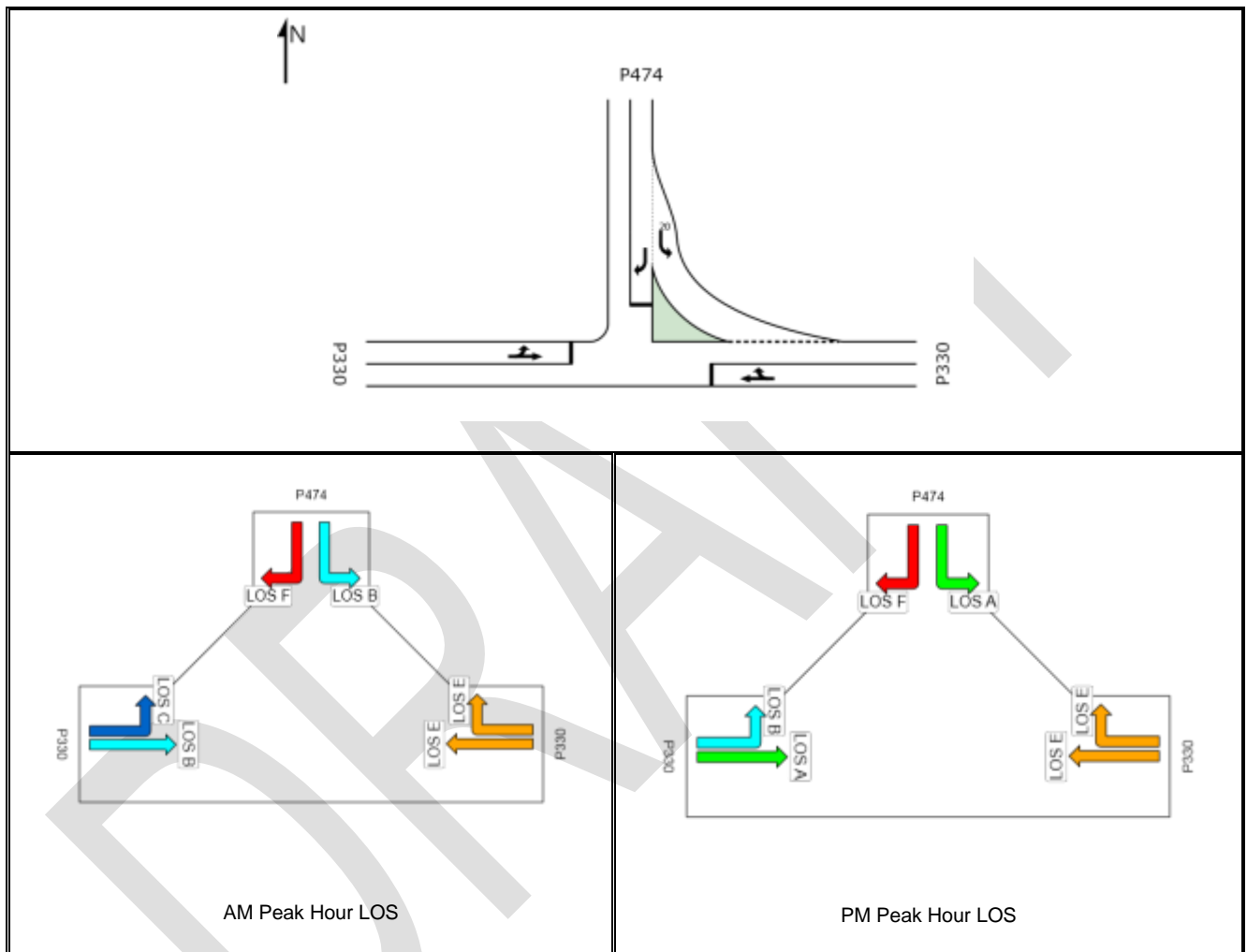


Table 29: Proposed upgrade analysis of P330/P474 intersection with 10 year background traffic + development traffic

The level of service F for the right turn movement is saturated and the through flow from the east is approaching saturation. The background traffic growth over the 10 year analysis period causes this intersection to fail based on the upgrade suggested in 5.1.2. A further upgrade of this intersection is hence recommended with an additional lane westbound lane in the vicinity of the intersection. This will now be tested.

6.3.2 P330/P474 intersection – Traffic Signals + Slip Lane + extra westbound lane

The intersection will now be tested with a proposed additional lane in the westbound direction.

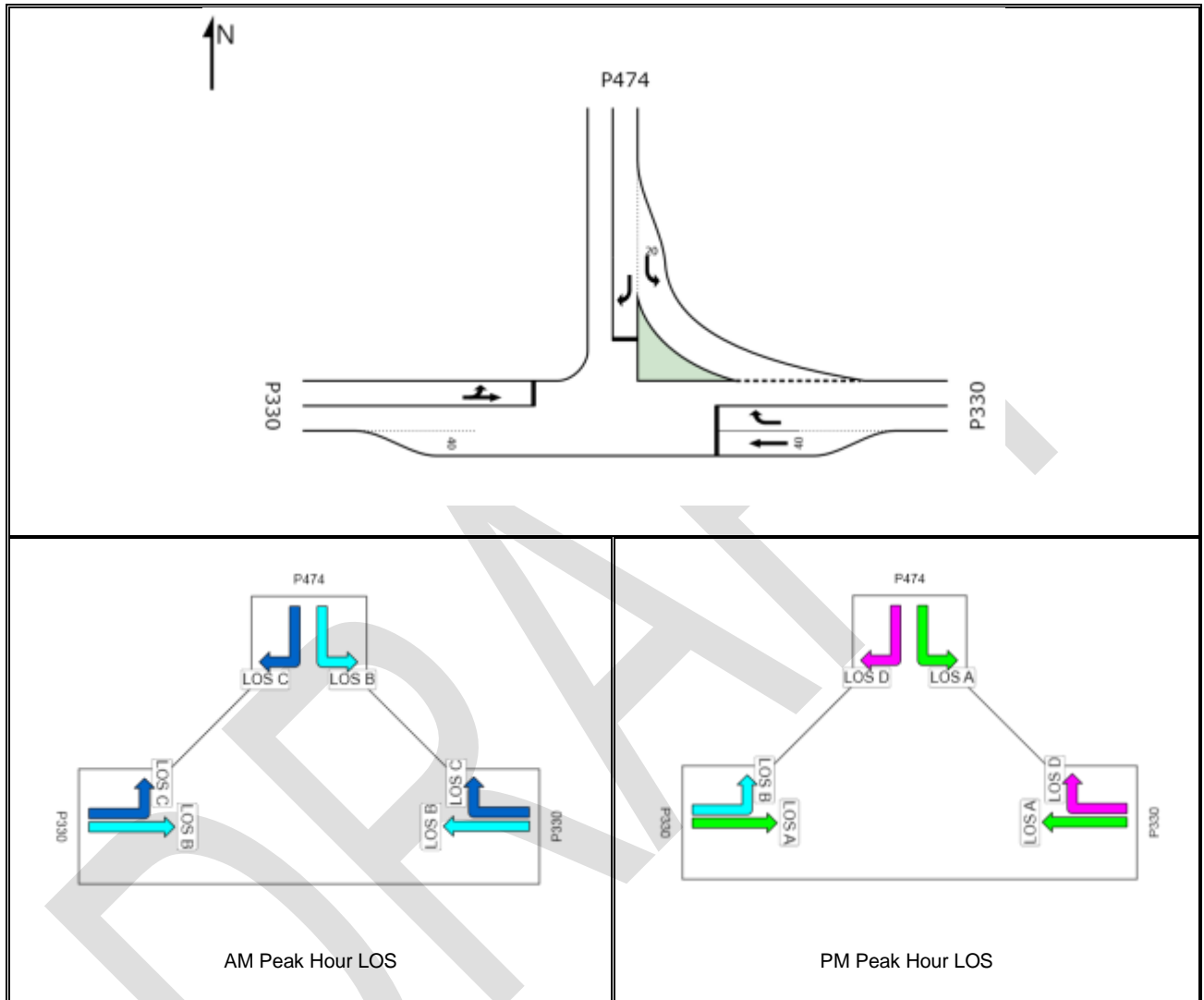


Table 30: Proposed upgrade analysis of P330/P474 intersection with 10 year background traffic + development traffic

It can be seen that this intersection now has acceptable levels of service for all movements. Hence this layout is a feasible solution.

6.3.3 P474/P228 intersection + Traffic Signalisation

It was shown in section 5.1.3 that the southbound approach on the P228 exhibits a level of service F for that movement. This intersection will now be tested with the 10 year background traffic and traffic signalisation to achieve acceptable levels of service for all movements.

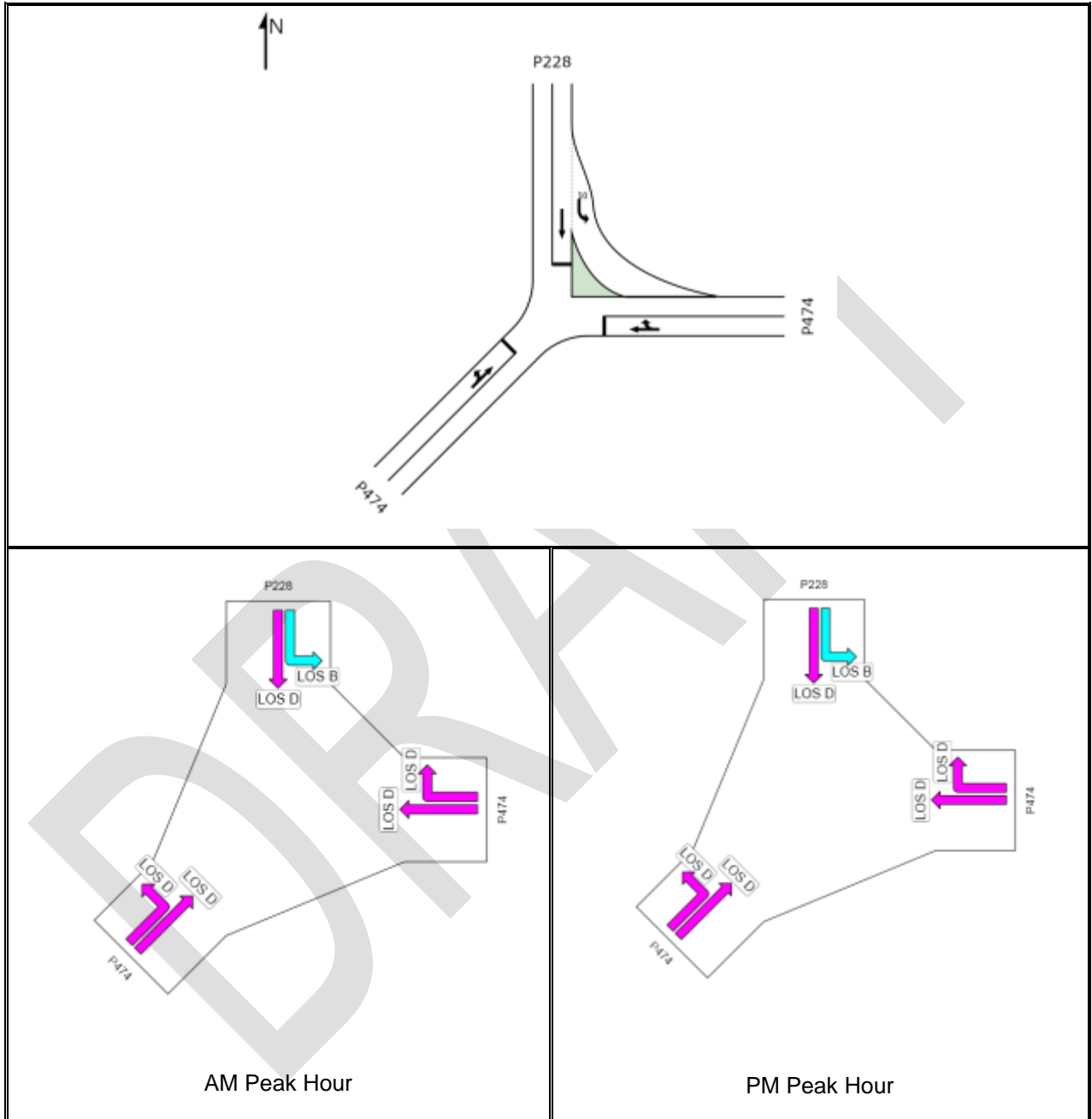


Table 31: Analysis of P228/P474 intersection with 10 year background traffic + development traffic

Analysis has shown that the most feasible solution to achieve acceptable levels of service at this intersection is through signalisation. It can be seen above that all movements now show acceptable levels of service.

6.3.4 P288/P467 intersection

The analysis of the existing intersection configuration in section 5.1.4 resulted in saturation and levels of service F throughout. This intersection will now be tested with traffic signals as below.

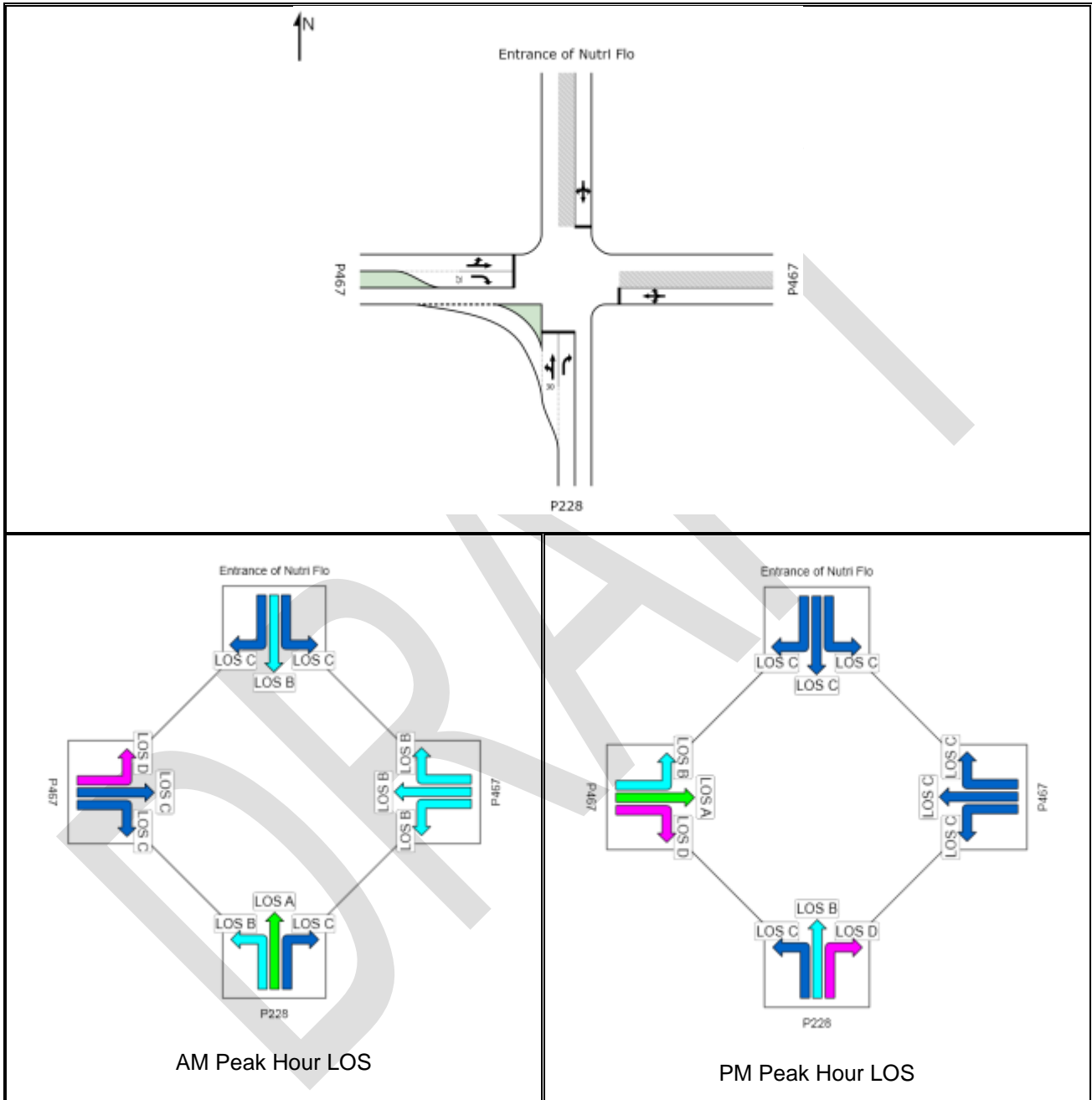
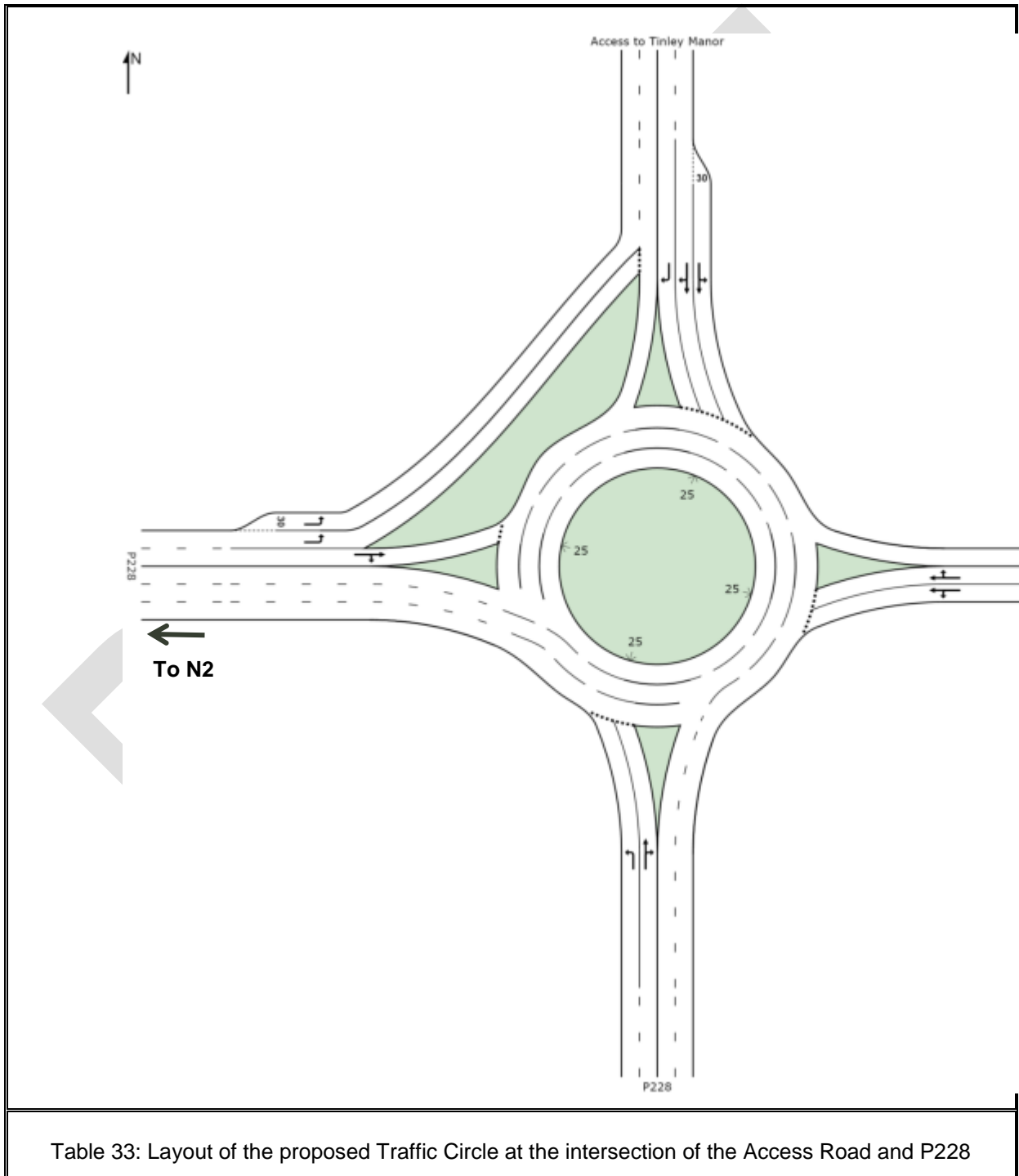


Table 32: Analysis of P228/P467 intersection with 10 year background traffic + development traffic

The primary contributors of traffic at this intersection are the developments of Inkwazi and Palm Lakes. A small proportion of traffic at this intersection is contributed by Tinley Manor South Banks development. The above configuration with traffic signals is deemed acceptable on a planning level; however careful investigation needs to be carried out on the traffic volumes generated by Palm Lakes and Inkwazi along with their distributions and hence establish the final configuration of this intersection before implementation of the upgrade.

6.4 Proposed Intersection of P228/Access Road to Tinley Manor

Figure 14 above shows the traffic that is predicted to affect the intersection of the proposed Access Road to Tinley Manor South Banks and P228. It has since been established that the primary access point to Seaton Delaval is proposed to be at this intersection as well. Seaton Delaval however will consist of secondary access points along the P228. The traffic as shown to access Seaton Delaval in figure 14 has been adjusted accordingly.



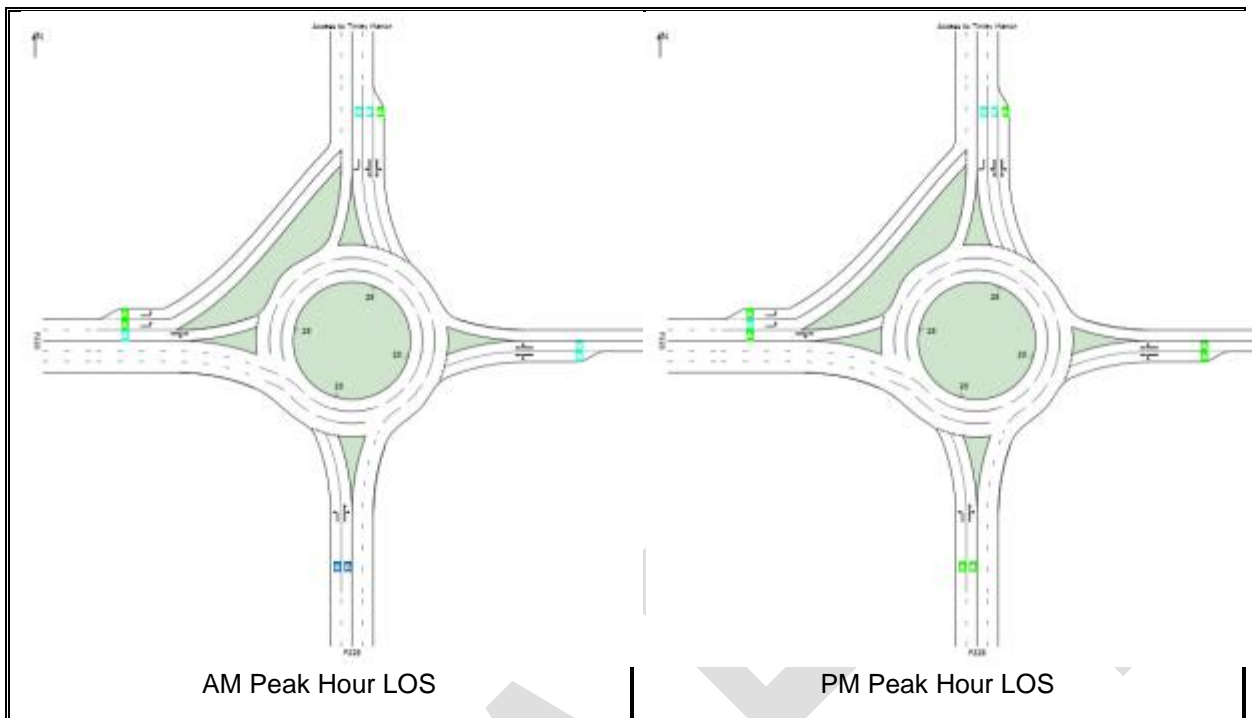


Table 34: Analysis of intersection of P228 and Access Road to Tinley Manor South Banks

The analysis of the traffic circle is shown above and it can be seen above that all movements are at acceptable levels of service.

6.5 Salt Rock Interchange & Tinley Beach (Palm Lakes) Interchanges


This section refers to the following intersections that were previously analysed using the existing background traffic in section 3.4 of this report:

- P330 / N2 off Ramp – Western (AM & PM)
- P330 / N2 on Ramp – Eastern (AM & PM)
- P467 / N2 off Ramp – Western (AM & PM)
- P467 / N2 on Ramp – Eastern (AM & PM)

Long term traffic planning on the above mentioned intersections is to be carried out as a separate exercise and does not fall under the scope of investigation of this report. The traffic generated by Tinley Manor that accesses these intersections will be negligible and will be minimal in affecting the operations of these intersections.

6.6 Comments & Recommendations

- The 10 year background traffic growth does not yield significantly high volumes of traffic on most intersections as the area currently experiences low traffic volumes. The growth of these low volumes over the assessment period of the developments does not yield large traffic volume increases.
- The majority of the volume of additional traffic is generated by the proposed new developments of Tinley Manor South Banks, Seaton Delaval, Palm Lakes and Inkwazi. The



traffic generated by these developments requires several intersections to be upgraded to accommodate the flow. These upgrades were recommended in this chapter.

- The traffic volumes are primarily witnessed in tidal flow, i.e. outgoing trips from the residential developments in the AM peak hour and inbound trips towards the residential developments in the PM peak hour.
- It is recommended that the intersections on the west side of the N2 as well as the interchanges listed in 6.4 above be addressed as a separate exercise. The large volumes of traffic generated by Palm Lakes and Inkwazi need to be carefully examined along with their distributions and then re applied to these intersections. Furthermore the scope of this report does not sufficiently cover the road network and hence traffic conditions west of the Salt Rock interchange to comprehensively analyse it.
- The majority of the traffic generated by Tinley Manor is applied to the proposed Sheffield Beach interchange and hence a comprehensive traffic investigation needs to be carried out on a planning level. This will be done in the next chapter of this report.

7. Planned Diamond Interchange

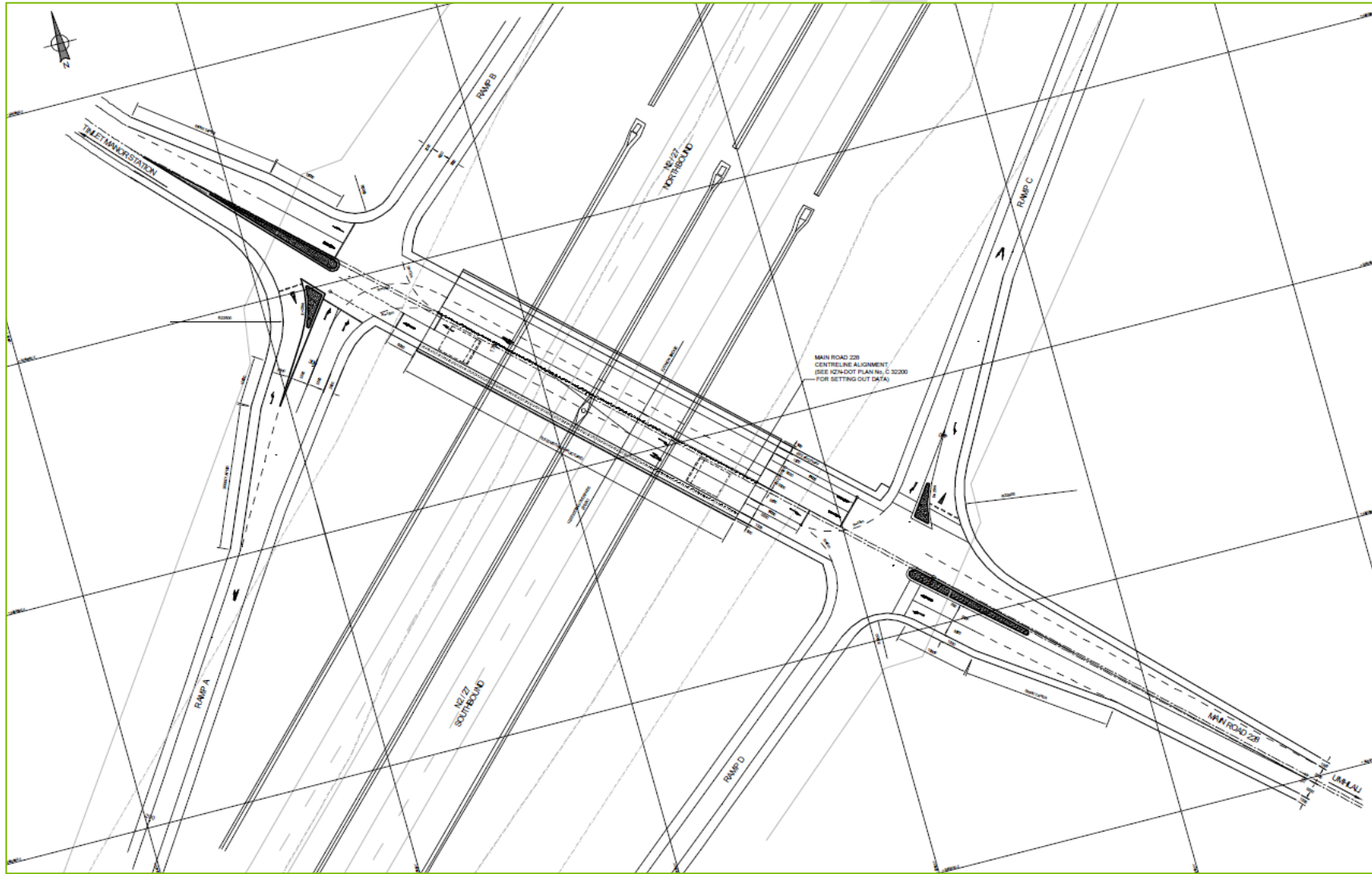
7.1 Terms of Reference

As part of the DFA process for the development of Sheffield Manor (now Seaton Delaval) a Traffic Impact Assessment was carried out by Iliso Consulting in July 2004. The initial assessment recommended that an additional interchange on the N2 was required to service the anticipated traffic generated from Sheffield Manor and the other future developments in the area. As part of SANRAL's "Process for new interchange application" Iliso Consulting prepared a preliminary planning report which was included in the DFA report for the Sheffield Manor Development and approved in principal by SANRAL.

The principle of an additional interchange at km 14 on the N2 has been firmly established and this will clearly be to the benefit of the Tinley Manor South Banks development along with Seaton Delaval as well as other smaller developments in the locality.

It is noted at this stage that the Seaton Delaval development has faltered due to funding issues but this does not preclude the development of that land as upper income housing at some stage in the future, nor the need for the interchange.

Shown below in figure 15 is the Diamond Interchange that was proposed by UWP for Seaton Delaval as a short to medium term solution:



7.2 Traffic Volumes on Proposed Sheffield Beach Interchange

Section 4 of this report provided the generation and distribution of traffic from the developments of Tinley Manor South Banks, Seaton Delaval, Palm Lakes and Inkwazi. Shown below are the peak hour traffic volumes generated by these developments on the proposed Sheffield Beach interchange. Note that no background traffic has been included as this is a new interchange and a negligible amount of background traffic is predicted.

7.2.1 Proposed new diamond interchange (P228) traffic volumes – AM

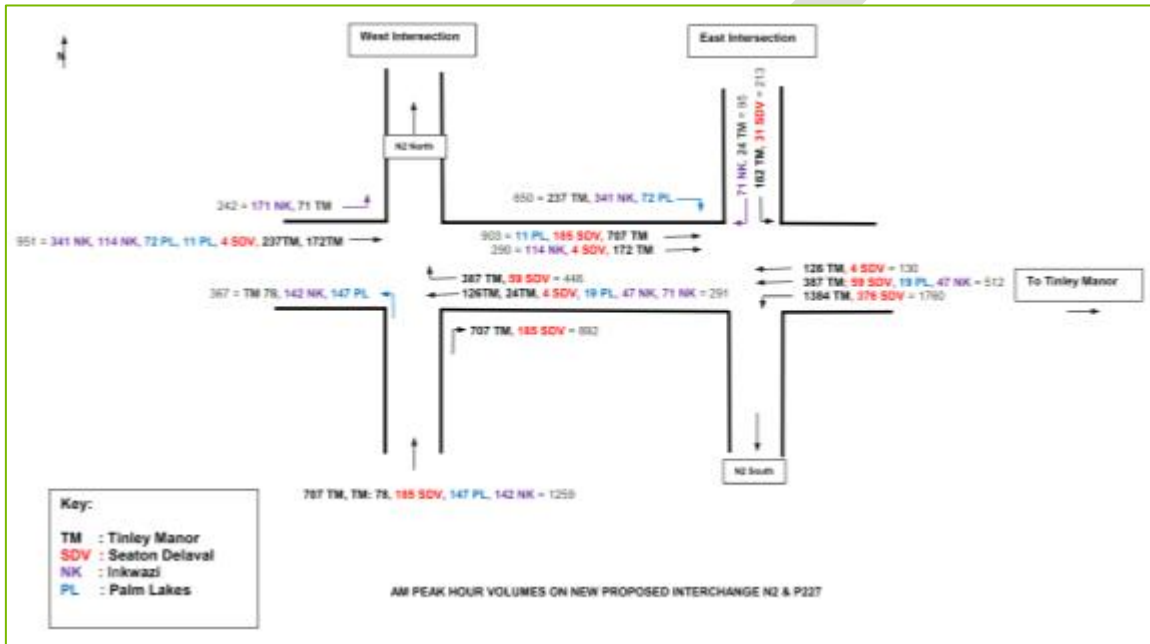


Figure 16: Proposed new interchange traffic volumes – AM

7.2.2 Proposed new diamond interchange traffic volumes – PM

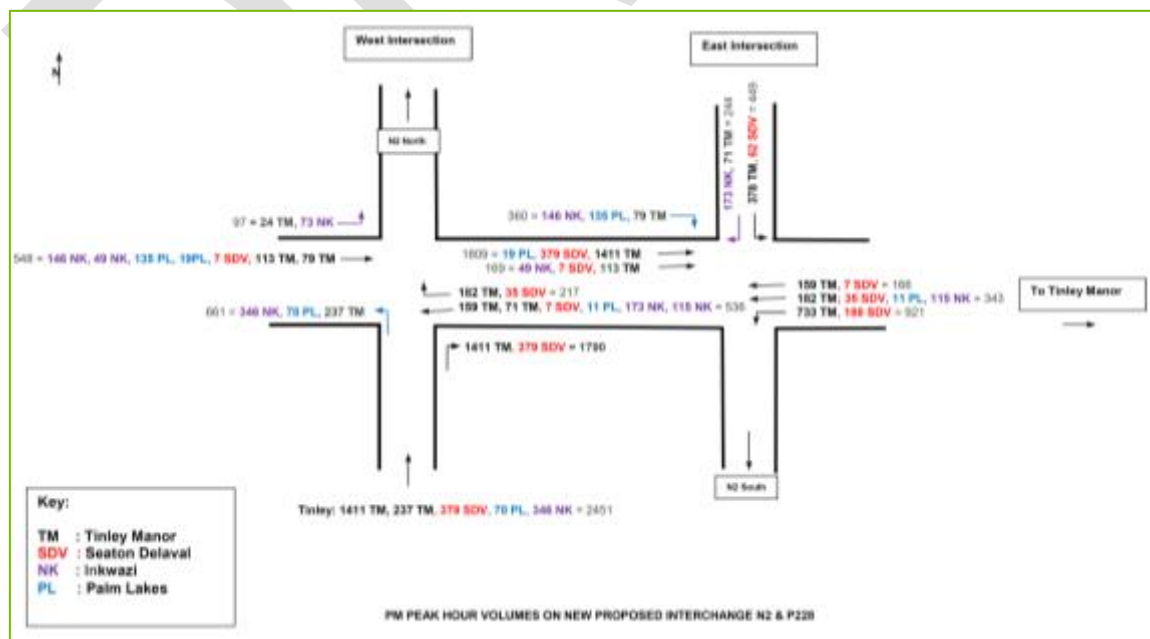


Figure 17: Proposed new interchange traffic volumes – PM

7.2.3 Summary of Traffic Volumes on the Proposed Interchange

The summary of the generated traffic volumes at the proposed new interchange is shown below.

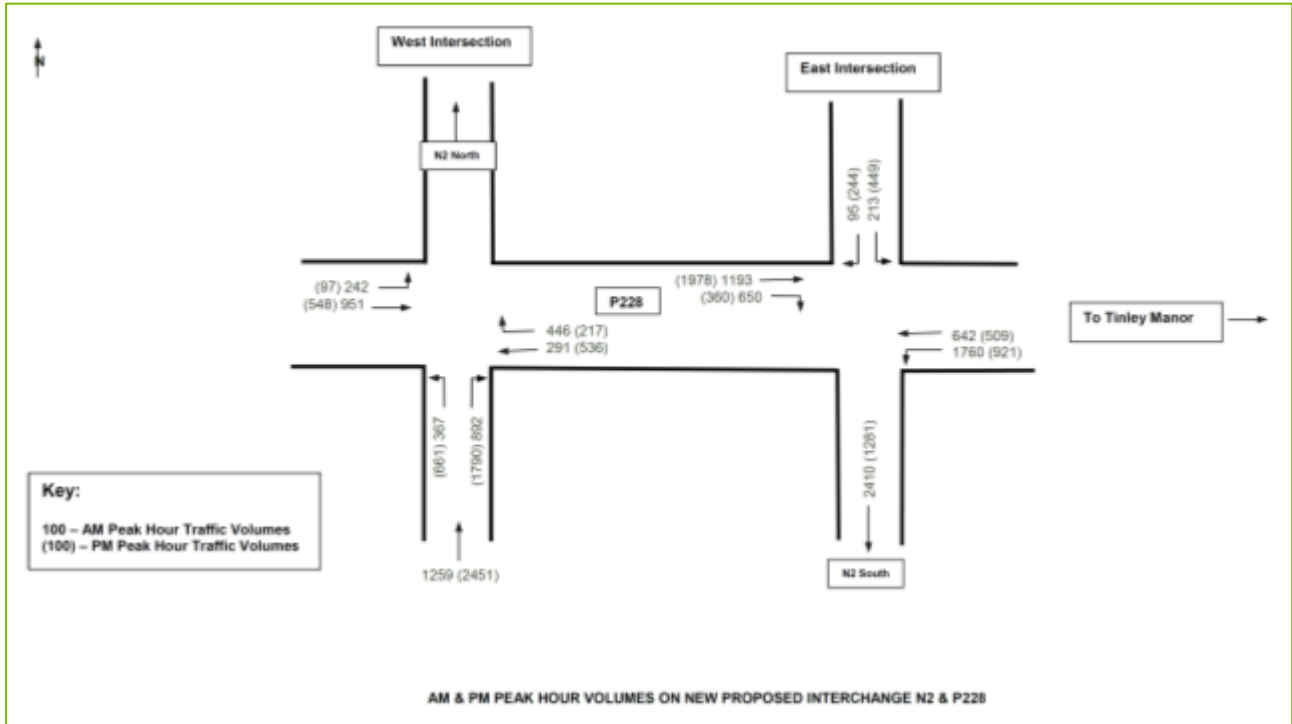


Figure 18: Summary of traffic volumes on proposed interchange

7.3 Analysis of N2/P228 Interchange Proposed by Seaton Delaval

The traffic volumes generated by Tinley Manor South Banks, Seaton Delaval, Palm Lakes and Inkwazi as shown in figure 18 above will now be tested on the layout of the new interchange proposal by the developers of the proposed Seaton Delaval development as in figure 15 above.

7.3.1 Proposed N2/P228 Interchange West – Traffic Signals

The analysis of the west intersection of the proposed diamond interchange is shown below.

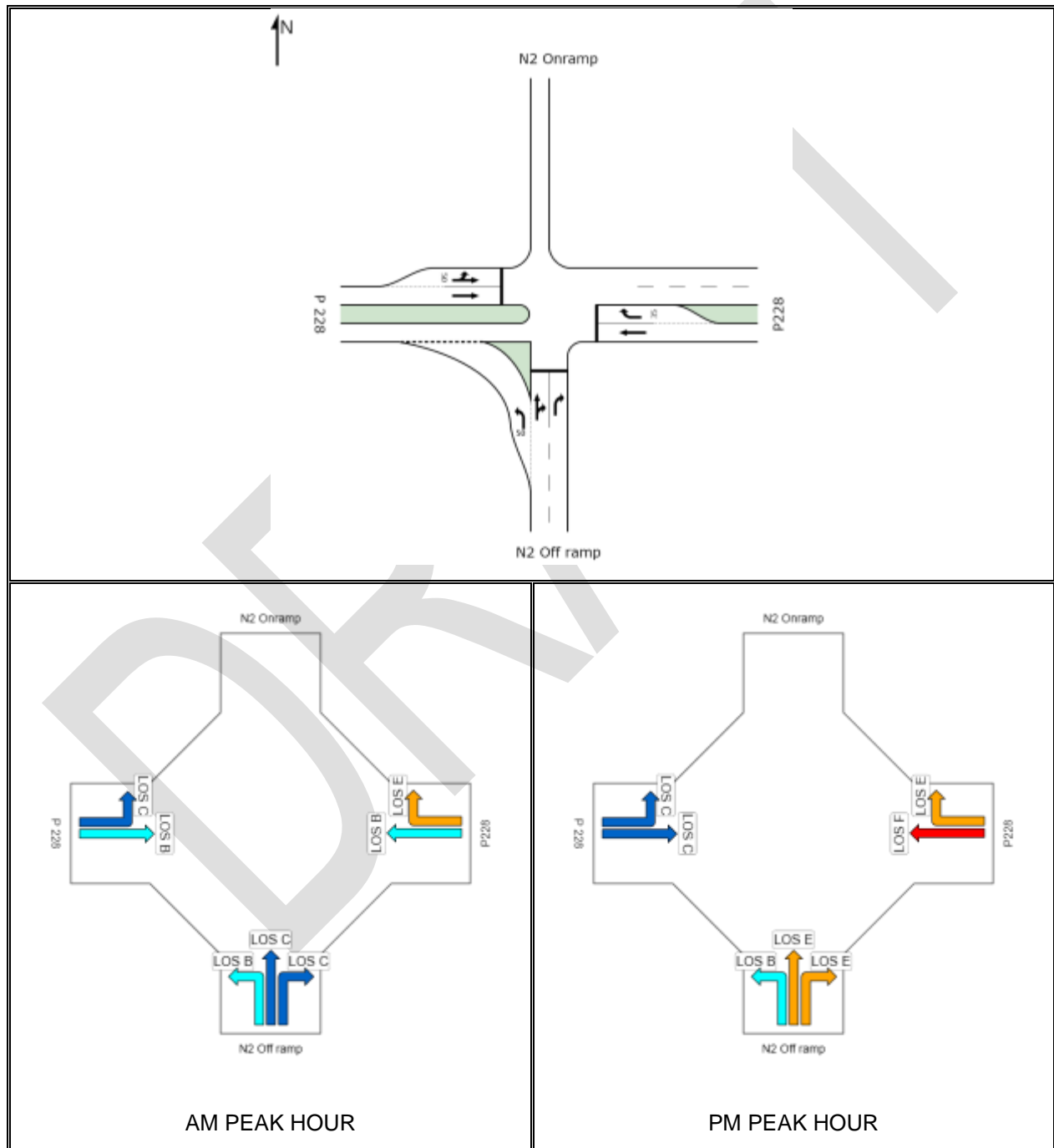


Table 35: Analysis of diamond interchange proposed by Seaton Delaval - West intersection

7.3.2 Proposed N2/P228 Interchange East – Traffic Signals

The analysis of the east intersection of the proposed diamond interchange is shown below.

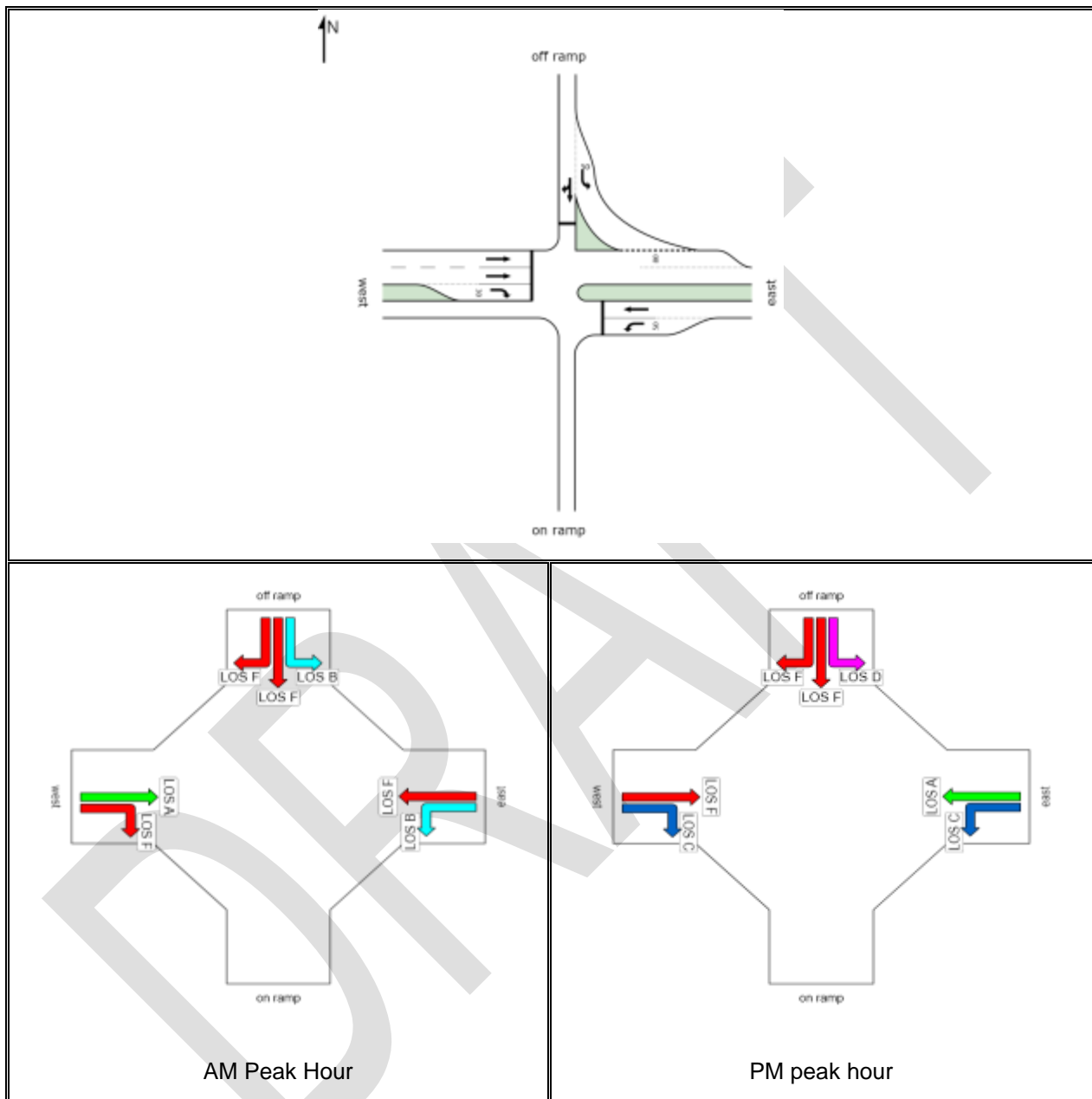


Table 36: Analysis of diamond interchange proposed by Seaton Delaval - East intersection

7.3.3 Comments on the analysis of the proposed diamond interchange

As can be seen from the analysis in 7.3.1 and 7.3.2 above, both east and west intersections exhibit levels of service F. These movements have reached capacity and are deemed as not acceptable. It can be seen that the east intersection is the governing intersection as it shows the poorest traffic operational conditions. An alternative configuration for the interchange is therefore to be investigated to deal with these high volumes of traffic. This will now be analysed by testing a Diverging Diamond Interchange. The layout of a typical Diverging Diamond Interchange is shown in figure 19 below.



Figure 19: Diverging Diamond Interchange at N2 – KwaMashu designed by Aurecon South Africa (Pty) Ltd

7.4 Analysis of a Diverging Diamond Interchange

A diverging diamond interchange will now be tested with the traffic generated by Tinley Manor South Banks, Seaton Delaval, Palm Lakes and Inkwazi. The traffic volumes used are from figure 18 above.

7.4.1 Proposed N2/P228 Diverging Diamond Interchange West Intersection – Traffic Signals

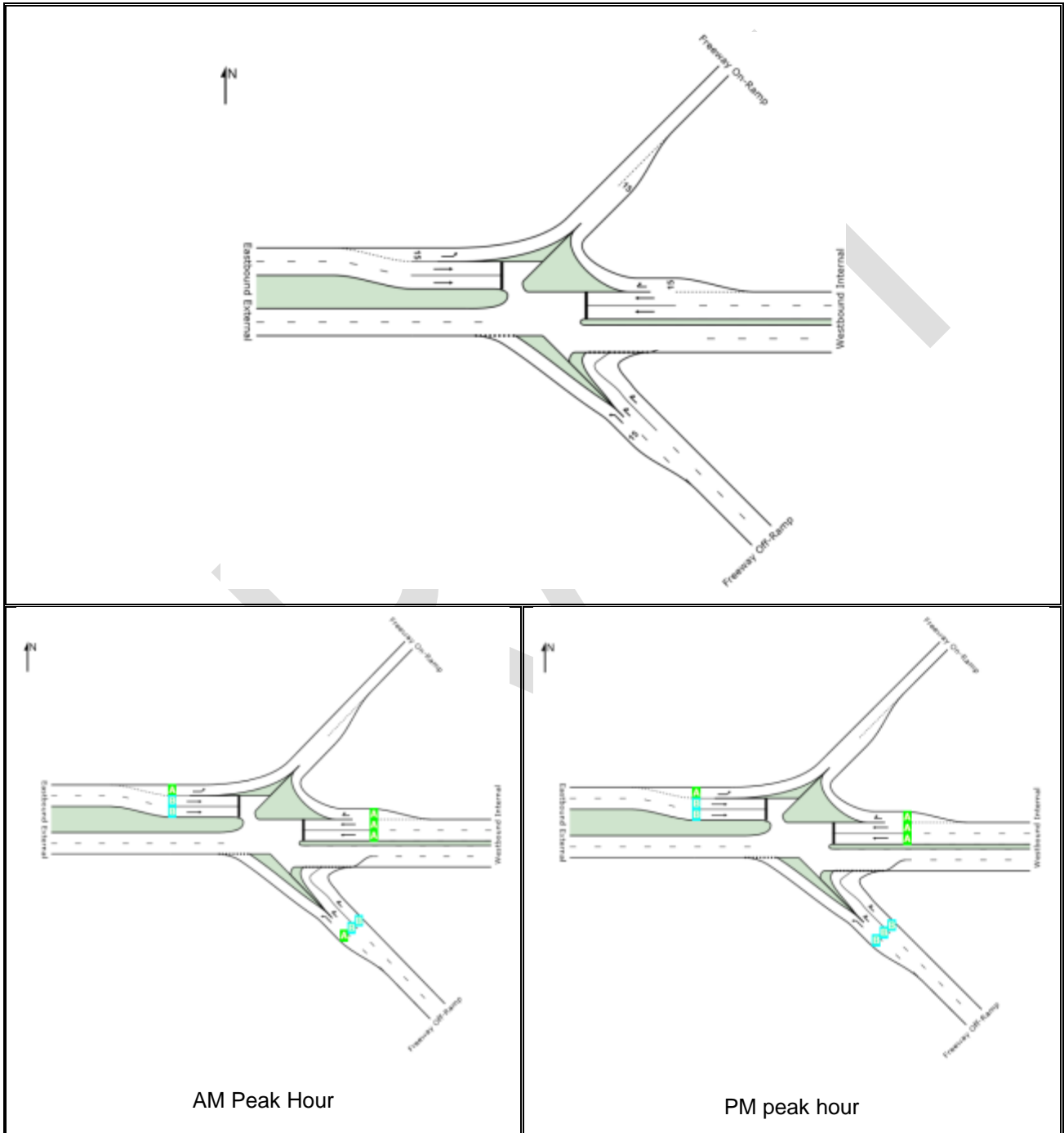


Table 37: Analysis of Diverging Diamond West Intersection

7.4.2 Proposed N2/P228 Diverging Diamond Interchange East Intersection – Traffic Signals

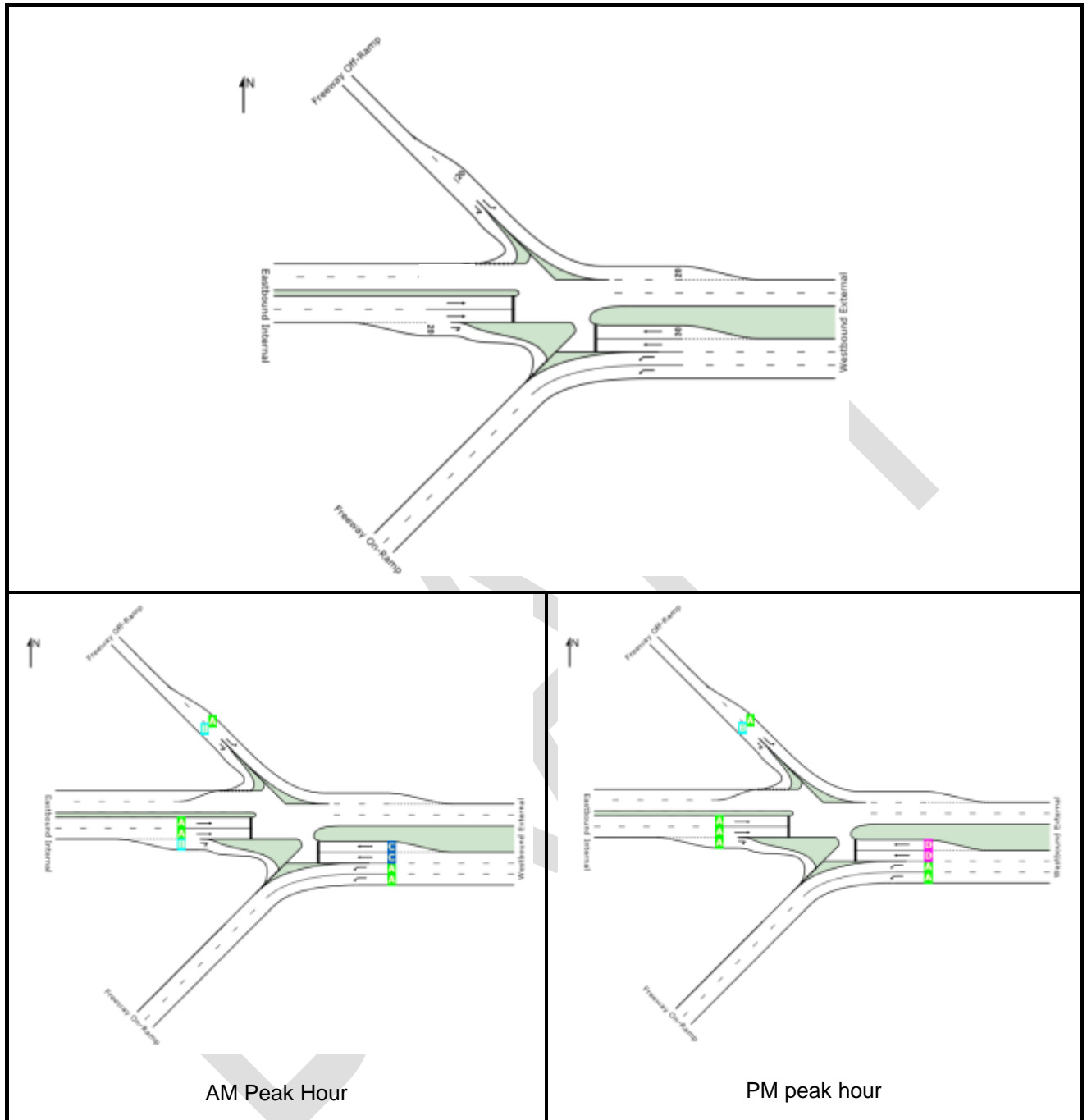


Table 38: Analysis of Diverging Diamond East Intersection

7.4.3 Comments on the analysis of the new proposed diverging diamond interchange

The layout of the proposed diamond intersection is such that the East and West intersections are situated on natural ground adjacent to the bridge. Furthermore it is ensured that 2 lanes in each direction are sufficient to carry the generated traffic volume over the N2. It is important to note that this layout i.e. a diverging diamond interchange operates more efficiently than a conventional diamond interchange in the event of a high volume of right turn traffic as applies in this case. Tables 35 and 36 above show that all levels of service are acceptable.

7.5 Analysis of Merge and Diverge of on ramp and off ramp to/from N2

Distances between the centreline to centreline of interchanges and length of ramps to be noted:

- Existing Salt Rock Interchange to Proposed Sheffield Beach Interchange = 2.6km
- Proposed Sheffield Beach Interchange Southbound on ramp = 0.7 km
- Salt Rock interchange southbound off ramp = 0.7 km
- Proposed Sheffield Beach Interchange to Tinley Beach Interchange = 4.9km

Even though the distance of 2.6km is below the permissible spacing between rural interchanges, an application was made to SANRAL by UWP consulting engineers and relaxation was granted.

It has been established from the SIDRA analysis above that two southbound on ramps and two northbound off ramps will be required to facilitate the high generated traffic to/from the south.


Using the merge and diverge method of the Highway Capacity Manual (2010), Chapter 13, the following levels of service are obtained. Note that traffic generated by Palm Lakes that access the development from the Tinley Beach interchange has been added to the 10 year traffic on the N2 to achieve the following results.

- Proposed Sheffield beach Interchange double on ramp onto N2 southbound:
Length of ramp & acceleration lane = 0.7km
Length of merge lane = 0.6km
Level of Service of merge = C
- Proposed Sheffield beach Interchange double off ramp off N2 northbound:
Length of ramp & deceleration lane = 0.7km
Length of diverge lane = 0.6km
Level of Service of diverge = C

8. Conclusions & Recommendations

The following conclusions can be drawn from this assessment of the likely traffic impact of the proposal to establish a residential and resort estate Tinley Manor South Banks, north of Ballito on the KwaZulu-Natal North Coast.

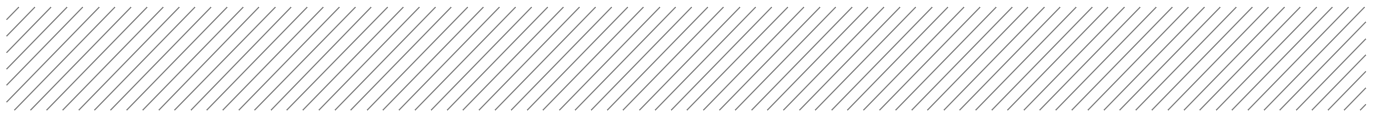
- The existing traffic conditions on the existing road network are satisfactory.
- The future traffic volumes on the immediately adjacent roads are dependent on proposed major developments and have been included in the analysis.
- The traffic that will be generated by the proposed Tinley Manor South Banks development will, when aggregated with the future traffic due to other major traffic generators of Seaton Delaval, Palm Lakes and Inkwazi, require upgrading of the following intersections:
 - P330/P474 upgraded as recommended in 6.3.2
 - P474/P228 upgraded as recommended in 6.3.3
 - P228/P467 upgraded as recommended in 6.3.4
 - P228 access to Tinley Manor and Seaton Delaval upgraded as recommended in 6.4
- It is recommended that the analysis of the Salt Rock interchange be carried out as a separate exercise. The scope of this report does not adequately cover this interchange. The analysis of The Tinley Beach Interchange has been carried out in the Traffic Impact Assessment of Palm



Lakes. The traffic generated by Tinley Manor South Banks negligibly impacts on both of these interchanges.

- The analysis of the new proposed interchange has revealed the following:
 - At the full development of the surrounding area the indications are that a four lane crossroad will not be sufficient and a five lane crossroad will be required in the longer term (20+ years) IF a conventional diamond interchange is constructed.
 - The analysis of a proposed diverging diamond interchange has been carried out. The results indicate good traffic operating conditions with a four lane cross road over the N2 (2 lanes in each direction) as well as indicating capacity for background traffic growth in the long term.
 - It is therefore recommended that the geometry of this proposed diverging diamond interchange be such as indicated in tables 35 and 36.
 - It is recommended that a cost sharing agreement with adjacent landowners be entered into in funding the widened crossroad to accommodate the additional traffic over and above that of the Tinley Manor South Banks development.
- Public transport facilities are to be carefully planned at detailed design stage and implemented. The Ilembe Municipality is expected to expand its public transport operations in line with national policy and link to this section of the north coast and reduce traffic.

Provided the above recommendations are adopted there is no reason of a traffic engineering nature why the development should not be permitted to proceed.



APPENDIX

DRAFT

Existing Traffic flows – Traffic Counts

Intersection of P330 / P474

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF MAIN ROAD 330 AND MAIN ROAD 474															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	NORTH MAIN ROAD 228															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	1	0	0	0	1	0	0	0	0	0	17	0	0	0	17	18
06:15 - 06:30	3	0	0	0	3	0	0	0	0	0	36	0	0	0	36	39
06:30 - 06:45	3	0	0	0	3	0	0	0	0	0	65	2	1	0	68	71
06:45 - 07:00	2	0	0	0	2	0	0	0	0	0	70	0	0	0	70	72
07:00 - 07:15	1	0	1	0	2	0	0	0	0	0	82	0	1	1	84	86
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	51	0	2	0	53	53
07:30 - 07:45	13	0	0	0	13	0	0	0	0	0	106	0	2	0	108	121
07:45 - 08:00	7	0	0	0	7	0	0	0	0	0	67	0	6	0	73	80
08:00 - 08:15	1	0	0	0	1	0	0	0	0	0	39	0	3	0	42	43
08:15 - 08:30	7	0	0	0	7	0	0	0	0	0	50	0	0	0	50	57
08:30 - 08:45	6	0	0	0	6	0	0	0	0	0	51	0	2	0	53	59
08:45 - 09:00	3	0	0	0	3	0	0	0	0	0	40	0	4	0	44	47
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	40	0	8	0	48	48
09:15 - 09:30	3	0	1	0	4	0	0	0	0	0	35	0	3	1	39	43
09:30 - 09:45	7	0	0	0	7	0	0	0	0	0	32	0	0	0	32	39
09:45 - 10:00	3	0	0	0	3	0	0	0	0	0	32	0	3	0	35	38
10:00 - 10:15	1	0	0	0	1	0	0	0	0	0	47	0	3	0	50	51
10:15 - 10:30	3	0	0	0	3	0	0	0	0	0	37	0	6	0	43	46
10:30 - 10:45	3	0	0	0	3	0	0	0	0	0	25	0	4	0	29	32
10:45 - 11:00	5	0	0	0	5	0	0	0	0	0	35	0	2	0	37	42
11:00 - 11:15	2	0	0	0	2	0	0	0	0	0	34	0	3	0	37	39
11:15 - 11:30	2	0	0	0	2	0	0	0	0	0	33	0	4	0	37	39
11:30 - 11:45	5	0	0	0	5	0	0	0	0	0	18	0	1	0	19	24
11:45 - 12:00	6	0	0	0	6	0	0	0	0	0	38	0	7	0	45	51
12:00 - 12:15	5	0	0	0	5	0	0	0	0	0	25	0	0	0	25	30
12:15 - 12:30	4	0	1	0	5	0	0	0	0	0	37	0	6	0	43	48
12:30 - 12:45	4	0	0	0	4	0	0	0	0	0	33	0	3	0	36	40
12:45 - 13:00	3	0	0	0	3	0	0	0	0	0	11	0	2	0	13	16
13:00 - 13:15	5	0	0	0	5	0	0	0	0	0	33	0	2	0	35	40
13:15 - 13:30	10	0	0	0	10	0	0	0	0	0	19	0	0	0	19	29
13:30 - 13:45	2	0	0	0	2	0	0	0	0	0	24	0	7	0	31	33
13:45 - 14:00	2	0	0	0	2	0	0	0	0	0	33	0	2	0	35	37
14:00 - 14:15	5	0	0	0	5	0	0	0	0	0	26	0	4	0	30	35
14:15 - 14:30	2	0	0	0	2	0	0	0	0	0	19	0	4	0	23	25
14:30 - 14:45	2	0	0	0	2	0	0	0	0	0	22	0	3	0	25	27
14:45 - 15:00	4	0	0	0	4	0	0	0	0	0	30	0	3	0	33	37
15:00 - 15:15	2	0	0	0	2	0	0	0	0	0	35	0	1	0	36	38
15:15 - 15:30	2	0	0	0	2	0	0	0	0	0	28	0	6	0	34	36
15:30 - 15:45	7	0	0	0	7	0	0	0	0	0	19	0	1	0	20	27
15:45 - 16:00	2	0	0	0	2	0	0	0	0	0	25	0	4	0	29	31
16:00 - 16:15	1	0	1	0	2	0	0	0	0	0	56	0	3	0	59	61
16:15 - 16:30	5	0	0	0	5	0	0	0	0	0	44	1	2	1	48	53
16:30 - 16:45	8	0	0	0	8	0	0	0	0	0	39	0	3	0	42	50
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	32	1	4	0	37	37
17:00 - 17:15	8	0	0	0	8	0	0	0	0	0	24	0	1	0	25	33
17:15 - 17:30	5	0	0	0	5	0	0	0	0	0	16	0	0	0	16	21
17:30 - 17:45	4	0	0	0	4	0	0	0	0	0	15	0	0	0	15	19
17:45 - 18:00	7	0	1	0	8	0	0	0	0	0	14	0	0	0	14	22
TOTAL	186	0	5	0	191	0	0	0	0	0	1739	4	126	3	1872	2063

TRAFFIC SURVEY ANALYSIS

CLIENT: AURECON

SITE: INTERSECTION OF MAIN ROAD 330 AND MAIN ROAD 474

DATE: 12 HOUR COUNT ON MONDAY 13 AUGUST 2012

UNITS: CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 330														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	18	1	1	0	20	0	0	0	0	0	20
06:15 - 06:30	0	0	0	0	0	22	2	0	1	25	1	0	0	0	1	26
06:30 - 06:45	0	0	0	0	0	51	3	0	0	54	1	0	0	0	1	55
06:45 - 07:00	0	0	0	0	0	96	3	1	1	101	2	0	0	0	2	103
07:00 - 07:15	0	0	0	0	0	143	3	1	1	148	2	0	0	0	2	150
07:15 - 07:30	0	0	0	0	0	72	3	0	0	75	6	0	0	0	6	81
07:30 - 07:45	0	0	0	0	0	64	4	0	0	68	3	0	0	0	3	71
07:45 - 08:00	0	0	0	0	0	70	4	1	2	77	5	0	0	0	5	82
08:00 - 08:15	0	0	0	0	0	37	1	0	0	38	2	0	0	0	2	40
08:15 - 08:30	0	0	0	0	0	41	3	1	0	45	9	0	2	0	11	56
08:30 - 08:45	0	0	0	0	0	33	6	1	0	40	2	0	1	0	3	43
08:45 - 09:00	0	0	0	0	0	40	1	2	0	43	7	0	0	0	7	50
09:00 - 09:15	0	0	0	0	0	43	2	2	1	48	7	0	0	0	7	55
09:15 - 09:30	0	0	0	0	0	46	1	2	1	50	5	0	0	0	5	55
09:30 - 09:45	0	0	0	0	0	26	2	2	0	30	6	0	1	0	7	37
09:45 - 10:00	0	0	0	0	0	40	0	0	0	40	9	0	0	0	9	49
10:00 - 10:15	0	0	0	0	0	43	2	1	0	46	5	0	0	0	5	51
10:15 - 10:30	0	0	0	0	0	27	2	1	0	30	0	0	0	0	0	30
10:30 - 10:45	0	0	0	0	0	42	2	2	0	46	10	0	0	0	10	56
10:45 - 11:00	0	0	0	0	0	37	0	2	0	39	2	0	0	0	2	41
11:00 - 11:15	0	0	0	0	0	42	2	1	0	45	4	0	0	0	4	49
11:15 - 11:30	0	0	0	0	0	33	0	1	0	34	4	0	0	0	4	38
11:30 - 11:45	0	0	0	0	0	44	1	2	1	48	7	0	0	0	7	55
11:45 - 12:00	0	0	0	0	0	60	2	2	0	64	6	0	0	0	6	70
12:00 - 12:15	0	0	0	0	0	28	1	1	0	30	4	0	0	0	4	34
12:15 - 12:30	0	0	0	0	0	60	2	0	0	62	10	0	1	0	11	73
12:30 - 12:45	0	0	0	0	0	47	0	1	0	48	6	0	0	0	6	54
12:45 - 13:00	0	0	0	0	0	21	1	1	0	23	3	0	0	0	3	26
13:00 - 13:15	0	0	0	0	0	50	1	0	1	52	6	0	1	0	7	59
13:15 - 13:30	0	0	0	0	0	37	4	0	0	41	6	0	0	0	6	47
13:30 - 13:45	0	0	0	0	0	48	1	1	0	50	4	0	0	0	4	54
13:45 - 14:00	0	0	0	0	0	54	0	0	0	54	4	0	0	0	4	58
14:00 - 14:15	0	0	0	0	0	35	2	2	1	40	2	0	0	0	2	42
14:15 - 14:30	0	0	0	0	0	36	3	1	0	40	3	0	0	0	3	43
14:30 - 14:45	0	0	0	0	0	34	2	2	0	38	4	0	0	0	4	42
14:45 - 15:00	0	0	0	0	0	29	0	0	0	29	5	0	0	0	5	34
15:00 - 15:15	0	0	0	0	0	58	5	1	0	64	10	0	1	0	11	75
15:15 - 15:30	0	0	0	0	0	45	1	1	1	48	4	0	0	0	4	52
15:30 - 15:45	0	0	0	0	0	37	5	1	0	43	5	0	0	0	5	48
15:45 - 16:00	0	0	0	0	0	46	7	1	0	54	10	0	0	0	10	64
16:00 - 16:15	0	0	0	0	0	64	5	2	2	73	7	0	0	0	7	80
16:15 - 16:30	0	0	0	0	0	41	6	1	0	48	7	0	1	0	8	56
16:30 - 16:45	0	0	0	0	0	63	2	2	1	68	15	0	0	0	15	83
16:45 - 17:00	0	0	0	0	0	44	2	2	1	49	7	0	0	0	7	56
17:00 - 17:15	0	0	0	0	0	48	0	1	0	49	9	0	0	0	9	58
17:15 - 17:30	0	0	0	0	0	55	1	0	0	56	5	0	0	0	5	61
17:30 - 17:45	0	0	0	0	0	27	2	0	0	29	8	0	0	0	8	37
17:45 - 18:00	0	0	0	0	0	23	0	0	0	23	1	0	0	0	1	24
TOTAL	0	0	0	0	0	2200	103	47	15	2365	250	0	8	0	258	2623

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF MAIN ROAD 330 AND MAIN ROAD 474
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 330															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	5	0	0	0	5	4	2	0	2	8	0	0	0	0	0	13
06:15 - 06:30	14	1	1	0	16	9	4	0	0	13	0	0	0	0	0	29
06:30 - 06:45	15	2	0	0	17	23	5	0	0	28	0	0	0	0	0	45
06:45 - 07:00	32	0	1	1	34	22	10	1	1	34	0	0	0	0	0	68
07:00 - 07:15	49	0	6	0	55	52	13	3	1	69	0	0	0	0	0	124
07:15 - 07:30	19	0	1	0	20	37	8	0	0	45	0	0	0	0	0	65
07:30 - 07:45	35	0	2	0	37	63	9	2	0	74	0	0	0	0	0	111
07:45 - 08:00	42	0	1	0	43	44	6	1	2	53	0	0	0	0	0	96
08:00 - 08:15	45	0	3	0	48	46	5	0	0	51	0	0	0	0	0	99
08:15 - 08:30	34	0	4	0	38	19	3	0	0	22	0	0	0	0	0	60
08:30 - 08:45	43	0	1	1	45	18	1	1	0	20	0	0	0	0	0	65
08:45 - 09:00	25	0	1	0	26	19	1	0	1	21	0	0	0	0	0	47
09:00 - 09:15	24	0	1	0	25	31	0	0	0	31	0	0	0	0	0	56
09:15 - 09:30	35	0	4	0	39	33	0	2	0	35	0	0	0	0	0	74
09:30 - 09:45	30	0	6	1	37	28	1	0	0	29	0	0	0	0	0	66
09:45 - 10:00	23	0	4	0	27	38	0	1	0	39	0	0	0	0	0	66
10:00 - 10:15	27	0	3	0	30	28	0	2	0	30	0	0	0	0	0	60
10:15 - 10:30	29	0	5	0	34	28	0	1	0	29	0	0	0	0	0	63
10:30 - 10:45	7	0	2	0	9	32	1	0	0	33	0	0	0	0	0	42
10:45 - 11:00	27	0	6	0	33	32	0	1	0	33	0	0	0	0	0	66
11:00 - 11:15	13	0	6	0	19	34	0	1	0	35	0	0	0	0	0	54
11:15 - 11:30	30	0	3	0	33	27	0	0	0	27	0	0	0	0	0	60
11:30 - 11:45	28	0	2	0	30	17	0	2	0	19	0	0	0	0	0	49
11:45 - 12:00	19	0	2	0	21	27	0	2	0	29	0	0	0	0	0	50
12:00 - 12:15	22	0	4	0	26	28	0	0	0	28	0	0	0	0	0	54
12:15 - 12:30	28	0	2	0	30	37	0	2	0	39	0	0	0	0	0	69
12:30 - 12:45	26	0	4	0	30	14	0	0	0	14	0	0	0	0	0	44
12:45 - 13:00	17	0	1	0	18	20	0	0	0	20	0	0	0	0	0	38
13:00 - 13:15	26	0	5	0	31	49	0	3	0	52	0	0	0	0	0	83
13:15 - 13:30	29	0	4	0	33	38	0	0	0	38	0	0	0	0	0	71
13:30 - 13:45	34	0	3	0	37	37	0	2	1	40	0	0	0	0	0	77
13:45 - 14:00	27	0	1	0	28	38	2	1	0	41	0	0	0	0	0	69
14:00 - 14:15	25	0	3	0	28	47	0	2	0	49	0	0	0	0	0	77
14:15 - 14:30	28	0	2	0	30	41	0	2	0	43	0	0	0	0	0	73
14:30 - 14:45	41	0	2	0	43	48	1	0	0	49	0	0	0	0	0	92
14:45 - 15:00	33	0	1	0	34	41	1	2	0	44	0	0	0	0	0	78
15:00 - 15:15	25	0	3	0	28	54	3	3	0	60	0	0	0	0	0	88
15:15 - 15:30	36	0	2	0	38	38	2	0	1	41	0	0	0	0	0	79
15:30 - 15:45	17	0	4	0	21	48	7	0	0	55	0	0	0	0	0	76
15:45 - 16:00	28	0	4	0	32	30	5	0	0	35	0	0	0	0	0	67
16:00 - 16:15	41	0	2	0	43	44	1	0	1	46	0	0	0	0	0	89
16:15 - 16:30	31	1	2	1	35	53	4	1	1	59	0	0	0	0	0	94
16:30 - 16:45	53	1	1	0	55	68	2	0	0	70	0	0	0	0	0	125
16:45 - 17:00	32	0	0	0	32	68	2	1	0	71	0	0	0	0	0	103
17:00 - 17:15	45	0	3	0	48	60	0	0	0	60	0	0	0	0	0	108
17:15 - 17:30	48	0	0	0	48	47	0	0	0	47	0	0	0	0	0	95
17:30 - 17:45	48	0	0	0	48	45	1	0	0	46	0	0	0	0	0	94
17:45 - 18:00	29	1	0	0	30	26	0	0	0	26	0	0	0	0	0	56
TOTAL	1419	6	118	4	1547	1730	100	39	11	1880	0	0	0	0	0	3427

Intersection of P330 / N2 On-ramp (western)

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF N2 AND MAIN ROAD 330 (WEST OF INTERCHANGE)															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	SOUTH N2 OFF RAMP															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	11	3	0	1	15	0	0	0	0	0	11	0	0	0	11	26
06:15 - 06:30	9	14	1	1	25	0	0	0	0	0	9	0	0	0	9	34
06:30 - 06:45	13	10	5	0	28	0	0	0	0	0	6	0	2	0	8	36
06:45 - 07:00	31	15	1	2	49	0	0	0	0	0	20	0	1	1	22	71
07:00 - 07:15	7	7	0	0	14	0	0	0	0	0	25	0	8	0	33	47
07:15 - 07:30	18	7	1	1	27	0	0	0	0	0	14	1	2	0	17	44
07:30 - 07:45	21	2	4	2	29	0	0	0	0	0	42	2	2	0	46	75
07:45 - 08:00	6	5	2	0	13	0	0	0	0	0	30	1	1	1	33	46
08:00 - 08:15	12	16	0	0	28	0	0	0	0	0	42	0	7	0	49	77
08:15 - 08:30	11	6	2	0	19	0	0	0	0	0	27	0	4	0	31	50
08:30 - 08:45	18	9	1	1	29	0	0	0	0	0	36	0	1	0	37	66
08:45 - 09:00	24	18	3	0	45	0	0	0	0	0	79	0	1	0	80	125
09:00 - 09:15	11	0	0	0	11	0	0	0	0	0	52	0	2	1	55	66
09:15 - 09:30	9	0	1	1	11	0	0	0	0	0	39	0	2	0	41	52
09:30 - 09:45	11	4	0	1	16	0	0	0	0	0	37	0	6	0	43	59
09:45 - 10:00	7	0	2	0	9	0	0	0	0	0	27	0	5	0	32	41
10:00 - 10:15	4	2	3	0	9	0	0	0	0	0	31	0	1	0	32	41
10:15 - 10:30	15	6	5	0	26	0	0	0	0	0	50	0	3	0	53	79
10:30 - 10:45	20	2	1	0	23	0	0	0	0	0	28	0	4	0	32	55
10:45 - 11:00	17	4	4	1	26	0	0	0	0	0	47	0	8	0	55	81
11:00 - 11:15	16	2	3	1	22	0	0	0	0	0	51	0	4	0	55	77
11:15 - 11:30	13	1	1	1	16	0	0	0	0	0	35	0	2	0	37	53
11:30 - 11:45	11	3	2	0	16	0	0	0	0	0	38	0	3	0	41	57
11:45 - 12:00	9	1	1	0	11	0	0	0	0	0	21	0	3	0	24	35
12:00 - 12:15	9	1	4	0	14	0	0	0	0	0	47	0	6	0	53	67
12:15 - 12:30	15	0	2	1	18	0	0	0	0	0	24	0	1	0	25	43
12:30 - 12:45	5	2	3	0	10	0	0	0	0	0	34	0	5	0	39	49
12:45 - 13:00	21	2	6	1	30	0	0	0	0	0	39	0	3	0	42	72
13:00 - 13:15	9	1	2	0	12	0	0	0	0	0	34	0	4	0	38	50
13:15 - 13:30	6	2	4	0	12	0	0	0	0	0	25	0	4	0	29	41
13:30 - 13:45	7	0	1	0	8	0	0	0	0	0	26	0	2	0	28	36
13:45 - 14:00	10	3	0	0	13	0	0	0	0	0	26	0	5	0	31	44
14:00 - 14:15	8	2	3	1	14	0	0	0	0	0	44	0	6	0	50	64
14:15 - 14:30	6	1	1	0	8	0	0	0	0	0	51	1	3	0	55	63
14:30 - 14:45	7	4	2	1	14	0	0	0	0	0	61	0	1	0	62	76
14:45 - 15:00	7	0	0	0	7	0	0	0	0	0	39	1	4	0	44	51
15:00 - 15:15	46	12	5	0	63	0	0	0	0	0	47	0	4	0	51	114
15:15 - 15:30	26	7	0	3	36	0	0	0	0	0	37	0	4	0	41	77
15:30 - 15:45	48	21	3	3	75	0	0	0	0	0	68	0	5	0	73	148
15:45 - 16:00	33	10	4	2	49	0	0	0	0	0	74	0	4	0	78	127
16:00 - 16:15	15	5	0	1	21	0	0	0	0	0	44	0	2	0	46	67
16:15 - 16:30	10	2	0	0	12	0	0	0	0	0	78	0	5	0	83	95
16:30 - 16:45	12	8	1	2	23	0	0	0	0	0	42	0	0	0	42	65
16:45 - 17:00	44	11	0	0	55	0	0	0	0	0	49	0	1	1	51	106
17:00 - 17:15	47	14	3	1	65	0	0	0	0	0	68	0	2	0	70	135
17:15 - 17:30	33	10	6	0	49	0	0	0	0	0	61	0	0	0	61	110
17:30 - 17:45	23	13	2	0	38	0	0	0	0	0	62	0	0	0	62	100
17:45 - 18:00	15	2	0	0	17	0	0	0	0	0	55	0	0	0	55	72
TOTAL	786	270	95	29	1180	0	0	0	0	0	1932	6	143	4	2085	3265

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 330 (WEST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 330														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	4	1	0	1	6	9	0	0	0	9	15
06:15 - 06:30	0	0	0	0	0	13	1	0	0	14	2	0	0	0	2	16
06:30 - 06:45	0	0	0	0	0	29	5	0	0	34	9	0	0	0	9	43
06:45 - 07:00	0	0	0	0	0	70	4	2	0	76	15	0	0	0	15	91
07:00 - 07:15	0	0	0	0	0	84	2	3	3	92	57	0	0	0	57	149
07:15 - 07:30	0	0	0	0	0	52	5	0	0	57	30	0	0	0	30	87
07:30 - 07:45	0	0	0	0	0	15	7	3	0	25	7	0	0	0	7	32
07:45 - 08:00	0	0	0	0	0	80	8	3	1	92	40	0	0	0	40	132
08:00 - 08:15	0	0	0	0	0	30	0	1	0	31	11	0	0	0	11	42
08:15 - 08:30	0	0	0	0	0	18	3	0	0	21	10	0	2	0	12	33
08:30 - 08:45	0	0	0	0	0	30	6	1	0	37	29	0	2	0	31	68
08:45 - 09:00	0	0	0	0	0	39	2	2	0	43	20	0	1	0	21	64
09:00 - 09:15	0	0	0	0	0	24	0	3	2	29	9	0	1	0	10	39
09:15 - 09:30	0	0	0	0	0	30	1	1	2	34	14	0	2	0	16	50
09:30 - 09:45	0	0	0	0	0	18	3	0	0	21	10	0	0	0	10	31
09:45 - 10:00	0	0	0	0	0	27	1	3	0	31	2	0	0	0	2	33
10:00 - 10:15	0	0	0	0	0	10	2	2	0	14	2	0	0	0	2	16
10:15 - 10:30	0	0	0	0	0	16	2	2	0	20	6	0	0	0	6	26
10:30 - 10:45	0	0	0	0	0	27	2	4	0	33	1	0	1	0	2	35
10:45 - 11:00	0	0	0	0	0	28	0	2	0	30	5	0	0	0	5	35
11:00 - 11:15	0	0	0	0	0	24	2	1	0	27	6	0	0	0	6	33
11:15 - 11:30	0	0	0	0	0	28	1	2	0	31	5	0	0	0	5	36
11:30 - 11:45	0	0	0	0	0	15	1	0	1	17	3	0	0	0	3	20
11:45 - 12:00	0	0	0	0	0	16	1	2	0	19	0	0	0	0	0	19
12:00 - 12:15	0	0	0	0	0	11	0	1	0	12	1	0	0	0	1	13
12:15 - 12:30	0	0	0	0	0	16	2	3	0	21	3	0	0	0	3	24
12:30 - 12:45	0	0	0	0	0	27	0	1	0	28	7	0	0	0	7	35
12:45 - 13:00	0	0	0	0	0	22	0	1	1	24	4	0	0	0	4	28
13:00 - 13:15	0	0	0	0	0	26	1	2	1	30	6	0	0	0	6	36
13:15 - 13:30	0	0	0	0	0	22	4	0	0	26	3	0	0	0	3	29
13:30 - 13:45	0	0	0	0	0	21	1	0	0	22	4	0	0	0	4	26
13:45 - 14:00	0	0	0	0	0	53	1	0	0	54	5	0	0	0	5	59
14:00 - 14:15	0	0	0	0	0	65	4	1	1	71	5	0	0	0	5	76
14:15 - 14:30	0	0	0	0	0	60	1	2	0	63	5	0	1	0	6	69
14:30 - 14:45	0	0	0	0	0	43	0	2	0	45	6	0	0	0	6	51
14:45 - 15:00	0	0	0	0	0	59	1	0	0	60	2	0	0	0	2	62
15:00 - 15:15	0	0	0	0	0	88	3	0	0	91	11	0	0	0	11	102
15:15 - 15:30	0	0	0	0	0	69	2	1	0	72	9	0	1	0	10	82
15:30 - 15:45	0	0	0	0	0	87	8	1	2	98	9	0	1	0	10	108
15:45 - 16:00	0	0	0	0	0	97	5	0	0	102	15	0	0	0	15	117
16:00 - 16:15	0	0	0	0	0	77	4	1	1	83	10	0	0	1	11	94
16:15 - 16:30	0	0	0	0	0	69	6	1	2	78	9	0	1	0	10	88
16:30 - 16:45	0	0	0	0	0	66	0	0	0	66	7	0	0	0	7	73
16:45 - 17:00	0	0	0	0	0	58	4	1	1	64	7	0	0	0	7	71
17:00 - 17:15	0	0	0	0	0	49	1	1	1	52	12	0	0	0	12	64
17:15 - 17:30	0	0	0	0	0	42	0	0	0	42	8	0	1	0	9	51
17:30 - 17:45	0	0	0	0	0	25	2	0	0	27	8	0	0	0	8	35
17:45 - 18:00	0	0	0	0	0	18	0	0	0	18	4	0	0	0	4	22
TOTAL	0	0	0	0	0	1897	110	56	20	2083	462	0	14	1	477	2560

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 330 (WEST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 330														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	1	0	0	0	1	33	14	1	1	49	0	0	0	0	0	50
06:15 - 06:30	1	0	0	0	1	71	33	3	1	108	0	0	0	0	0	109
06:30 - 06:45	1	0	0	0	1	50	25	1	1	77	0	0	0	0	0	78
06:45 - 07:00	4	0	0	0	4	106	30	7	0	143	0	0	0	0	0	147
07:00 - 07:15	4	0	0	0	4	180	29	2	1	212	0	0	0	0	0	216
07:15 - 07:30	2	0	0	0	2	140	25	6	3	174	0	0	0	0	0	176
07:30 - 07:45	7	0	0	0	7	197	16	4	2	219	0	0	0	0	0	226
07:45 - 08:00	2	0	1	0	3	126	30	6	2	164	0	0	0	0	0	167
08:00 - 08:15	1	0	0	0	1	78	26	4	0	108	0	0	0	0	0	109
08:15 - 08:30	7	0	0	0	7	93	16	2	1	112	0	0	0	0	0	119
08:30 - 08:45	5	0	1	0	6	29	8	4	1	42	0	0	0	0	0	48
08:45 - 09:00	4	0	0	0	4	77	19	3	1	100	0	0	0	0	0	104
09:00 - 09:15	0	0	0	0	0	56	4	4	1	65	0	0	0	0	0	65
09:15 - 09:30	2	0	1	0	3	73	6	7	0	86	0	0	0	0	0	89
09:30 - 09:45	1	0	0	0	1	50	10	4	1	65	0	0	0	0	0	66
09:45 - 10:00	0	0	0	0	0	56	6	4	0	66	0	0	0	0	0	66
10:00 - 10:15	2	0	0	0	2	57	6	8	1	72	0	0	0	0	0	74
10:15 - 10:30	3	0	1	0	4	71	5	9	0	85	0	0	0	0	0	89
10:30 - 10:45	2	0	1	0	3	66	8	7	0	81	0	0	0	0	0	84
10:45 - 11:00	5	0	0	0	5	87	4	3	1	95	0	0	0	0	0	100
11:00 - 11:15	3	0	2	0	5	63	4	4	0	71	0	0	0	0	0	76
11:15 - 11:30	1	0	2	0	3	121	4	7	0	132	0	0	0	0	0	135
11:30 - 11:45	0	0	0	0	0	80	5	11	0	96	0	0	0	0	0	96
11:45 - 12:00	0	0	0	0	0	60	9	10	1	80	0	0	0	0	0	80
12:00 - 12:15	3	0	0	0	3	98	5	6	0	109	0	0	0	0	0	112
12:15 - 12:30	0	0	0	0	0	56	3	3	0	62	0	0	0	0	0	62
12:30 - 12:45	4	0	0	0	4	82	4	6	1	93	0	0	0	0	0	97
12:45 - 13:00	4	0	0	0	4	125	6	4	0	135	0	0	0	0	0	139
13:00 - 13:15	3	0	1	0	4	99	5	7	0	111	0	0	0	0	0	115
13:15 - 13:30	3	0	0	0	3	79	3	12	1	95	0	0	0	0	0	98
13:30 - 13:45	2	0	1	0	3	96	4	8	1	109	0	0	0	0	0	112
13:45 - 14:00	3	0	0	0	3	88	8	6	0	102	0	0	0	0	0	105
14:00 - 14:15	6	0	0	0	6	147	0	3	2	152	0	0	0	0	0	158
14:15 - 14:30	7	0	0	0	7	125	8	3	1	137	0	0	0	0	0	144
14:30 - 14:45	2	0	0	1	3	122	8	7	0	137	0	0	0	0	0	140
14:45 - 15:00	5	0	1	0	6	96	12	5	0	113	0	0	0	0	0	119
15:00 - 15:15	0	0	0	0	0	145	11	5	2	163	0	0	0	0	0	163
15:15 - 15:30	5	0	0	1	6	91	8	4	0	103	0	0	0	0	0	109
15:30 - 15:45	3	0	0	0	3	141	25	4	0	170	0	0	0	0	0	173
15:45 - 16:00	5	0	0	0	5	96	14	5	0	115	0	0	0	0	0	120
16:00 - 16:15	3	0	0	0	3	92	12	6	2	112	0	0	0	0	0	115
16:15 - 16:30	0	0	0	0	0	145	18	4	2	169	0	0	0	0	0	169
16:30 - 16:45	2	0	0	0	2	108	14	2	1	125	0	0	0	0	0	127
16:45 - 17:00	6	0	0	0	6	99	16	4	0	119	0	0	0	0	0	125
17:00 - 17:15	3	0	0	0	3	152	18	8	1	179	0	0	0	0	0	182
17:15 - 17:30	5	0	0	0	5	72	10	2	1	85	0	0	0	0	0	90
17:30 - 17:45	2	0	0	0	2	72	6	0	2	80	0	0	0	0	0	82
17:45 - 18:00	4	0	0	1	5	66	9	2	1	78	0	0	0	0	0	83
TOTAL	138	0	12	3	153	4512	569	237	37	5355	0	0	0	0	0	5508

Intersection of P330 / N2 On-ramp (Eastern)

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF N2 AND MAIN ROAD 330 (EAST OF INTERCHANGE)															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	NORTH N2 OFF RAMP															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	3	0	0	1	4	0	0	0	0	0	2	0	0	0	2	6
06:15 - 06:30	2	0	0	0	2	0	0	0	0	0	3	0	0	0	3	5
06:30 - 06:45	5	0	0	0	5	0	0	0	0	0	2	0	0	0	2	7
06:45 - 07:00	15	0	0	1	16	0	0	0	0	0	1	0	0	0	1	17
07:00 - 07:15	12	0	0	1	13	0	0	0	0	0	4	0	0	1	5	18
07:15 - 07:30	8	0	0	0	8	0	0	0	0	0	3	0	0	0	3	11
07:30 - 07:45	6	0	0	0	6	0	0	0	0	0	4	0	0	0	4	10
07:45 - 08:00	9	0	0	0	9	0	0	0	0	0	4	0	0	0	4	13
08:00 - 08:15	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	6
08:15 - 08:30	2	0	0	0	2	0	0	0	0	0	4	0	0	0	4	6
08:30 - 08:45	6	0	0	0	6	0	0	0	0	0	1	0	0	0	1	7
08:45 - 09:00	10	0	0	0	10	0	0	0	0	0	8	0	0	0	8	18
09:00 - 09:15	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
09:15 - 09:30	4	0	0	0	4	0	0	0	0	0	1	0	0	0	1	5
09:30 - 09:45	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	5
09:45 - 10:00	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
10:00 - 10:15	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	5
10:15 - 10:30	5	0	0	0	5	0	0	0	0	0	2	0	0	0	2	7
10:30 - 10:45	1	0	0	0	1	0	0	0	0	0	5	0	2	0	7	8
10:45 - 11:00	7	0	0	0	7	0	0	0	0	0	3	0	0	0	3	10
11:00 - 11:15	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	10
11:15 - 11:30	4	0	1	0	5	0	0	0	0	0	3	0	0	0	3	8
11:30 - 11:45	8	0	1	0	9	0	0	0	0	0	2	0	0	0	2	11
11:45 - 12:00	11	0	0	0	11	0	0	0	0	0	4	0	0	0	4	15
12:00 - 12:15	6	0	0	0	6	0	0	0	0	0	1	0	0	0	1	7
12:15 - 12:30	9	0	0	0	9	0	0	0	0	0	4	0	0	0	4	13
12:30 - 12:45	9	0	0	0	9	0	0	0	0	0	3	0	0	0	3	12
12:45 - 13:00	9	0	1	0	10	0	0	0	0	0	5	0	1	0	6	16
13:00 - 13:15	9	0	0	0	9	0	0	0	0	0	1	0	1	0	2	11
13:15 - 13:30	8	0	2	0	10	0	0	0	0	0	2	0	0	0	2	12
13:30 - 13:45	9	0	0	0	9	0	0	0	0	0	3	0	0	0	3	12
13:45 - 14:00	7	0	0	0	7	0	0	0	0	0	9	0	0	0	9	16
14:00 - 14:15	7	1	1	0	9	0	0	0	0	0	3	0	2	0	5	14
14:15 - 14:30	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	6
14:30 - 14:45	14	0	0	0	14	0	0	0	0	0	3	0	0	0	3	17
14:45 - 15:00	5	0	0	0	5	0	0	0	0	0	2	0	0	0	2	7
15:00 - 15:15	9	0	0	0	9	0	0	0	0	0	3	1	0	0	4	13
15:15 - 15:30	12	0	0	0	12	0	0	0	0	0	6	0	0	0	6	18
15:30 - 15:45	5	0	0	0	5	0	0	0	0	0	5	0	0	0	5	10
15:45 - 16:00	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	6
16:00 - 16:15	13	0	1	0	14	0	0	0	0	0	5	0	1	0	6	20
16:15 - 16:30	17	2	0	1	20	0	0	0	0	0	2	0	0	0	2	22
16:30 - 16:45	11	0	0	0	11	0	0	0	0	0	4	0	1	0	5	16
16:45 - 17:00	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	9
17:00 - 17:15	13	0	0	0	13	0	0	0	0	0	4	0	0	0	4	17
17:15 - 17:30	11	0	0	0	11	0	0	0	0	0	1	0	0	0	1	12
17:30 - 17:45	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	9
17:45 - 18:00	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	13
TOTAL	369	3	7	4	383	0	0	0	0	0	131	1	8	1	141	524

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 330 (EAST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 330															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	13	0	0	0	13	13	1	0	1	15	0	0	0	0	0	28
06:15 - 06:30	37	0	1	0	38	20	1	0	0	21	0	0	0	0	0	59
06:30 - 06:45	62	0	2	0	64	35	5	0	0	40	0	0	0	0	0	104
06:45 - 07:00	84	0	3	0	87	77	4	2	0	83	0	0	0	0	0	170
07:00 - 07:15	106	0	0	1	107	135	3	3	2	143	0	0	0	0	0	250
07:15 - 07:30	89	0	3	0	92	79	7	0	0	86	0	0	0	0	0	178
07:30 - 07:45	159	0	2	0	161	41	6	3	0	50	0	0	0	0	0	211
07:45 - 08:00	27	0	1	0	28	50	6	3	1	60	0	0	0	0	0	88
08:00 - 08:15	59	0	2	0	61	95	0	1	0	96	0	0	0	0	0	157
08:15 - 08:30	65	0	3	0	68	31	4	2	0	37	0	0	0	0	0	105
08:30 - 08:45	63	0	2	0	65	38	6	1	0	45	0	0	0	0	0	110
08:45 - 09:00	54	0	0	0	54	51	1	5	0	57	0	0	0	0	0	111
09:00 - 09:15	48	0	2	0	50	33	0	4	2	39	0	0	0	0	0	89
09:15 - 09:30	46	0	6	0	52	43	1	2	2	48	0	0	0	0	0	100
09:30 - 09:45	47	0	2	0	49	30	3	1	0	34	0	0	0	0	0	83
09:45 - 10:00	73	0	2	0	75	21	1	5	0	27	0	0	0	0	0	102
10:00 - 10:15	41	0	4	0	45	47	2	1	0	50	0	0	0	0	0	95
10:15 - 10:30	34	0	0	0	34	25	2	2	0	29	0	0	0	0	0	63
10:30 - 10:45	56	0	5	0	61	36	2	0	0	38	0	0	0	0	0	99
10:45 - 11:00	44	0	4	0	48	39	0	2	0	41	0	0	0	0	0	89
11:00 - 11:15	56	0	1	0	57	39	2	1	0	42	0	0	0	0	0	99
11:15 - 11:30	39	0	3	0	42	39	1	3	0	43	0	0	0	0	0	85
11:30 - 11:45	67	0	3	0	70	36	1	0	1	38	0	0	0	0	0	108
11:45 - 12:00	49	0	1	0	50	26	1	1	0	28	0	0	0	0	0	78
12:00 - 12:15	52	0	4	0	56	35	0	1	0	36	0	0	0	0	0	92
12:15 - 12:30	39	0	4	0	43	23	2	2	0	27	0	0	0	0	0	70
12:30 - 12:45	46	0	4	0	50	33	0	1	0	34	0	0	0	0	0	84
12:45 - 13:00	56	0	1	0	57	52	0	1	1	54	0	0	0	0	0	111
13:00 - 13:15	58	0	5	0	63	37	1	2	1	41	0	0	0	0	0	104
13:15 - 13:30	58	0	1	0	59	40	4	0	0	44	0	0	0	0	0	103
13:30 - 13:45	56	0	2	0	58	48	1	0	0	49	0	0	0	0	0	107
13:45 - 14:00	49	0	5	0	54	52	1	0	0	53	0	0	0	0	0	107
14:00 - 14:15	47	0	5	0	52	61	4	3	1	69	0	0	0	0	0	121
14:15 - 14:30	40	0	1	0	41	50	1	0	0	51	0	0	0	0	0	92
14:30 - 14:45	48	0	1	0	49	47	0	2	0	49	0	0	0	0	0	98
14:45 - 15:00	28	0	4	2	34	36	1	0	0	37	0	0	0	0	0	71
15:00 - 15:15	48	0	1	1	50	43	4	0	0	47	0	0	0	0	0	97
15:15 - 15:30	48	0	2	0	50	48	1	1	0	50	0	0	0	0	0	100
15:30 - 15:45	57	0	2	0	59	67	8	1	2	78	0	0	0	0	0	137
15:45 - 16:00	42	0	2	0	44	36	5	0	0	41	0	0	0	0	0	85
16:00 - 16:15	56	0	3	0	59	66	4	1	1	72	0	0	0	0	0	131
16:15 - 16:30	58	0	6	0	64	72	6	1	3	82	0	0	0	0	0	146
16:30 - 16:45	56	0	4	0	60	60	0	1	0	61	0	0	0	0	0	121
16:45 - 17:00	37	0	9	0	46	50	4	1	1	56	0	0	0	0	0	102
17:00 - 17:15	43	0	4	1	48	63	1	1	1	66	0	0	0	0	0	114
17:15 - 17:30	26	0	3	0	29	55	0	1	0	56	0	0	0	0	0	85
17:30 - 17:45	38	0	0	0	38	37	2	0	0	39	0	0	0	0	0	77
17:45 - 18:00	48	0	0	0	48	22	0	0	0	22	0	0	0	0	0	70
TOTAL	2552	0	125	5	2682	2212	110	62	20	2404	0	0	0	0	0	5086

TRAFFIC SURVEY ANALYSIS

CLIENT: AURECON

SITE: INTERSECTION OF N2 AND MAIN ROAD 330 (EAST OF INTERCHANGE)

DATE: 12 HOUR COUNT ON MONDAY 13 AUGUST 2012

UNITS: CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 330															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	0	0	0	0	0	23	2	0	1	26	19	12	1	0	32	58
06:15 - 06:30	0	0	0	0	0	36	7	1	0	44	44	27	2	2	75	119
06:30 - 06:45	0	0	0	0	0	23	5	1	0	29	39	20	1	0	60	89
06:45 - 07:00	0	0	0	0	0	61	13	2	1	77	74	21	6	1	102	179
07:00 - 07:15	0	0	0	0	0	110	15	7	0	132	104	16	2	1	123	255
07:15 - 07:30	0	0	0	0	0	96	9	4	1	110	74	10	6	3	93	203
07:30 - 07:45	0	0	0	0	0	116	11	4	0	131	103	10	2	1	116	247
07:45 - 08:00	0	0	0	0	0	125	13	1	2	141	58	19	5	0	82	223
08:00 - 08:15	0	0	0	0	0	100	5	5	0	110	31	24	5	0	60	170
08:15 - 08:30	0	0	0	0	0	65	3	5	0	73	35	12	1	1	49	122
08:30 - 08:45	0	0	0	0	0	66	1	4	1	72	31	8	2	0	41	113
08:45 - 09:00	0	0	0	0	0	81	1	3	1	86	32	12	2	0	46	132
09:00 - 09:15	0	0	0	0	0	75	0	2	1	78	33	5	2	1	41	119
09:15 - 09:30	0	0	0	0	0	78	0	8	0	86	30	6	4	0	40	126
09:30 - 09:45	0	0	0	0	0	74	3	7	0	84	26	9	5	1	41	125
09:45 - 10:00	0	0	0	0	0	53	0	6	0	59	24	4	5	0	33	92
10:00 - 10:15	0	0	0	0	0	84	1	8	0	93	44	8	5	1	58	151
10:15 - 10:30	0	0	0	0	0	57	0	0	0	57	25	5	4	0	34	91
10:30 - 10:45	0	0	0	0	0	65	1	10	0	76	31	4	5	0	40	116
10:45 - 11:00	0	0	0	0	0	75	0	5	0	80	36	3	3	1	43	123
11:00 - 11:15	0	0	0	0	0	68	0	4	0	72	28	4	3	0	35	107
11:15 - 11:30	0	0	0	0	0	79	0	4	0	83	36	2	3	0	41	124
11:30 - 11:45	0	0	0	0	0	115	0	6	0	121	36	6	11	1	54	175
11:45 - 12:00	0	0	0	0	0	50	0	10	0	60	17	5	3	0	25	85
12:00 - 12:15	0	0	0	0	0	96	0	7	0	103	37	6	5	0	48	151
12:15 - 12:30	0	0	0	0	0	59	0	5	0	64	24	1	1	0	26	90
12:30 - 12:45	0	0	0	0	0	65	0	3	0	68	26	4	5	1	36	104
12:45 - 13:00	0	0	0	0	0	137	0	3	0	140	47	9	3	0	59	199
13:00 - 13:15	0	0	0	0	0	71	0	9	0	80	35	4	3	0	42	122
13:15 - 13:30	0	0	0	0	0	61	0	7	0	68	25	2	9	0	36	104
13:30 - 13:45	0	0	0	0	0	83	0	3	0	86	41	3	5	1	50	136
13:45 - 14:00	0	0	0	0	0	64	3	4	0	71	34	5	6	1	46	117
14:00 - 14:15	0	0	0	0	0	132	1	2	0	135	83	3	3	0	89	224
14:15 - 14:30	0	0	0	0	0	131	0	4	0	135	66	5	3	3	77	212
14:30 - 14:45	0	0	0	0	0	146	3	3	0	152	53	5	7	0	65	217
14:45 - 15:00	0	0	0	0	0	153	5	5	0	163	25	5	3	0	33	196
15:00 - 15:15	0	0	0	0	0	97	2	7	0	106	51	7	3	0	61	167
15:15 - 15:30	0	0	0	0	0	129	2	7	1	139	46	1	1	2	50	189
15:30 - 15:45	0	0	0	0	0	92	10	5	0	107	65	12	4	0	81	188
15:45 - 16:00	0	0	0	0	0	71	2	8	0	81	38	8	1	0	47	128
16:00 - 16:15	0	0	0	0	0	88	3	2	1	94	44	13	5	1	63	157
16:15 - 16:30	0	0	0	0	0	181	4	3	0	188	51	14	4	1	70	258
16:30 - 16:45	0	0	0	0	0	123	3	0	0	126	55	11	2	1	69	195
16:45 - 17:00	0	0	0	0	0	120	2	1	1	124	31	14	4	0	49	173
17:00 - 17:15	0	0	0	0	0	166	6	4	0	176	51	14	6	1	72	248
17:15 - 17:30	0	0	0	0	0	108	0	0	0	108	26	8	3	1	38	146
17:30 - 17:45	0	0	0	0	0	114	0	0	0	114	30	11	0	2	43	157
17:45 - 18:00	0	0	0	0	0	111	1	0	0	112	25	4	2	1	32	144
TOTAL	0	0	0	0	0	4373	137	199	11	4720	2019	421	176	30	2646	7366

Intersection of P467 / P228

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF MAIN ROAD 467 AND MAIN ROAD 228															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	NORTH TINLEY MANOR STATION															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 - 06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 - 06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 - 07:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
07:00 - 07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
07:30 - 07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 - 08:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
08:00 - 08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 - 08:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 - 09:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 - 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 - 09:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:45 - 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 - 10:15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
14:45 - 15:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00 - 15:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	1	0	2	2	0	0	0	2	11	0	2	0	13	17

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF MAIN ROAD 467 AND MAIN ROAD 228
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	SOUTH MAIN ROAD 228															TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL	
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS	
06:00 - 06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 - 06:30	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	0	3
06:30 - 06:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
06:45 - 07:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
07:00 - 07:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	3
07:15 - 07:30	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0	4
07:30 - 07:45	1	0	1	0	2	0	0	0	0	0	0	0	1	0	1	0	3
07:45 - 08:00	1	0	1	0	2	0	0	0	0	0	3	0	0	0	3	0	5
08:00 - 08:15	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	2
08:15 - 08:30	2	0	1	1	4	0	0	0	0	0	0	0	0	0	0	0	4
08:30 - 08:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
08:45 - 09:00	0	0	0	2	2	1	0	0	0	1	1	0	0	0	1	0	4
09:00 - 09:15	0	0	1	1	2	0	0	0	0	0	1	0	0	0	1	0	3
09:15 - 09:30	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
09:30 - 09:45	1	0	1	0	2	0	0	0	0	0	0	0	2	0	2	0	4
09:45 - 10:00	0	0	1	0	1	1	0	0	0	1	1	0	0	0	1	0	3
10:00 - 10:15	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0	5
10:15 - 10:30	1	0	2	0	3	0	0	0	0	0	4	0	0	0	4	0	7
10:30 - 10:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
10:45 - 11:00	1	0	2	0	3	0	0	0	0	0	1	0	0	0	1	0	4
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 - 11:30	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3
11:30 - 11:45	5	0	5	0	10	0	0	0	0	0	0	0	1	0	1	0	11
11:45 - 12:00	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	3
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	2	0	1	6	9	0	0	0	0	0	1	0	1	0	2	0	11
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
13:15 - 13:30	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0	3
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	2	0	2	0	0	0	0	0	1	0	0	0	1	0	3
14:30 - 14:45	2	0	3	0	5	0	0	1	0	1	2	0	1	0	3	0	9
14:45 - 15:00	1	0	1	0	2	0	0	0	0	0	0	0	1	0	1	0	3
15:00 - 15:15	1	0	5	0	6	0	0	0	0	0	3	0	1	0	4	0	10
15:15 - 15:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
15:30 - 15:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2
15:45 - 16:00	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	2
16:00 - 16:15	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0	6
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2
16:30 - 16:45	4	0	0	0	4	0	0	0	0	0	2	0	1	0	3	0	7
16:45 - 17:00	0	0	1	0	1	0	0	0	0	0	4	0	0	0	4	0	5
17:00 - 17:15	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
17:15 - 17:30	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	5
17:30 - 17:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
17:45 - 18:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL	56	0	48	10	114	3	0	1	0	4	32	0	10	0	42	0	160

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF MAIN ROAD 467 AND MAIN ROAD 228
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 467														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
06:15 - 06:30	0	0	0	0	0	4	0	1	0	5	0	0	0	0	0	5
06:30 - 06:45	5	0	1	0	6	5	0	0	0	5	0	0	0	0	0	11
06:45 - 07:00	2	0	1	0	3	4	0	2	0	6	0	0	0	0	0	9
07:00 - 07:15	3	0	0	0	3	12	0	1	0	13	0	0	0	0	0	16
07:15 - 07:30	0	0	1	0	1	10	0	2	1	13	0	0	0	0	0	14
07:30 - 07:45	2	0	0	0	2	6	0	1	0	7	0	0	0	0	0	9
07:45 - 08:00	1	0	0	0	1	5	0	2	0	7	0	0	0	0	0	8
08:00 - 08:15	2	0	0	0	2	6	0	2	0	8	0	0	0	0	0	10
08:15 - 08:30	0	0	0	0	0	3	0	0	0	3	1	0	0	0	1	4
08:30 - 08:45	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	5
08:45 - 09:00	1	0	0	1	2	4	0	0	1	5	0	0	0	0	0	7
09:00 - 09:15	1	0	0	0	1	11	0	0	0	11	0	0	0	0	0	12
09:15 - 09:30	0	0	0	0	0	8	0	1	0	9	0	0	0	0	0	9
09:30 - 09:45	2	0	1	0	3	6	0	1	0	7	0	0	0	0	0	10
09:45 - 10:00	1	0	0	0	1	6	0	1	0	7	0	0	0	0	0	8
10:00 - 10:15	0	0	0	0	0	7	0	2	0	9	0	0	0	0	0	9
10:15 - 10:30	0	0	0	0	0	4	0	1	0	5	0	0	0	0	0	5
10:30 - 10:45	6	0	1	0	7	4	0	0	0	4	0	0	1	0	1	12
10:45 - 11:00	2	0	0	0	2	6	0	0	0	6	0	0	0	0	0	8
11:00 - 11:15	0	0	0	0	0	6	0	0	0	6	1	0	0	0	1	7
11:15 - 11:30	0	0	0	0	0	5	0	1	0	6	0	0	0	0	0	6
11:30 - 11:45	0	0	0	0	0	5	0	1	0	6	0	0	0	0	0	6
11:45 - 12:00	1	0	2	0	3	4	0	3	0	7	0	0	0	0	0	10
12:00 - 12:15	1	0	0	0	1	6	0	0	0	6	0	0	0	0	0	7
12:15 - 12:30	0	0	0	0	0	7	0	2	0	9	0	0	0	0	0	9
12:30 - 12:45	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
12:45 - 13:00	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	3
13:00 - 13:15	3	0	0	0	3	5	0	2	0	7	0	0	0	0	0	10
13:15 - 13:30	0	0	1	0	1	4	0	0	0	4	0	0	0	0	0	5
13:30 - 13:45	0	0	0	0	0	6	0	2	0	8	0	0	0	0	0	8
13:45 - 14:00	0	0	0	0	0	4	0	1	0	5	0	0	0	0	0	5
14:00 - 14:15	1	0	0	0	1	5	0	2	0	7	0	0	0	0	0	8
14:15 - 14:30	0	0	1	0	1	4	0	2	0	6	0	0	0	0	0	7
14:30 - 14:45	1	0	0	0	1	8	0	0	0	8	0	0	1	0	1	10
14:45 - 15:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
15:00 - 15:15	1	0	0	0	1	5	0	2	0	7	0	0	1	0	1	9
15:15 - 15:30	0	0	0	0	0	8	0	2	0	10	0	0	0	0	0	10
15:30 - 15:45	0	0	1	0	1	7	0	1	0	8	0	0	0	0	0	9
15:45 - 16:00	1	0	0	0	1	6	0	0	0	6	0	0	0	0	0	7
16:00 - 16:15	1	0	0	0	1	5	0	0	0	5	0	0	0	0	0	6
16:15 - 16:30	0	0	0	0	0	8	0	0	0	8	0	0	0	0	0	8
16:30 - 16:45	0	0	0	0	0	9	0	2	0	11	0	0	0	0	0	11
16:45 - 17:00	1	0	0	0	1	8	0	0	0	8	0	0	0	0	0	9
17:00 - 17:15	2	0	0	0	2	10	0	0	0	10	0	0	0	0	0	12
17:15 - 17:30	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	7
17:30 - 17:45	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
17:45 - 18:00	2	0	0	0	2	5	0	0	0	5	0	0	0	0	0	7
TOTAL	43	0	10	1	54	269	0	43	2	314	2	0	3	0	5	373

TRAFFIC SURVEY ANALYSIS

CLIENT: AURECON

SITE: INTERSECTION OF MAIN ROAD 467 AND MAIN ROAD 228

DATE: 12 HOUR COUNT ON MONDAY 13 AUGUST 2012

UNITS: CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 467															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0	4
06:15 - 06:30	1	0	0	0	1	3	0	0	0	3	1	0	0	0	1	5
06:30 - 06:45	0	0	0	0	0	7	0	2	0	9	1	0	1	0	2	11
06:45 - 07:00	1	0	3	0	4	9	0	0	0	9	0	0	1	0	1	14
07:00 - 07:15	1	0	0	0	1	8	0	1	0	9	5	0	0	0	5	15
07:15 - 07:30	0	0	0	0	0	6	0	1	1	8	0	0	1	0	1	9
07:30 - 07:45	0	0	0	0	0	6	0	2	0	8	0	0	1	0	1	9
07:45 - 08:00	0	0	0	0	0	4	0	2	0	6	1	0	0	0	1	7
08:00 - 08:15	0	0	1	0	1	3	0	0	0	3	0	0	3	0	3	7
08:15 - 08:30	0	0	1	0	1	6	0	2	0	8	3	0	1	0	4	13
08:30 - 08:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45 - 09:00	0	0	0	0	0	1	0	1	1	3	0	0	2	0	2	5
09:00 - 09:15	2	0	0	0	2	10	0	3	0	13	0	0	3	2	5	20
09:15 - 09:30	2	0	1	0	3	5	0	0	2	7	0	0	1	0	1	11
09:30 - 09:45	1	0	0	0	1	5	0	2	0	7	2	0	5	0	7	15
09:45 - 10:00	0	0	0	0	0	2	0	0	0	2	1	0	2	0	3	5
10:00 - 10:15	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
10:15 - 10:30	0	0	0	0	0	6	0	3	0	9	2	0	0	0	2	11
10:30 - 10:45	0	0	0	0	0	4	0	0	0	4	1	0	6	0	7	11
10:45 - 11:00	4	0	0	0	4	4	0	0	0	4	1	0	0	0	1	9
11:00 - 11:15	0	0	0	0	0	2	0	1	0	3	3	0	0	0	3	6
11:15 - 11:30	0	0	0	0	0	6	0	3	0	9	1	0	0	0	1	10
11:30 - 11:45	0	0	0	0	0	6	0	1	0	7	2	0	1	0	3	10
11:45 - 12:00	1	0	0	0	1	1	0	0	0	1	0	0	2	0	2	4
12:00 - 12:15	0	0	0	0	0	3	0	1	0	4	0	0	2	2	4	8
12:15 - 12:30	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0	4
12:30 - 12:45	0	0	0	0	0	5	0	0	0	5	0	0	1	2	3	8
12:45 - 13:00	1	0	0	0	1	5	0	0	0	5	0	0	1	0	1	7
13:00 - 13:15	0	0	0	0	0	5	0	0	0	5	1	0	0	0	1	6
13:15 - 13:30	0	0	0	0	0	6	0	2	0	8	0	0	0	0	0	8
13:30 - 13:45	1	0	0	0	1	5	0	0	0	5	0	0	1	0	1	7
13:45 - 14:00	0	0	0	0	0	5	0	0	0	5	0	0	2	0	2	7
14:00 - 14:15	0	0	0	0	0	8	0	2	0	10	0	0	1	0	1	11
14:15 - 14:30	0	0	0	0	0	4	0	1	1	6	0	0	2	0	2	8
14:30 - 14:45	1	0	0	0	1	8	0	1	0	9	3	0	2	0	5	15
14:45 - 15:00	2	0	0	0	2	0	0	1	0	1	2	0	2	0	4	7
15:00 - 15:15	0	0	0	0	0	6	0	2	0	8	0	0	2	0	2	10
15:15 - 15:30	1	0	0	0	1	8	0	0	0	8	1	0	0	0	1	10
15:30 - 15:45	0	0	0	0	0	8	0	1	0	9	2	0	2	0	4	13
15:45 - 16:00	2	0	2	0	4	2	0	3	0	5	0	0	0	0	0	9
16:00 - 16:15	0	0	3	0	3	9	0	0	0	9	0	0	1	0	1	13
16:15 - 16:30	0	0	0	0	0	1	0	0	0	1	3	0	1	0	4	5
16:30 - 16:45	0	0	0	0	0	5	0	0	0	5	2	0	4	0	6	11
16:45 - 17:00	0	0	0	0	0	3	0	0	0	3	2	0	1	0	3	6
17:00 - 17:15	0	0	0	0	0	8	0	0	0	8	0	0	1	0	1	9
17:15 - 17:30	0	0	0	0	0	6	0	0	0	6	2	0	0	0	2	8
17:30 - 17:45	0	0	0	0	0	6	0	0	0	6	1	0	2	0	3	9
17:45 - 18:00	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
TOTAL	23	0	12	0	35	232	0	38	5	275	43	0	59	6	108	418

Intersection of P467 / N2 Off ramp (western)

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF N2 AND MAIN ROAD 467 (WEST OF INTERCHANGE)															
DATE:	12 HOUR COUNT ON FRIDAY 03 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	SOUTH N2 OFF RAMP															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	4	0	0	0	4	0	0	0	0	0	1	0	0	0	1	5
06:15 - 06:30	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	3
06:30 - 06:45	0	0	1	0	1	0	0	0	0	0	3	0	0	0	3	4
06:45 - 07:00	4	0	1	0	5	0	0	0	0	0	1	0	0	0	1	6
07:00 - 07:15	6	0	1	0	7	0	0	0	0	0	3	0	0	0	3	10
07:15 - 07:30	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	4
07:30 - 07:45	4	0	1	0	5	0	0	0	0	0	2	0	0	0	2	7
07:45 - 08:00	4	0	1	0	5	0	0	0	0	0	3	0	1	0	4	9
08:00 - 08:15	7	0	2	0	9	0	0	0	0	0	3	0	0	0	3	12
08:15 - 08:30	2	0	1	0	3	0	0	0	0	0	3	0	0	0	3	6
08:30 - 08:45	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	5
08:45 - 09:00	3	0	0	0	3	0	0	0	0	0	7	0	0	0	7	10
09:00 - 09:15	5	0	0	0	5	0	0	0	0	0	3	0	1	0	4	9
09:15 - 09:30	13	0	1	0	14	0	0	0	0	0	2	0	0	0	2	16
09:30 - 09:45	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	6
09:45 - 10:00	5	0	0	0	5	0	0	0	0	0	6	0	0	0	6	11
10:00 - 10:15	4	0	1	0	5	0	0	0	0	0	4	0	0	0	4	9
10:15 - 10:30	9	0	1	0	10	0	0	0	0	0	3	0	0	0	3	13
10:30 - 10:45	9	0	0	0	9	0	0	0	0	0	2	0	0	0	2	11
10:45 - 11:00	6	0	0	0	6	0	0	0	0	0	1	0	2	0	3	9
11:00 - 11:15	8	0	0	0	8	0	0	0	0	0	2	0	0	0	2	10
11:15 - 11:30	7	0	0	0	7	0	0	0	0	0	1	0	0	0	1	8
11:30 - 11:45	1	0	1	0	2	0	0	0	0	0	2	0	1	0	3	5
11:45 - 12:00	7	0	1	0	8	0	0	0	0	0	5	0	0	0	5	13
12:00 - 12:15	5	0	0	0	5	0	0	0	0	0	1	0	0	0	1	6
12:15 - 12:30	4	0	1	0	5	0	0	0	0	0	4	0	0	0	4	9
12:30 - 12:45	1	0	0	0	1	0	0	0	0	0	4	0	1	0	5	6
12:45 - 13:00	3	0	1	0	4	0	0	0	0	0	3	0	0	0	3	7
13:00 - 13:15	7	0	0	0	7	0	0	0	0	0	3	0	0	0	3	10
13:15 - 13:30	4	0	1	0	5	0	0	0	0	0	2	0	0	0	2	7
13:30 - 13:45	4	0	0	0	4	0	0	0	0	0	4	0	0	0	4	8
13:45 - 14:00	4	0	1	0	5	0	0	0	0	0	2	0	0	0	2	7
14:00 - 14:15	10	0	1	0	11	0	0	0	0	0	3	0	0	0	3	14
14:15 - 14:30	6	0	3	0	9	0	0	0	0	0	3	0	0	0	3	12
14:30 - 14:45	3	0	0	0	3	0	0	0	0	0	3	0	0	0	3	6
14:45 - 15:00	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	4
15:00 - 15:15	4	0	0	0	4	0	0	0	0	0	4	0	0	0	4	8
15:15 - 15:30	5	0	2	0	7	0	0	0	0	0	7	0	0	0	7	14
15:30 - 15:45	16	0	0	0	16	0	0	0	0	0	6	0	0	0	6	22
15:45 - 16:00	9	0	1	0	10	0	0	0	0	0	1	0	0	0	1	11
16:00 - 16:15	17	0	0	0	17	0	0	0	0	0	5	0	0	0	5	22
16:15 - 16:30	15	0	0	0	15	0	0	0	0	0	3	0	0	0	3	18
16:30 - 16:45	18	1	2	0	21	0	0	0	0	0	10	0	0	0	10	31
16:45 - 17:00	14	0	0	0	14	0	0	0	0	0	5	0	0	0	5	19
17:00 - 17:15	11	0	0	0	11	0	0	0	0	0	7	0	0	0	7	18
17:15 - 17:30	14	0	0	0	14	0	0	0	0	0	7	0	0	0	7	21
17:30 - 17:45	10	0	0	0	10	0	0	0	0	0	9	0	0	0	9	19
17:45 - 18:00	17	0	0	0	17	0	0	0	0	0	6	0	1	0	7	24
TOTAL	323	1	27	0	351	0	0	0	0	0	166	0	7	0	173	524

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 467 (WEST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON FRIDAY 03 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 467														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	1	0	0	0	1	5	0	0	0	5	6
06:15 - 06:30	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	5
06:30 - 06:45	0	0	0	0	0	5	0	0	0	5	2	0	0	0	2	7
06:45 - 07:00	0	0	0	0	0	2	0	1	0	3	3	0	0	0	3	6
07:00 - 07:15	0	0	0	0	0	10	0	0	1	11	11	1	0	0	12	23
07:15 - 07:30	0	0	0	0	0	6	0	0	0	6	3	0	0	0	3	9
07:30 - 07:45	0	0	0	0	0	2	0	0	0	2	5	0	0	0	5	7
07:45 - 08:00	0	0	0	0	0	6	0	0	0	6	5	0	0	0	5	11
08:00 - 08:15	0	0	0	0	0	5	0	0	0	5	6	0	0	0	6	11
08:15 - 08:30	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	4
08:30 - 08:45	0	0	0	0	0	3	0	0	0	3	4	0	0	0	4	7
08:45 - 09:00	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	5
09:00 - 09:15	0	0	0	0	0	2	0	0	0	2	1	0	1	0	2	4
09:15 - 09:30	0	0	0	0	0	8	0	0	0	8	2	0	0	0	2	10
09:30 - 09:45	0	0	0	0	0	3	0	0	0	3	2	0	0	0	2	5
09:45 - 10:00	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	5
10:00 - 10:15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
10:15 - 10:30	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
10:45 - 11:00	0	0	0	0	0	3	0	0	0	3	2	0	0	0	2	5
11:00 - 11:15	0	0	0	0	0	4	0	0	0	4	0	0	3	0	3	7
11:15 - 11:30	0	0	0	0	0	2	0	0	0	2	3	0	0	0	3	5
11:30 - 11:45	0	0	0	0	0	2	0	2	0	4	1	0	0	0	1	5
11:45 - 12:00	0	0	0	0	0	8	0	1	0	9	3	0	0	0	3	12
12:00 - 12:15	0	0	0	0	0	4	0	0	0	4	3	0	0	0	3	7
12:15 - 12:30	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	3
12:30 - 12:45	0	0	0	0	0	2	0	0	0	2	0	0	1	0	1	3
12:45 - 13:00	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	3
13:00 - 13:15	0	0	0	0	0	4	0	1	0	5	2	0	0	0	2	7
13:15 - 13:30	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	4
13:30 - 13:45	0	0	0	0	0	2	0	1	0	3	1	0	0	0	1	4
13:45 - 14:00	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
14:00 - 14:15	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	3
14:15 - 14:30	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	5
14:30 - 14:45	0	0	0	0	0	5	0	0	0	5	3	0	0	0	3	8
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
15:00 - 15:15	0	0	0	0	0	3	0	1	0	4	2	0	0	0	2	6
15:15 - 15:30	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	5
15:30 - 15:45	0	0	0	0	0	6	0	0	0	6	4	0	0	0	4	10
15:45 - 16:00	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	5
16:00 - 16:15	0	0	0	0	0	4	0	0	0	4	2	0	1	0	3	7
16:15 - 16:30	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
16:30 - 16:45	0	0	0	0	0	9	0	0	0	9	2	0	0	0	2	11
16:45 - 17:00	0	0	0	0	0	6	0	0	0	6	2	0	0	0	2	8
17:00 - 17:15	0	0	0	0	0	7	0	0	0	7	3	0	0	0	3	10
17:15 - 17:30	0	0	0	0	0	6	0	0	0	6	3	0	0	0	3	9
17:30 - 17:45	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
17:45 - 18:00	0	0	0	0	0	9	0	0	0	9	1	0	0	0	1	10
TOTAL	0	0	0	0	0	184	0	9	1	194	98	1	9	0	108	302

TRAFFIC SURVEY ANALYSIS

CLIENT: AURECON

SITE: INTERSECTION OF N2 AND MAIN ROAD 467 (WEST OF INTERCHANGE)

DATE: 12 HOUR COUNT ON FRIDAY 03 AUGUST 2012

UNITS: CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 467															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	1	0	0	0	1	8	0	0	0	8	0	0	0	0	0	9
06:15 - 06:30	2	0	0	0	2	6	0	0	0	6	0	0	0	0	0	8
06:30 - 06:45	3	0	0	0	3	16	0	1	0	17	0	0	0	0	0	20
06:45 - 07:00	6	0	0	0	6	19	0	0	0	19	0	0	0	0	0	25
07:00 - 07:15	8	0	0	0	8	31	0	0	0	31	0	0	0	0	0	39
07:15 - 07:30	7	0	0	1	8	20	0	0	0	20	0	0	0	0	0	28
07:30 - 07:45	4	0	0	0	4	12	0	0	0	12	0	0	0	0	0	16
07:45 - 08:00	6	0	0	0	6	18	0	1	0	19	0	0	0	0	0	25
08:00 - 08:15	2	0	0	0	2	7	0	2	0	9	0	0	0	0	0	11
08:15 - 08:30	1	0	0	0	1	5	0	0	0	5	0	0	0	0	0	6
08:30 - 08:45	4	0	0	0	4	7	0	0	0	7	0	0	0	0	0	11
08:45 - 09:00	1	0	0	0	1	5	0	1	0	6	0	0	0	0	0	7
09:00 - 09:15	0	0	0	0	0	11	0	0	0	11	0	0	0	0	0	11
09:15 - 09:30	1	0	0	0	1	10	0	2	0	12	0	0	0	0	0	13
09:30 - 09:45	3	0	0	0	3	10	0	2	0	12	0	0	0	0	0	15
09:45 - 10:00	4	0	0	0	4	14	0	2	0	16	0	0	0	0	0	20
10:00 - 10:15	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
10:15 - 10:30	1	0	0	0	1	13	0	2	0	15	0	0	0	0	0	16
10:30 - 10:45	1	0	0	0	1	10	0	1	0	11	0	0	0	0	0	12
10:45 - 11:00	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0	4
11:00 - 11:15	2	0	1	0	3	9	0	1	0	10	0	0	0	0	0	13
11:15 - 11:30	1	0	0	0	1	12	0	0	0	12	0	0	0	0	0	13
11:30 - 11:45	4	0	0	0	4	7	0	1	0	8	0	0	0	0	0	12
11:45 - 12:00	0	0	0	0	0	5	0	1	0	6	0	0	0	0	0	6
12:00 - 12:15	1	0	0	0	1	7	0	1	0	8	0	0	0	0	0	9
12:15 - 12:30	0	0	0	0	0	8	0	1	0	9	0	0	0	0	0	9
12:30 - 12:45	1	0	0	0	1	10	0	1	0	11	0	0	0	0	0	12
12:45 - 13:00	4	0	0	0	4	5	0	0	0	5	0	0	0	0	0	9
13:00 - 13:15	1	0	0	0	1	19	0	0	0	19	0	0	0	0	0	20
13:15 - 13:30	0	0	0	0	0	10	0	0	0	10	0	0	0	0	0	10
13:30 - 13:45	1	0	0	0	1	13	0	1	0	14	0	0	0	0	0	15
13:45 - 14:00	1	0	0	0	1	4	0	0	0	4	0	0	0	0	0	5
14:00 - 14:15	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	7
14:15 - 14:30	2	0	0	0	2	13	0	0	0	13	0	0	0	0	0	15
14:30 - 14:45	1	0	0	0	1	9	0	0	0	9	0	0	0	0	0	10
14:45 - 15:00	2	0	0	0	2	9	0	0	0	9	0	0	0	0	0	11
15:00 - 15:15	3	0	0	1	4	10	0	1	0	11	0	0	0	0	0	15
15:15 - 15:30	2	0	0	0	2	11	0	2	0	13	0	0	0	0	0	15
15:30 - 15:45	0	0	0	0	0	5	0	1	0	6	0	0	0	0	0	6
15:45 - 16:00	1	0	0	0	1	5	0	1	0	6	0	0	0	0	0	7
16:00 - 16:15	1	0	0	0	1	11	0	0	0	11	0	0	0	0	0	12
16:15 - 16:30	3	0	1	0	4	11	0	0	0	11	0	0	0	0	0	15
16:30 - 16:45	5	1	0	0	6	6	0	2	0	8	0	0	0	0	0	14
16:45 - 17:00	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	5
17:00 - 17:15	2	0	0	0	2	9	0	0	0	9	0	0	0	0	0	11
17:15 - 17:30	3	0	0	0	3	6	0	0	0	6	0	0	0	0	0	9
17:30 - 17:45	1	0	0	0	1	6	0	0	0	6	0	0	0	0	0	7
17:45 - 18:00	4	0	0	0	4	4	0	0	0	4	0	0	0	0	0	8
TOTAL	103	1	2	2	108	463	0	28	0	491	0	0	0	0	0	599

Intersection of P467 / N2 On ramp (eastern)

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF N2 AND MAIN ROAD 467 (EAST OF INTERCHANGE)															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	NORTH N2 OFF RAMP															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
06:15 - 06:30	3	1	0	0	4	0	0	0	0	0	1	0	0	0	1	5
06:30 - 06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 - 07:00	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	4
07:00 - 07:15	1	0	0	0	1	0	0	0	0	0	3	1	0	1	5	6
07:15 - 07:30	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
07:30 - 07:45	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
07:45 - 08:00	1	0	0	0	1	0	0	0	0	0	2	0	0	0	2	3
08:00 - 08:15	4	0	0	0	4	0	0	0	0	0	4	0	0	0	4	8
08:15 - 08:30	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
08:30 - 08:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 - 09:00	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
09:00 - 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 - 09:30	1	0	0	0	1	0	0	0	0	0	5	0	0	0	5	6
09:30 - 09:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
09:45 - 10:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:00 - 10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 - 11:00	1	0	0	0	1	0	0	0	0	0	2	0	0	0	2	3
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
11:15 - 11:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:30 - 11:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
11:45 - 12:00	2	0	0	0	2	0	0	0	0	0	2	0	1	0	3	5
12:00 - 12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	2
12:45 - 13:00	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
13:15 - 13:30	1	0	1	0	2	0	0	0	0	0	1	0	0	0	1	3
13:30 - 13:45	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	4
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	3
14:00 - 14:15	2	0	0	0	2	0	0	0	0	0	1	0	1	0	2	4
14:15 - 14:30	2	0	0	0	2	0	0	0	0	0	2	0	0	0	2	4
14:30 - 14:45	1	0	0	0	1	0	0	0	0	0	2	0	0	0	2	3
14:45 - 15:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
15:00 - 15:15	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	4
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
15:30 - 15:45	2	0	0	0	2	0	0	0	0	0	5	0	0	0	5	7
15:45 - 16:00	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
16:00 - 16:15	1	0	0	0	1	0	0	0	0	0	3	0	0	0	3	4
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
16:30 - 16:45	3	0	0	0	3	0	0	0	0	0	2	0	0	0	2	5
16:45 - 17:00	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
17:00 - 17:15	1	0	0	0	1	0	0	0	0	0	8	0	0	0	8	9
17:15 - 17:30	1	0	0	0	1	0	0	0	0	0	5	0	0	0	5	6
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	5
TOTAL	45	1	1	0	47	0	0	0	0	0	89	1	4	1	95	142

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 467 (EAST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 467														TOTAL	
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	3	0	0	0	3	5	0	0	0	5	0	0	0	0	0	8
06:15 - 06:30	4	0	0	0	4	4	0	0	0	4	0	0	0	0	0	8
06:30 - 06:45	4	0	0	0	4	7	0	0	0	7	0	0	0	0	0	11
06:45 - 07:00	7	0	0	0	7	4	0	1	0	5	0	0	0	0	0	12
07:00 - 07:15	9	0	0	0	9	20	0	0	0	20	0	0	0	0	0	29
07:15 - 07:30	8	0	0	0	8	8	0	0	0	8	0	0	0	0	0	16
07:30 - 07:45	12	0	0	0	12	7	0	0	0	7	0	0	0	0	0	19
07:45 - 08:00	4	0	0	0	4	4	0	0	0	4	0	0	0	0	0	8
08:00 - 08:15	1	0	0	0	1	10	0	0	0	10	0	0	0	0	0	11
08:15 - 08:30	4	0	0	0	4	3	0	0	0	3	0	0	0	0	0	7
08:30 - 08:45	2	0	0	0	2	6	0	0	0	6	0	0	0	0	0	8
08:45 - 09:00	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0	4
09:00 - 09:15	3	0	0	0	3	4	0	1	0	5	0	0	0	0	0	8
09:15 - 09:30	3	0	0	0	3	4	0	0	0	4	0	0	0	0	0	7
09:30 - 09:45	3	0	0	0	3	5	0	0	0	5	0	0	0	0	0	8
09:45 - 10:00	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0	4
10:00 - 10:15	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
10:15 - 10:30	6	0	0	0	6	6	0	0	0	6	0	0	0	0	0	12
10:30 - 10:45	11	0	0	0	11	1	0	0	0	1	0	0	0	0	0	12
10:45 - 11:00	4	0	0	0	4	3	0	0	0	3	0	0	0	0	0	7
11:00 - 11:15	0	0	0	0	0	4	0	3	0	7	0	0	0	0	0	7
11:15 - 11:30	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
11:30 - 11:45	1	0	0	0	1	3	0	1	0	4	0	0	0	0	0	5
11:45 - 12:00	3	0	0	0	3	7	0	0	0	7	0	0	0	0	0	10
12:00 - 12:15	1	0	0	0	1	7	0	0	0	7	0	0	0	0	0	8
12:15 - 12:30	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
12:30 - 12:45	4	0	0	0	4	2	0	1	0	3	0	0	0	0	0	7
12:45 - 13:00	3	0	0	0	3	0	0	1	0	1	0	0	0	0	0	4
13:00 - 13:15	1	0	0	0	1	1	0	1	0	2	0	0	0	0	0	3
13:15 - 13:30	1	0	0	0	1	3	0	0	0	3	0	0	0	0	0	4
13:30 - 13:45	4	0	0	0	4	4	0	1	0	5	0	0	0	0	0	9
13:45 - 14:00	3	0	0	0	3	4	0	0	0	4	0	0	0	0	0	7
14:00 - 14:15	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
14:15 - 14:30	3	0	0	0	3	4	0	0	0	4	0	0	0	0	0	7
14:30 - 14:45	1	0	0	0	1	6	0	0	0	6	0	0	0	0	0	7
14:45 - 15:00	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
15:00 - 15:15	3	0	0	0	3	3	0	1	0	4	0	0	0	0	0	7
15:15 - 15:30	3	0	0	0	3	3	0	0	0	3	0	0	0	0	0	6
15:30 - 15:45	4	0	0	0	4	5	0	0	0	5	0	0	0	0	0	9
15:45 - 16:00	4	0	0	0	4	4	0	0	0	4	0	0	0	0	0	8
16:00 - 16:15	5	0	0	0	5	3	0	1	0	4	0	0	0	0	0	9
16:15 - 16:30	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
16:30 - 16:45	2	0	0	0	2	9	0	0	0	9	0	0	0	0	0	11
16:45 - 17:00	1	0	0	0	1	7	0	0	0	7	0	0	0	0	0	8
17:00 - 17:15	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	3
17:15 - 17:30	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	4
17:30 - 17:45	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0	4
17:45 - 18:00	4	0	0	0	4	5	0	0	0	5	0	0	0	0	0	9
TOTAL	148	0	0	0	148	208	0	12	0	220	0	0	0	0	0	368

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF N2 AND MAIN ROAD 467 (EAST OF INTERCHANGE)
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 467															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	0	0	0	0	0	4	0	0	0	4	4	0	0	0	4	8
06:15 - 06:30	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7
06:30 - 06:45	0	0	0	0	0	4	0	0	0	4	14	0	1	0	15	19
06:45 - 07:00	0	0	0	0	0	8	0	0	0	8	13	0	0	0	13	21
07:00 - 07:15	0	0	0	0	0	8	0	0	0	8	26	0	0	0	26	34
07:15 - 07:30	0	0	0	0	0	2	0	0	0	2	19	0	0	0	19	21
07:30 - 07:45	0	0	0	0	0	4	0	0	0	4	12	0	0	0	12	16
07:45 - 08:00	0	0	0	0	0	6	0	1	0	7	10	0	1	0	11	18
08:00 - 08:15	0	0	0	0	0	4	0	0	0	4	10	0	2	0	12	16
08:15 - 08:30	0	0	0	0	0	2	0	0	0	2	5	0	0	0	5	7
08:30 - 08:45	0	0	0	0	0	2	0	0	0	2	7	0	0	0	7	9
08:45 - 09:00	0	0	0	0	0	5	0	0	0	5	8	0	1	0	9	14
09:00 - 09:15	0	0	0	0	0	2	0	1	0	3	9	0	0	0	9	12
09:15 - 09:30	0	0	0	0	0	6	0	0	0	6	8	0	2	0	10	16
09:30 - 09:45	0	0	0	0	0	2	0	0	0	2	4	0	2	0	6	8
09:45 - 10:00	0	0	0	0	0	5	0	1	0	6	11	0	1	0	12	18
10:00 - 10:15	0	0	0	0	0	3	0	0	0	3	3	0	0	0	3	6
10:15 - 10:30	0	0	0	0	0	6	0	1	0	7	10	0	2	0	12	19
10:30 - 10:45	0	0	0	0	0	7	0	0	0	7	7	0	0	0	7	14
10:45 - 11:00	0	0	0	0	0	5	0	2	0	7	4	0	0	0	4	11
11:00 - 11:15	0	0	0	0	0	3	0	0	0	3	10	0	1	0	11	14
11:15 - 11:30	0	0	0	0	0	0	0	0	0	0	7	0	1	0	8	8
11:30 - 11:45	0	0	0	0	0	4	0	1	0	5	9	0	0	0	9	14
11:45 - 12:00	0	0	0	0	0	7	0	1	0	8	2	0	1	0	3	11
12:00 - 12:15	0	0	0	0	0	8	0	0	0	8	8	0	0	0	8	16
12:15 - 12:30	0	0	0	0	0	2	0	1	0	3	4	0	1	0	5	8
12:30 - 12:45	0	0	0	0	0	4	0	1	0	5	4	0	0	0	4	9
12:45 - 13:00	0	0	0	0	0	5	0	0	0	5	1	0	0	0	1	6
13:00 - 13:15	0	0	0	0	0	4	0	0	0	4	12	0	0	0	12	16
13:15 - 13:30	0	0	0	0	0	4	0	0	0	4	14	0	0	0	14	18
13:30 - 13:45	0	0	0	0	0	3	0	0	0	3	10	0	1	0	11	14
13:45 - 14:00	0	0	0	0	0	2	0	0	0	2	5	0	0	0	5	7
14:00 - 14:15	0	0	0	0	0	6	0	0	0	6	4	0	0	0	4	10
14:15 - 14:30	0	0	0	0	0	5	0	0	0	5	9	0	0	0	9	14
14:30 - 14:45	0	0	0	0	0	3	0	0	0	3	9	0	0	0	9	12
14:45 - 15:00	0	0	0	0	0	3	0	0	0	3	9	0	0	0	9	12
15:00 - 15:15	0	0	0	0	0	7	0	0	0	7	8	0	0	0	8	15
15:15 - 15:30	0	0	0	0	0	5	0	0	0	5	12	0	2	0	14	19
15:30 - 15:45	0	0	0	0	0	10	0	0	0	10	9	0	1	0	10	20
15:45 - 16:00	0	0	0	0	0	4	0	0	0	4	10	0	1	0	11	15
16:00 - 16:15	0	0	0	0	0	7	0	0	0	7	4	0	0	0	4	11
16:15 - 16:30	0	0	0	0	0	8	0	0	0	8	9	0	0	0	9	17
16:30 - 16:45	0	0	0	0	0	3	0	2	0	5	11	0	0	0	11	16
16:45 - 17:00	0	0	0	0	0	2	0	0	0	2	10	0	0	0	10	12
17:00 - 17:15	0	0	0	0	0	4	0	0	0	4	10	0	0	0	10	14
17:15 - 17:30	0	0	0	0	0	1	0	0	0	1	9	0	0	0	9	10
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	11	0	0	0	11	11
17:45 - 18:00	0	0	0	0	0	2	0	0	0	2	10	0	0	0	10	12
TOTAL	0	0	0	0	0	201	0	12	0	213	421	0	21	0	442	655

Intersection of P474 / P228

TRAFFIC SURVEY ANALYSIS																
CLIENT:	AURECON															
SITE:	INTERSECTION OF MAIN ROAD 228 AND MAIN ROAD 474															
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012															
UNITS:	CLASSIFIED															
APPROACH FROM NAME MOVEMENT TIME	NORTH MAIN ROAD 228															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	MOVEMENTS
06:00 - 06:15	1	0	0	0	1	0	0	0	0	0	8	0	0	0	8	9
06:15 - 06:30	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13	13
06:30 - 06:45	1	0	0	0	1	0	0	0	0	0	20	1	1	0	22	23
06:45 - 07:00	2	0	0	1	3	0	0	0	0	0	35	1	0	0	36	39
07:00 - 07:15	1	0	0	0	1	0	0	0	0	0	32	0	0	0	32	33
07:15 - 07:30	3	0	0	0	3	0	0	0	0	0	25	0	0	0	25	28
07:30 - 07:45	4	0	0	0	4	0	0	0	0	0	33	0	2	0	35	39
07:45 - 08:00	3	0	0	0	3	0	0	0	0	0	26	0	6	0	32	35
08:00 - 08:15	1	0	0	0	1	0	0	0	0	0	11	0	2	0	13	14
08:15 - 08:30	2	0	0	0	2	0	0	0	0	0	16	0	0	0	16	18
08:30 - 08:45	0	0	2	1	3	0	0	0	0	0	14	0	0	0	14	17
08:45 - 09:00	0	0	0	0	0	0	0	0	0	0	22	0	1	0	23	23
09:00 - 09:15	2	0	0	0	2	0	0	0	0	0	5	0	6	0	11	13
09:15 - 09:30	1	0	0	0	1	0	0	0	0	0	6	0	1	1	8	9
09:30 - 09:45	2	0	0	0	2	0	0	0	0	0	11	0	0	0	11	13
09:45 - 10:00	1	0	0	0	1	0	0	0	0	0	11	0	0	0	11	12
10:00 - 10:15	1	0	0	0	1	0	0	0	0	0	9	0	1	0	10	11
10:15 - 10:30	1	0	0	0	1	0	0	0	0	0	11	0	3	0	14	15
10:30 - 10:45	1	0	0	0	1	0	0	0	0	0	7	0	4	0	11	12
10:45 - 11:00	2	0	0	0	2	0	0	0	0	0	17	0	0	0	17	19
11:00 - 11:15	0	0	0	0	0	0	0	0	0	0	12	0	0	0	12	12
11:15 - 11:30	1	0	0	0	1	0	0	0	0	0	9	0	3	0	12	13
11:30 - 11:45	1	0	0	0	1	0	0	0	0	0	9	0	1	0	10	11
11:45 - 12:00	0	0	1	0	1	0	0	0	0	0	13	0	7	0	20	21
12:00 - 12:15	1	0	0	0	1	0	0	0	0	0	14	0	0	0	14	15
12:15 - 12:30	1	0	0	0	1	0	0	0	0	0	7	0	2	0	9	10
12:30 - 12:45	1	0	0	0	1	0	0	0	0	0	14	0	1	0	15	16
12:45 - 13:00	2	0	0	0	2	0	0	0	0	0	10	0	1	0	11	13
13:00 - 13:15	4	0	0	0	4	0	0	0	0	0	6	0	0	0	6	10
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	12	0	3	0	15	15
13:30 - 13:45	3	0	0	0	3	0	0	0	0	0	5	0	2	0	7	10
13:45 - 14:00	1	0	0	0	1	0	0	0	0	0	18	0	3	0	21	22
14:00 - 14:15	0	0	1	0	1	0	0	0	0	0	7	0	1	0	8	9
14:15 - 14:30	2	0	0	0	2	0	0	0	0	0	9	0	3	0	12	14
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	7	0	2	0	9	9
14:45 - 15:00	2	0	0	0	2	0	0	0	0	0	10	0	2	0	12	14
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	9	0	1	0	10	10
15:15 - 15:30	3	0	0	0	3	0	0	0	0	0	9	0	2	0	11	14
15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	11	0	3	0	14	14
15:45 - 16:00	0	0	1	0	1	0	0	0	0	0	6	0	2	0	8	9
16:00 - 16:15	1	0	0	0	1	0	0	0	0	0	14	0	2	0	16	17
16:15 - 16:30	1	0	0	0	1	0	0	0	0	0	19	1	2	1	23	24
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	15	0	2	0	17	17
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	12	1	2	0	15	15
17:00 - 17:15	2	0	1	0	3	0	0	0	0	0	17	0	0	0	17	20
17:15 - 17:30	2	0	0	0	2	0	0	0	0	0	12	0	0	0	12	14
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	12	0	0	0	12	12
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	19	0	0	0	19	19
TOTAL	57	0	6	2	65	0	0	0	0	0	649	4	74	2	729	794

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF MAIN ROAD 228 AND MAIN ROAD 474
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	EAST MAIN ROAD 474															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	6
06:15 - 06:30	0	0	0	0	0	17	0	0	0	17	1	0	0	0	1	18
06:30 - 06:45	0	0	0	0	0	23	0	0	0	23	1	0	0	0	1	24
06:45 - 07:00	0	0	0	0	0	34	0	0	0	34	1	0	0	0	1	35
07:00 - 07:15	0	0	0	0	0	50	0	0	1	51	0	0	0	0	0	51
07:15 - 07:30	0	0	0	0	0	36	0	3	0	39	2	0	1	0	3	42
07:30 - 07:45	0	0	0	0	0	52	0	0	0	52	0	0	0	0	0	52
07:45 - 08:00	0	0	0	0	0	31	0	0	0	31	0	0	0	0	0	31
08:00 - 08:15	0	0	0	0	0	35	0	1	0	36	1	0	0	0	1	37
08:15 - 08:30	0	0	0	0	0	30	0	0	0	30	1	0	0	0	1	31
08:30 - 08:45	0	0	0	0	0	27	0	2	0	29	1	0	0	0	1	30
08:45 - 09:00	0	0	0	0	0	17	0	3	0	20	3	0	0	0	3	23
09:00 - 09:15	0	0	0	0	0	22	0	2	0	24	0	0	0	0	0	24
09:15 - 09:30	0	0	0	0	0	19	0	2	0	21	1	0	0	0	1	22
09:30 - 09:45	0	0	0	0	0	20	0	0	0	20	2	0	0	0	2	22
09:45 - 10:00	0	0	0	0	0	18	0	3	0	21	1	0	0	0	1	22
10:00 - 10:15	0	0	0	0	0	20	0	2	0	22	1	0	0	0	1	23
10:15 - 10:30	0	0	0	0	0	24	1	3	0	28	1	0	0	0	1	29
10:30 - 10:45	0	0	0	0	0	17	0	0	0	17	1	0	0	0	1	18
10:45 - 11:00	0	0	0	0	0	17	0	2	0	19	1	0	0	0	1	20
11:00 - 11:15	0	0	0	0	0	18	0	3	0	21	0	0	0	0	0	21
11:15 - 11:30	0	0	0	0	0	23	0	1	0	24	0	0	0	0	0	24
11:30 - 11:45	0	0	0	0	0	15	0	0	0	15	3	0	0	0	3	18
11:45 - 12:00	0	0	0	0	0	26	0	1	0	27	2	0	1	0	3	30
12:00 - 12:15	0	0	0	0	0	17	0	0	0	17	3	0	1	0	4	21
12:15 - 12:30	0	0	0	0	0	18	0	4	0	22	0	0	0	0	0	22
12:30 - 12:45	0	0	0	0	0	30	0	1	0	31	0	0	0	0	0	31
12:45 - 13:00	0	0	0	0	0	23	0	3	0	26	2	0	0	0	2	28
13:00 - 13:15	0	0	0	0	0	15	0	2	0	17	0	0	0	0	0	17
13:15 - 13:30	0	0	0	0	0	18	0	0	0	18	0	0	0	0	0	18
13:30 - 13:45	0	0	0	0	0	19	0	2	0	21	0	0	0	0	0	21
13:45 - 14:00	0	0	0	0	0	25	0	2	0	27	1	0	0	0	1	28
14:00 - 14:15	0	0	0	0	0	19	0	4	0	23	2	0	1	0	3	26
14:15 - 14:30	0	0	0	0	0	15	0	3	0	18	0	0	0	0	0	18
14:30 - 14:45	0	0	0	0	0	14	0	1	0	15	0	0	0	0	0	15
14:45 - 15:00	0	0	0	0	0	25	0	0	0	25	1	0	0	0	1	26
15:00 - 15:15	0	0	0	0	0	27	0	0	0	27	0	0	0	0	0	27
15:15 - 15:30	0	0	0	0	0	11	0	3	0	14	1	0	0	0	1	15
15:30 - 15:45	0	0	0	0	0	21	0	0	0	21	2	0	0	0	2	23
15:45 - 16:00	0	0	0	0	0	26	0	2	0	28	1	0	1	0	2	30
16:00 - 16:15	0	0	0	0	0	25	0	1	0	26	0	0	0	0	0	26
16:15 - 16:30	0	0	0	0	0	26	0	2	0	28	2	0	0	0	2	30
16:30 - 16:45	0	0	0	0	0	22	0	2	0	24	1	0	0	0	1	25
16:45 - 17:00	0	0	0	0	0	10	0	1	0	11	2	0	0	0	2	13
17:00 - 17:15	0	0	0	0	0	14	0	0	0	14	3	0	0	0	3	17
17:15 - 17:30	0	0	0	0	0	9	0	0	0	9	2	0	0	0	2	11
17:30 - 17:45	0	0	0	0	0	13	0	0	0	13	0	0	0	0	0	13
17:45 - 18:00	0	0	0	0	0	3	0	0	0	3	2	0	0	0	2	5
TOTAL	0	0	0	0	0	1042	1	61	1	1105	49	0	5	0	54	1159

TRAFFIC SURVEY ANALYSIS

CLIENT:	AURECON
SITE:	INTERSECTION OF MAIN ROAD 228 AND MAIN ROAD 474
DATE:	12 HOUR COUNT ON MONDAY 13 AUGUST 2012
UNITS:	CLASSIFIED

APPROACH FROM NAME MOVEMENT TIME	WEST MAIN ROAD 474															TOTAL
	LEFT TURN					STRAIGHT					RIGHT TURN					ALL MOVEMENTS
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	2	0	0	0	2	6	0	0	0	6	0	0	0	0	0	8
06:15 - 06:30	2	0	0	0	2	10	1	1	0	12	0	0	0	0	0	14
06:30 - 06:45	5	2	0	0	7	8	0	0	0	8	0	0	0	0	0	15
06:45 - 07:00	4	0	0	1	5	24	0	0	0	24	0	0	0	0	0	29
07:00 - 07:15	11	0	6	0	17	26	0	0	0	26	0	0	0	0	0	43
07:15 - 07:30	9	0	0	0	9	23	0	2	0	25	0	0	0	0	0	34
07:30 - 07:45	15	0	0	0	15	23	0	2	0	25	0	0	0	0	0	40
07:45 - 08:00	11	0	0	0	11	28	0	0	0	28	0	0	0	0	0	39
08:00 - 08:15	10	0	4	0	14	36	0	0	0	36	0	0	0	0	0	50
08:15 - 08:30	15	0	2	0	17	20	0	4	0	24	0	0	0	0	0	41
08:30 - 08:45	11	0	2	1	14	25	0	0	0	25	0	0	0	0	0	39
08:45 - 09:00	10	0	0	0	10	18	0	1	0	19	0	0	0	0	0	29
09:00 - 09:15	7	0	0	0	7	17	0	1	0	18	0	0	0	0	0	25
09:15 - 09:30	12	0	1	0	13	23	0	2	0	25	0	0	0	0	0	38
09:30 - 09:45	12	0	4	1	17	16	0	1	0	17	0	0	0	0	0	34
09:45 - 10:00	10	0	2	0	12	17	0	4	0	21	0	0	0	0	0	33
10:00 - 10:15	6	0	1	0	7	18	0	2	0	20	0	0	0	0	0	27
10:15 - 10:30	17	0	2	0	19	16	0	3	0	19	0	0	0	0	0	38
10:30 - 10:45	12	0	2	0	14	13	0	0	0	13	0	0	0	0	0	27
10:45 - 11:00	15	0	4	0	19	20	0	2	0	22	0	0	0	0	0	41
11:00 - 11:15	9	0	4	0	13	8	0	2	0	10	0	0	0	0	0	23
11:15 - 11:30	12	0	3	0	15	14	0	1	0	15	0	0	0	0	0	30
11:30 - 11:45	13	0	0	0	13	29	0	2	0	31	0	0	0	0	0	44
11:45 - 12:00	12	0	0	0	12	14	0	4	0	18	0	0	0	0	0	30
12:00 - 12:15	12	0	1	0	13	17	0	2	0	19	0	0	0	0	0	32
12:15 - 12:30	10	0	2	0	12	21	0	0	0	21	0	0	0	0	0	33
12:30 - 12:45	12	0	1	0	13	23	0	2	0	25	0	0	0	0	0	38
12:45 - 13:00	12	0	3	0	15	22	0	0	0	22	0	0	0	0	0	37
13:00 - 13:15	4	0	4	0	8	22	0	2	0	24	0	0	0	0	0	32
13:15 - 13:30	12	0	3	0	15	19	0	2	0	21	0	0	0	0	0	36
13:30 - 13:45	10	0	1	0	11	24	0	2	0	26	0	0	0	0	0	37
13:45 - 14:00	14	0	1	0	15	14	0	0	0	14	0	0	0	0	0	29
14:00 - 14:15	8	0	4	0	12	18	0	3	0	21	0	0	0	0	0	33
14:15 - 14:30	11	0	2	0	13	18	0	0	0	18	0	0	0	0	0	31
14:30 - 14:45	14	0	0	0	14	24	0	2	0	26	0	0	0	0	0	40
14:45 - 15:00	17	0	2	0	19	21	0	0	0	21	0	0	0	0	0	40
15:00 - 15:15	7	0	5	0	12	10	0	2	0	12	0	0	0	0	0	24
15:15 - 15:30	10	0	1	0	11	29	0	2	0	31	0	0	0	0	0	42
15:30 - 15:45	10	0	2	0	12	21	0	1	0	22	0	0	0	0	0	34
15:45 - 16:00	14	0	2	0	16	32	0	3	0	35	0	0	0	0	0	51
16:00 - 16:15	28	0	2	0	30	38	0	2	0	40	0	0	0	0	0	70
16:15 - 16:30	25	1	1	1	28	32	0	1	0	33	0	0	0	0	0	61
16:30 - 16:45	25	1	1	0	27	33	0	0	0	33	0	0	0	0	0	60
16:45 - 17:00	23	0	0	0	23	34	0	0	0	34	0	0	0	0	0	57
17:00 - 17:15	35	0	2	0	37	36	0	1	0	37	0	0	0	0	0	74
17:15 - 17:30	22	0	0	0	22	20	0	0	0	20	0	0	0	0	0	42
17:30 - 17:45	32	0	0	0	32	24	0	0	0	24	0	0	0	0	0	56
17:45 - 18:00	11	0	0	0	11	21	1	0	0	22	0	0	0	0	0	33
TOTAL	620	4	77	4	705	1025	2	61	0	1088	0	0	0	0	0	1793

Traffic Counts on N2 under P228 Bridge

SITE:	TWO WAY COUNT ON N2 UNDER P228 BRIDGE										LANE 1 SLOW LANE
DATE:	12 HOUR COUNT ON THURSDAY 16 JANUARY 2014										
UNITS:	CLASSIFIED										
NAME	N2										TOTAL
MOVEMENT	NORTHBOUND (LANE 1)					NORTHBOUND (LANE 2)					TOTAL
TIME	C	T	H	B	TOTAL	C	T	H	B	TOTAL	DIRECTIONS
06:00 - 06:15	39	0	16	0	55	33	0	4	0	37	92
06:15 - 06:30	101	5	32	2	140	88	1	4	0	93	233
06:30 - 06:45	115	3	16	2	136	91	0	3	0	94	230
06:45 - 07:00	121	13	28	0	162	125	1	0	0	126	288
07:00 - 07:15	84	4	23	0	111	117	1	1	0	119	230
07:15 - 07:30	81	2	12	0	95	73	0	1	0	74	169
07:30 - 07:45	99	2	21	0	122	117	2	1	0	120	242
07:45 - 08:00	146	4	33	0	183	139	1	2	0	142	325
08:00 - 08:15	69	5	8	0	82	38	0	1	0	39	121
08:15 - 08:30	71	3	12	2	88	51	0	1	0	52	140
08:30 - 08:45	110	9	30	2	151	107	2	1	0	110	261
08:45 - 09:00	70	1	18	0	89	42	0	1	0	43	132
09:00 - 09:15	103	2	16	0	121	86	1	0	0	87	208
09:15 - 09:30	96	5	24	0	125	84	2	2	0	88	213
09:30 - 09:45	97	6	18	2	123	71	2	1	0	74	197
09:45 - 10:00	65	3	15	1	84	63	0	2	0	65	149
10:00 - 10:15	79	2	18	2	101	75	0	1	0	76	177
10:15 - 10:30	97	6	16	0	119	65	0	0	0	65	184
10:30 - 10:45	92	6	30	1	129	68	0	0	1	69	198
10:45 - 11:00	71	5	22	1	99	42	3	2	0	47	146
11:00 - 11:15	51	10	20	0	81	25	0	1	0	26	107
11:15 - 11:30	60	5	19	0	84	52	2	6	0	60	144
11:30 - 11:45	22	2	12	0	36	27	0	1	0	28	64
11:45 - 12:00	33	4	19	3	59	24	0	0	0	24	83
12:00 - 12:15	31	1	18	1	51	35	3	0	0	38	89
12:15 - 12:30	79	8	17	0	104	40	1	0	0	41	145
12:30 - 12:45	112	10	36	4	162	59	0	1	1	61	223
12:45 - 13:00	56	2	13	0	71	25	0	1	0	26	97
13:00 - 13:15	72	10	23	0	105	49	2	0	0	51	156
13:15 - 13:30	77	8	22	0	107	40	1	1	0	42	149
13:30 - 13:45	99	5	16	1	121	33	1	1	0	35	156
13:45 - 14:00	82	12	24	0	118	46	3	3	0	52	170
14:00 - 14:15	48	4	13	3	68	39	3	0	0	42	110
14:15 - 14:30	60	2	16	2	80	35	1	1	0	37	117
14:30 - 14:45	50	1	5	1	57	39	2	1	0	42	99
14:45 - 15:00	76	8	19	2	105	30	1	0	0	31	136
15:00 - 15:15	103	9	8	0	120	37	1	0	0	38	158
15:15 - 15:30	108	8	16	0	132	56	1	0	1	58	190
15:30 - 15:45	138	9	17	1	165	60	3	2	0	65	230
15:45 - 16:00	72	10	11	1	94	37	0	0	0	37	131
16:00 - 16:15	108	13	17	1	139	68	3	0	0	71	210
16:15 - 16:30	112	9	11	1	133	38	2	0	0	40	173
16:30 - 16:45	113	10	13	0	136	95	0	0	1	96	232
16:45 - 17:00	105	7	3	2	117	84	1	0	0	85	202
17:00 - 17:15	99	5	13	1	118	69	1	1	0	71	189
17:15 - 17:30	126	9	11	0	146	67	1	0	1	69	215
17:30 - 17:45	124	7	11	0	142	72	0	1	0	73	215
17:45 - 18:00	74	3	12	1	90	51	2	0	0	53	143
TOTAL	4096	277	843	40	5256	2907	51	49	5	3012	8268

SITE:	TWO WAY COUNT ON N2 UNDER P228 BRIDGE	LANE 1 SLOW LANE
DATE:	12 HOUR COUNT ON THURSDAY 16 JANUARY 2014	
UNITS:	CLASSIFIED	

NAME MOVEMENT TIME	N2										TOTAL BOTH DIRECTIONS
	SOUTHBOUND (LANE 1)					SOUTHBOUND (LANE 2)					
	C	T	H	B	TOTAL	C	T	H	B	TOTAL	
06:00 - 06:15	45	2	4	2	53	17	0	0	0	17	70
06:15 - 06:30	72	9	16	2	99	69	0	0	0	69	168
06:30 - 06:45	93	5	11	0	109	72	2	0	0	74	183
06:45 - 07:00	109	3	15	3	130	91	1	0	0	92	222
07:00 - 07:15	80	3	15	2	100	59	1	0	0	60	160
07:15 - 07:30	56	1	3	1	61	29	1	0	0	30	91
07:30 - 07:45	81	5	13	1	100	60	2	0	0	62	162
07:45 - 08:00	96	6	16	0	118	48	2	1	0	51	169
08:00 - 08:15	41	1	10	1	53	30	0	0	0	30	83
08:15 - 08:30	57	1	11	1	70	31	4	0	0	35	105
08:30 - 08:45	73	1	15	2	91	50	2	0	1	53	144
08:45 - 09:00	79	1	5	3	88	40	1	0	0	41	129
09:00 - 09:15	46	2	7	0	55	21	0	0	0	21	76
09:15 - 09:30	91	2	15	1	109	26	2	0	0	28	137
09:30 - 09:45	62	2	19	0	83	43	1	0	0	44	127
09:45 - 10:00	80	3	12	0	95	31	1	0	0	32	127
10:00 - 10:15	67	5	19	1	92	47	3	1	0	51	143
10:15 - 10:30	88	2	16	2	108	31	2	0	0	33	141
10:30 - 10:45	49	4	26	1	80	56	1	0	1	58	138
10:45 - 11:00	33	2	6	0	41	15	0	0	0	15	56
11:00 - 11:15	54	1	13	1	69	41	1	1	0	43	112
11:15 - 11:30	58	3	13	2	76	36	4	0	0	40	116
11:30 - 11:45	57	2	9	0	68	36	4	0	0	40	108
11:45 - 12:00	74	5	11	1	91	48	3	1	0	52	143
12:00 - 12:15	67	3	15	2	87	48	4	0	0	52	139
12:15 - 12:30	61	1	13	0	75	38	1	1	0	40	115
12:30 - 12:45	54	5	20	1	80	53	0	0	0	53	133
12:45 - 13:00	41	1	9	1	52	27	1	0	0	28	80
13:00 - 13:15	59	0	16	1	76	25	2	0	0	27	103
13:15 - 13:30	55	2	30	1	88	63	2	0	2	67	155
13:30 - 13:45	34	6	24	0	64	43	1	1	0	45	109
13:45 - 14:00	84	3	27	1	115	82	4	0	0	86	201
14:00 - 14:15	47	1	16	1	65	24	2	0	0	26	91
14:15 - 14:30	79	3	28	0	110	50	2	1	0	53	163
14:30 - 14:45	58	2	18	2	80	41	1	2	0	44	124
14:45 - 15:00	46	4	16	0	66	66	3	2	0	71	137
15:00 - 15:15	84	1	32	2	119	90	4	0	0	94	213
15:15 - 15:30	59	1	21	1	82	73	2	1	1	77	159
15:30 - 15:45	45	2	25	2	74	91	2	2	0	95	169
15:45 - 16:00	75	3	33	1	112	86	5	1	1	93	205
16:00 - 16:15	58	5	35	1	99	64	3	2	0	69	168
16:15 - 16:30	77	2	21	1	101	77	2	0	0	79	180
16:30 - 16:45	39	2	20	1	62	56	1	3	1	61	123
16:45 - 17:00	76	3	14	0	93	56	4	2	0	62	155
17:00 - 17:15	57	4	17	1	79	78	1	1	0	80	159
17:15 - 17:30	45	2	29	0	76	52	2	4	0	58	134
17:30 - 17:45	54	3	19	1	77	66	3	2	0	71	148
17:45 - 18:00	60	2	16	0	78	35	2	1	0	38	116
TOTAL	3055	132	814	48	4049	2411	92	30	7	2540	6589

Existing Traffic flows – Movement Summaries

P330 / N2 On-ramp (western) AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Off ramp											
1	L	87	0.0	1.456	899.3	LOS F	96.0	671.7	1.00	8.16	2.3
3	R	136	0.0	1.460	899.2	LOS F	96.0	671.7	1.00	5.51	2.3
Approach		223	0.0	1.457	899.2	LOS F	96.0	671.7	1.00	6.54	2.3
East: P330											
5	T	280	0.0	0.144	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R	141	0.0	0.295	16.6	LOS C	1.5	10.4	0.74	0.97	41.1
Approach		421	0.0	0.295	5.6	LOS C	1.5	10.4	0.25	0.32	52.0
West: P330											
10	L	17	0.0	0.421	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
11	T	809	0.0	0.424	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		826	0.0	0.424	0.2	LOS A	0.0	0.0	0.00	0.02	59.7
All Vehicles		1471	0.0	1.457	138.2	NA	96.0	671.7	0.22	1.10	12.5

P330 / N2 On-ramp (western) PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: Onramp											
1	L	163	0.0	1.569	1077.9	LOS F	202.9	1420.5	1.00	12.21	2.0
3	R	259	0.0	1.569	1077.7	LOS F	202.9	1420.5	1.00	8.64	1.9
Approach		422	0.0	1.574	1077.8	LOS F	202.9	1420.5	1.00	10.02	2.0
East: P330											
5	T	274	0.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R	38	0.0	0.056	12.6	LOS B	0.3	1.8	0.56	0.83	44.5
Approach		312	0.0	0.140	1.5	LOS B	0.3	1.8	0.07	0.10	57.6
West: P330											
10	L	12	0.0	0.322	8.2	LOS A	0.0	0.0	0.00	1.08	49.0
11	T	623	0.0	0.326	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		635	0.0	0.326	0.1	LOS A	0.0	0.0	0.00	0.02	59.8
All Vehicles		1368	0.0	1.574	332.9	NA	202.9	1420.5	0.32	3.12	5.9

P330 / N2 On-ramp (western) AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%			v/c	sec				Vehicles
South: Off ramp											
1	L	87	0.0	0.386	34.5	LOS C	9.4	66.1	0.83	0.80	30.7
3	R	136	0.0	0.386	34.7	LOS C	9.4	66.1	0.83	0.81	30.6
Approach		223	0.0	0.386	34.7	LOS C	9.4	66.1	0.83	0.81	30.6
East: P330											
5	T	280	0.0	0.258	11.0	LOS B	8.0	55.9	0.55	0.47	44.2
6	R	141	0.0	0.789	53.8	LOS D	8.7	61.0	0.99	0.95	24.1
Approach		421	0.0	0.789	25.3	LOS C	8.7	61.0	0.70	0.63	34.6
West: P330											
10	L	17	0.0	0.758	24.7	LOS C	28.3	198.1	0.84	0.94	37.9
11	T	809	0.0	0.764	16.5	LOS B	28.3	198.1	0.84	0.76	39.0
Approach		826	0.0	0.764	16.7	LOS B	28.3	198.1	0.84	0.77	39.0
All Vehicles		1471	0.0	0.789	21.9	LOS C	28.3	198.1	0.80	0.73	36.2

P330 / N2 On-ramp (western) PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%			v/c	sec				Vehicles
South: Onramp											
1	L	163	0.0	0.602	32.6	LOS C	16.3	114.1	0.86	0.84	31.5
3	R	259	0.0	0.602	32.8	LOS C	16.3	114.1	0.86	0.85	31.5
Approach		422	0.0	0.602	32.7	LOS C	16.3	114.1	0.86	0.85	31.5
East: P330											
5	T	274	0.0	0.287	14.6	LOS B	8.8	61.5	0.63	0.54	41.0
6	R	38	0.0	0.169	38.9	LOS D	2.1	14.4	0.82	0.76	28.8
Approach		312	0.0	0.287	17.6	LOS B	8.8	61.5	0.66	0.57	39.0
West: P330											
10	L	12	0.0	0.658	26.9	LOS C	21.9	153.2	0.82	0.93	36.5
11	T	623	0.0	0.666	18.7	LOS B	21.9	153.2	0.82	0.73	37.6
Approach		635	0.0	0.666	18.9	LOS B	21.9	153.2	0.82	0.74	37.6
All Vehicles		1368	0.0	0.666	22.8	LOS C	21.9	153.2	0.79	0.73	35.8

P330 / N2 On-ramp (Eastern) AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
4	L	408	0.0	0.403	8.2	LOS A	0.0	0.0	0.00	0.81	49.0
5	T	357	0.0	0.403	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		765	0.0	0.403	4.4	LOS A	0.0	0.0	0.00	0.43	53.6
North: Off-ramp											
7	L	38	0.0	0.275	30.2	LOS D	1.2	8.2	0.79	1.03	33.5
9	R	17	0.0	0.276	30.0	LOS D	1.2	8.2	0.79	1.03	33.6
Approach		55	0.0	0.275	30.1	LOS D	1.2	8.2	0.79	1.03	33.6
West: P330											
11	T	541	0.0	0.277	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	436	0.0	0.810	25.4	LOS D	9.0	63.0	0.90	1.44	35.2
Approach		977	0.0	0.811	11.4	LOS D	9.0	63.0	0.40	0.64	45.7
All Vehicles		1797	0.0	0.811	8.9	NA	9.0	63.0	0.24	0.56	48.2

P330 / N2 On-ramp (Eastern) PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
4	L	229	0.0	0.267	8.2	LOS A	0.0	0.0	0.00	0.84	49.0
5	T	279	0.0	0.267	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		508	0.0	0.267	3.7	LOS A	0.0	0.0	0.00	0.38	54.5
North: Off-ramp											
7	L	56	0.0	0.217	21.6	LOS C	0.9	6.5	0.73	1.01	38.6
9	R	12	0.0	0.218	21.5	LOS C	0.9	6.5	0.73	1.02	38.7
Approach		67	0.0	0.217	21.6	LOS C	0.9	6.5	0.73	1.01	38.6
West: P330											
11	T	646	0.0	0.331	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	274	0.0	0.337	12.6	LOS B	2.1	14.5	0.59	0.91	44.5
Approach		920	0.0	0.337	3.7	LOS B	2.1	14.5	0.17	0.27	54.4
All Vehicles		1496	0.0	0.337	4.5	NA	2.1	14.5	0.14	0.34	53.4

P467 / P228 AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: P228											
1	L	12	0.0	0.017	11.0	LOS B	0.1	0.5	0.14	0.89	46.3
2	T	1	0.0	0.016	10.6	LOS B	0.1	0.5	0.14	0.91	46.7
3	R	4	0.0	0.017	10.8	LOS B	0.1	0.5	0.14	0.95	46.5
Approach		17	0.0	0.017	10.9	LOS B	0.1	0.5	0.14	0.90	46.4
East: P467											
4	L	7	0.0	0.026	8.3	LOS A	0.2	1.3	0.12	0.86	48.9
5	T	42	0.0	0.026	0.1	LOS A	0.2	1.3	0.12	0.00	57.5
6	R	1	0.0	0.026	8.6	LOS A	0.2	1.3	0.12	0.98	48.7
Approach		51	0.0	0.026	1.5	LOS A	0.2	1.3	0.12	0.15	55.8
North: Entrance of Nutri Flo											
7	L	1	0.0	0.003	11.2	LOS B	0.0	0.1	0.16	0.86	46.2
8	T	1	0.0	0.003	10.7	LOS B	0.0	0.1	0.16	0.89	46.5
9	R	1	0.0	0.003	11.0	LOS B	0.0	0.1	0.16	0.93	46.3
Approach		3	0.0	0.003	11.0	LOS B	0.0	0.1	0.16	0.89	46.3
West: P467											
10	L	1	0.0	0.023	8.4	LOS A	0.2	1.1	0.14	0.80	48.9
11	T	33	0.0	0.023	0.2	LOS A	0.2	1.1	0.14	0.00	57.0
12	R	8	0.0	0.023	8.6	LOS A	0.2	1.1	0.14	0.92	48.6
Approach		42	0.0	0.023	2.1	LOS A	0.2	1.1	0.14	0.20	54.9
All Vehicles		113	0.0	0.026	3.4	NA	0.2	1.3	0.13	0.30	53.6

P467 / P228 PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: P228											
1	L	11	0.0	0.022	11.1	LOS B	0.1	0.7	0.15	0.87	46.3
2	T	1	0.0	0.022	10.6	LOS B	0.1	0.7	0.15	0.89	46.6
3	R	9	0.0	0.022	10.8	LOS B	0.1	0.7	0.15	0.94	46.4
Approach		21	0.0	0.022	10.9	LOS B	0.1	0.7	0.15	0.90	46.3
East: P467											
4	L	3	0.0	0.022	8.2	LOS A	0.2	1.1	0.09	0.93	49.0
5	T	39	0.0	0.022	0.1	LOS A	0.2	1.1	0.09	0.00	58.3
6	R	1	0.0	0.022	8.5	LOS A	0.2	1.1	0.09	1.05	48.7
Approach		43	0.0	0.022	0.9	LOS A	0.2	1.1	0.09	0.09	57.2
North: Entrance of Nutri Flo											
7	L	1	0.0	0.003	11.1	LOS B	0.0	0.1	0.11	0.89	46.2
8	T	1	0.0	0.003	10.6	LOS B	0.0	0.1	0.11	0.91	46.5
9	R	1	0.0	0.003	10.9	LOS B	0.0	0.1	0.11	0.96	46.3
Approach		3	0.0	0.003	10.9	LOS B	0.0	0.1	0.11	0.92	46.3
West: P467											
10	L	1	0.0	0.020	8.3	LOS A	0.1	0.8	0.12	0.71	48.7
11	T	18	0.0	0.020	0.1	LOS A	0.1	0.8	0.12	0.00	57.2
12	R	15	0.0	0.020	8.6	LOS A	0.1	0.8	0.12	0.82	48.5
Approach		34	0.0	0.020	4.1	LOS A	0.1	0.8	0.12	0.38	52.8
All Vehicles		101	0.0	0.022	4.4	NA	0.2	1.1	0.11	0.38	52.8

P467 / N2 Off ramp (western) AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: Off-Ramp											
1	L	21	0.0	0.032	11.2	LOS B	0.1	1.0	0.10	0.90	46.1
3	R	11	0.0	0.032	11.2	LOS B	0.1	1.0	0.10	1.01	46.0
Approach		32	0.0	0.032	11.2	LOS B	0.1	1.0	0.10	0.94	46.0
East: P467											
5	T	26	0.0	0.034	0.4	LOS A	0.2	1.4	0.22	0.00	55.1
6	R	26	0.0	0.034	9.3	LOS A	0.2	1.4	0.22	0.82	48.0
Approach		53	0.0	0.034	4.8	LOS A	0.2	1.4	0.22	0.41	51.3
West: P467											
10	L	27	0.0	0.059	8.2	LOS A	0.0	0.0	0.00	0.94	49.0
11	T	86	0.0	0.059	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		114	0.0	0.059	2.0	LOS A	0.0	0.0	0.00	0.23	56.9
All Vehicles		198	0.0	0.059	4.2	NA	0.2	1.4	0.07	0.39	53.4

P467 / N2 Off ramp (western) PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: Off-Ramp											
1	L	64	0.0	0.087	10.9	LOS B	0.4	2.9	0.10	0.90	46.3
3	R	26	0.0	0.087	10.9	LOS B	0.4	2.9	0.10	1.00	46.3
Approach		91	0.0	0.087	10.9	LOS B	0.4	2.9	0.10	0.93	46.3
East: P467											
5	T	25	0.0	0.018	0.2	LOS A	0.1	0.8	0.14	0.00	57.1
6	R	7	0.0	0.018	9.0	LOS A	0.1	0.8	0.14	0.99	48.3
Approach		33	0.0	0.018	2.2	LOS A	0.1	0.8	0.14	0.22	54.9
West: P467											
10	L	13	0.0	0.025	8.2	LOS A	0.0	0.0	0.00	0.93	49.0
11	T	35	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		47	0.0	0.025	2.2	LOS A	0.0	0.0	0.00	0.25	56.6
All Vehicles		171	0.0	0.087	6.8	NA	0.4	2.9	0.08	0.61	50.4

P467 / On ramp (eastern) AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P467											
4	L	35	0.0	0.040	8.2	LOS A	0.0	0.0	0.00	0.84	49.0
5	T	41	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		76	0.0	0.040	3.8	LOS A	0.0	0.0	0.00	0.38	54.4
North: Off-ramp											
7	L	5	0.0	0.017	11.4	LOS B	0.1	0.6	0.12	0.86	45.8
9	R	9	0.0	0.017	11.5	LOS B	0.1	0.6	0.12	0.97	45.7
Approach		15	0.0	0.017	11.5	LOS B	0.1	0.6	0.12	0.93	45.8
West: P467											
11	T	22	0.0	0.065	0.3	LOS A	0.4	2.5	0.18	0.00	55.7
12	R	72	0.0	0.065	9.1	LOS A	0.4	2.5	0.18	0.74	47.8
Approach		94	0.0	0.065	7.1	LOS A	0.4	2.5	0.18	0.56	49.4
All Vehicles		184	0.0	0.065	6.0	NA	0.4	2.5	0.10	0.52	51.0

P467 / On ramp (eastern) PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P467											
4	L	5	0.0	0.013	8.2	LOS A	0.0	0.0	0.00	0.96	49.0
5	T	20	0.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		25	0.0	0.013	1.7	LOS A	0.0	0.0	0.00	0.20	57.3
North: Off-ramp											
7	L	5	0.0	0.020	11.2	LOS B	0.1	0.7	0.12	0.85	46.1
9	R	13	0.0	0.020	11.2	LOS B	0.1	0.7	0.12	0.95	46.0
Approach		18	0.0	0.020	11.2	LOS B	0.1	0.7	0.12	0.92	46.0
West: P467											
11	T	20	0.0	0.040	0.1	LOS A	0.2	1.6	0.09	0.00	57.8
12	R	42	0.0	0.040	8.9	LOS A	0.2	1.6	0.09	0.79	48.0
Approach		62	0.0	0.040	6.1	LOS A	0.2	1.6	0.09	0.54	50.8
All Vehicles		105	0.0	0.040	5.9	NA	0.2	1.6	0.07	0.52	51.3

P330 / P474 AM - STOP

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	387	0.0	0.235	7.1	LOS A	4.9	34.0	0.84	0.00	46.6
6	R	17	0.0	0.234	15.6	LOS C	4.9	34.0	0.84	1.03	45.3
Approach		404	0.0	0.235	7.5	LOS C	4.9	34.0	0.84	0.04	46.6
North: P474											
7	L	23	0.0	1.362	706.1	LOS F	129.8	908.9	1.00	9.43	2.9
9	R	335	0.0	1.366	705.9	LOS F	129.8	908.9	1.00	7.43	2.9
Approach		358	0.0	1.368	705.9	LOS F	129.8	908.9	1.00	7.56	2.9
West: P330											
10	L	163	0.0	0.218	8.2	LOS A	0.0	0.0	0.00	0.87	49.0
11	T	254	0.0	0.218	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		417	0.0	0.218	3.2	LOS A	0.0	0.0	0.00	0.34	55.1
All Vehicles		1179	0.0	1.368	218.0	NA	129.8	908.9	0.59	2.43	8.5

P330 / P474 PM - STOP

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	225	0.0	0.211	7.8	LOS A	3.4	23.7	0.76	0.00	46.0
6	R	41	0.0	0.211	16.2	LOS C	3.4	23.7	0.76	1.02	43.9
Approach		266	0.0	0.211	9.1	LOS C	3.4	23.7	0.76	0.16	45.6
North: P474											
7	L	22	0.0	0.539	25.9	LOS D	3.8	26.4	0.77	1.13	35.7
9	R	160	0.0	0.539	25.7	LOS D	3.8	26.4	0.77	1.14	35.9
Approach		182	0.0	0.538	25.7	LOS D	3.8	26.4	0.77	1.14	35.8
West: P330											
10	L	179	0.0	0.237	8.2	LOS A	0.0	0.0	0.00	0.87	49.0
11	T	274	0.0	0.237	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		453	0.0	0.237	3.2	LOS A	0.0	0.0	0.00	0.34	55.1
All Vehicles		901	0.0	0.538	9.5	NA	3.8	26.4	0.38	0.45	47.1

P330 / P474 AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	387	0.0	0.482	19.0	LOS B	14.0	98.1	0.76	0.66	37.5
6	R	17	0.0	0.484	27.4	LOS C	14.0	98.1	0.76	0.94	36.0
Approach		404	0.0	0.482	19.4	LOS B	14.0	98.1	0.76	0.67	37.4
North: P474											
7	L	23	0.0	0.482	29.8	LOS C	13.2	92.7	0.79	0.82	32.7
9	R	335	0.0	0.482	30.1	LOS C	13.2	92.7	0.79	0.83	32.7
Approach		358	0.0	0.482	30.1	LOS C	13.2	92.7	0.79	0.83	32.7
West: P330											
10	L	163	0.0	0.467	25.7	LOS C	13.9	97.5	0.73	0.87	36.2
11	T	254	0.0	0.467	17.6	LOS B	13.9	97.5	0.73	0.64	37.7
Approach		417	0.0	0.467	20.8	LOS C	13.9	97.5	0.73	0.73	37.1
All Vehicles		1179	0.0	0.482	23.1	LOS C	14.0	98.1	0.76	0.74	35.8

P330 / P474 PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	225	0.0	0.325	15.0	LOS B	8.8	61.5	0.65	0.55	40.3
6	R	41	0.0	0.324	23.4	LOS C	8.8	61.5	0.65	0.93	38.0
Approach		266	0.0	0.325	16.3	LOS B	8.8	61.5	0.65	0.61	39.9
North: P474											
7	L	22	0.0	0.305	33.0	LOS C	7.7	53.9	0.79	0.79	31.3
9	R	160	0.0	0.304	33.2	LOS C	7.7	53.9	0.79	0.80	31.2
Approach		182	0.0	0.304	33.2	LOS C	7.7	53.9	0.79	0.80	31.2
West: P330											
10	L	179	0.0	0.435	21.2	LOS C	13.3	93.1	0.64	0.88	38.9
11	T	274	0.0	0.435	13.1	LOS B	13.3	93.1	0.64	0.56	41.2
Approach		453	0.0	0.435	16.3	LOS B	13.3	93.1	0.64	0.69	40.3
All Vehicles		901	0.0	0.435	19.7	LOS B	13.3	93.1	0.67	0.69	38.0

P474 / P228 AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	182	0.0	0.096	9.0	LOS A	0.8	5.5	0.32	0.47	47.5
6	R	3	0.0	0.096	9.0	LOS A	0.8	5.5	0.32	0.63	47.4
Approach		185	0.0	0.096	9.0	LOS A	0.8	5.5	0.32	0.48	47.5
North: P228											
7	L	12	0.0	0.020	11.6	LOS B	0.0	0.3	0.24	0.87	46.2
8	T	131	0.0	0.202	13.6	LOS B	1.1	7.7	0.52	0.92	44.5
Approach		142	0.0	0.202	13.5	LOS B	1.1	7.7	0.50	0.92	44.6
South West: P474											
30	L	55	0.0	0.085	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
31	T	108	0.0	0.085	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		163	0.0	0.085	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
All Vehicles		491	0.0	0.202	9.9	NA	1.1	7.7	0.26	0.67	47.2

P474 / P228 PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	81	0.0	0.049	9.4	LOS A	0.4	2.8	0.39	0.42	47.3
6	R	8	0.0	0.049	9.4	LOS A	0.4	2.8	0.39	0.65	47.1
Approach		89	0.0	0.049	9.4	LOS A	0.4	2.8	0.39	0.45	47.3
North: P228											
7	L	4	0.0	0.008	11.9	LOS B	0.0	0.1	0.30	0.84	46.0
8	T	76	0.0	0.112	13.0	LOS B	0.6	4.1	0.47	0.90	44.9
Approach		80	0.0	0.112	13.0	LOS B	0.6	4.1	0.46	0.89	45.0
South West: P474											
30	L	121	0.0	0.139	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
31	T	144	0.0	0.139	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		265	0.0	0.139	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
All Vehicles		435	0.0	0.139	9.1	NA	0.6	4.1	0.17	0.66	48.0

Existing + All New Developments Traffic flows – Movement Summaries

P330/P474 intersection AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
East: P330											
5	T	387	0.0	0.995	123.1	LOS F	68.6	480.0	1.00	1.31	13.2
6	R	197	0.0	0.994	131.6	LOS F	68.6	480.0	1.00	1.31	13.1
Approach		584	0.0	0.995	126.0	LOS F	68.6	480.0	1.00	1.31	13.2
North: P474											
7	L	334	0.0	0.997	125.4	LOS F	82.4	576.8	1.00	1.12	13.4
9	R	395	0.0	0.998	125.7	LOS F	82.4	576.8	1.00	1.12	13.4
Approach		728	0.0	0.997	125.6	LOS F	82.4	576.8	1.00	1.12	13.4
West: P330											
10	L	188	0.0	0.440	31.2	LOS C	20.4	143.0	0.66	0.88	33.0
11	T	254	0.0	0.439	23.0	LOS C	20.4	143.0	0.66	0.59	34.6
Approach		442	0.0	0.440	26.5	LOS C	20.4	143.0	0.66	0.71	33.9
All Vehicles		1755	0.0	0.997	100.8	LOS F	82.4	576.8	0.92	1.08	15.7

P330/P474 intersection PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
East: P330											
5	T	225	0.0	0.869	24.6	LOS C	18.9	132.6	0.92	1.08	32.6
6	R	338	0.0	0.870	32.9	LOS C	18.9	132.6	0.92	1.14	32.2
Approach		563	0.0	0.870	29.6	LOS C	18.9	132.6	0.92	1.11	32.3
North: P474											
7	L	187	0.0	0.319	9.1	LOS A	1.5	10.5	0.36	0.68	47.8
9	R	185	0.0	0.831	37.8	LOS D	6.9	48.5	1.00	0.99	29.3
Approach		373	0.0	0.831	23.4	LOS C	6.9	48.5	0.68	0.83	36.5
West: P330											
10	L	240	0.0	0.421	13.0	LOS B	7.9	55.3	0.53	0.86	45.2
11	T	274	0.0	0.421	4.8	LOS A	7.9	55.3	0.53	0.46	49.3
Approach		514	0.0	0.421	8.6	LOS A	7.9	55.3	0.53	0.65	47.3
All Vehicles		1449	0.0	0.870	20.6	LOS C	18.9	132.6	0.72	0.88	37.7

P330/P474 intersection AM – Traffic Signals + Sip lane

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	387	0.0	0.875	25.8	LOS C	19.3	135.2	0.98	1.12	32.4
6	R	197	0.0	0.875	34.1	LOS C	19.3	135.2	0.98	1.14	32.2
Approach		584	0.0	0.875	28.6	LOS C	19.3	135.2	0.98	1.13	32.3
North: P474											
7	L	334	0.0	0.593	9.5	LOS A	3.2	22.3	0.43	0.71	47.4
9	R	395	0.0	0.886	38.9	LOS D	13.8	96.8	1.00	1.06	28.9
Approach		728	0.0	0.886	25.4	LOS C	13.8	96.8	0.74	0.90	35.3
West: P330											
10	L	188	0.0	0.445	16.4	LOS B	8.5	59.8	0.67	0.86	42.6
11	T	254	0.0	0.445	8.2	LOS A	8.5	59.8	0.67	0.58	45.2
Approach		442	0.0	0.445	11.7	LOS B	8.5	59.8	0.67	0.70	44.1
All Vehicles		1755	0.0	0.886	23.0	LOS C	19.3	135.2	0.80	0.92	36.0

P330/P474 intersection PM – Traffic Signals + Sip lane

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	225	0.0	0.869	24.6	LOS C	18.9	132.6	0.92	1.08	32.6
6	R	338	0.0	0.870	32.9	LOS C	18.9	132.6	0.92	1.14	32.2
Approach		563	0.0	0.870	29.6	LOS C	18.9	132.6	0.92	1.11	32.3
North: P474											
7	L	187	0.0	0.319	9.1	LOS A	1.5	10.5	0.36	0.68	47.8
9	R	185	0.0	0.831	37.8	LOS D	6.9	48.5	1.00	0.99	29.3
Approach		373	0.0	0.831	23.4	LOS C	6.9	48.5	0.68	0.83	36.5
West: P330											
10	L	240	0.0	0.421	13.0	LOS B	7.9	55.3	0.53	0.86	45.2
11	T	274	0.0	0.421	4.8	LOS A	7.9	55.3	0.53	0.46	49.3
Approach		514	0.0	0.421	8.6	LOS A	7.9	55.3	0.53	0.65	47.3
All Vehicles		1449	0.0	0.870	20.6	LOS C	18.9	132.6	0.72	0.88	37.7

P228/P474 intersection AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	182	0.0	0.249	10.5	LOS B	2.0	13.9	0.52	0.34	46.5
6	R	152	0.0	0.249	10.6	LOS B	2.0	13.9	0.52	0.76	46.4
Approach		334	0.0	0.249	10.5	LOS B	2.0	13.9	0.52	0.53	46.4
North: P228											
7	L	199	0.0	0.368	12.6	LOS B	1.1	8.0	0.38	0.91	45.6
8	T	501	0.0	1.185	370.8	LOS F	113.0	791.0	1.00	6.58	5.3
Approach		700	0.0	1.184	269.0	LOS F	113.0	791.0	0.82	4.97	7.2
South West: P474											
30	L	260	0.0	0.196	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
31	T	109	0.0	0.196	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		369	0.0	0.196	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
All Vehicles		1403	0.0	1.184	138.8	NA	113.0	791.0	0.53	2.78	12.5

P228/P474 intersection PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	81	0.0	0.287	13.3	LOS B	2.1	15.0	0.66	0.24	43.9
6	R	168	0.0	0.287	13.3	LOS B	2.1	15.0	0.66	0.93	43.8
Approach		249	0.0	0.287	13.3	LOS B	2.1	15.0	0.66	0.70	43.8
North: P228											
7	L	126	0.0	0.259	13.5	LOS B	0.8	5.3	0.47	0.94	45.0
8	T	321	0.0	0.847	40.0	LOS E	11.7	82.0	0.92	1.61	29.1
Approach		447	0.0	0.847	32.5	LOS E	11.7	82.0	0.79	1.42	32.4
South West: P474											
30	L	479	0.0	0.332	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
31	T	144	0.0	0.332	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
Approach		623	0.0	0.332	7.8	LOS A	0.0	0.0	0.00	0.66	49.3
All Vehicles		1320	0.0	0.847	17.2	NA	11.7	82.0	0.39	0.93	41.1

P228 / P467 AM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%			v/c	sec				Vehicles
South: P228											
1	L	615	0.0	2.235	2257.2	LOS F	545.2	3816.5	1.00	19.00	0.9
2	T	1	0.0	1.053	2256.7	LOS F	545.2	3816.5	1.00	16.49	0.9
3	R	159	0.0	2.239	2257.0	LOS F	545.2	3816.5	1.00	16.35	0.9
Approach		775	0.0	2.237	2257.1	LOS F	545.2	3816.5	1.00	18.46	0.9
East: P467											
4	L	83	0.0	0.362	8.4	LOS A	3.4	24.0	0.17	0.84	49.0
5	T	615	0.0	0.361	0.2	LOS A	3.4	24.0	0.17	0.00	56.6
6	R	1	0.0	0.351	8.6	LOS A	3.4	24.0	0.17	0.98	48.8
Approach		699	0.0	0.361	1.2	LOS A	3.4	24.0	0.17	0.10	55.6
North: Entrance of Nutri Flo											
7	L	1	0.0	0.032	44.2	LOS E	0.1	0.8	0.47	0.65	27.3
8	T	1	0.0	0.032	43.8	LOS E	0.1	0.8	0.47	0.99	27.4
9	R	1	0.0	0.032	44.0	LOS E	0.1	0.8	0.47	1.02	27.4
Approach		3	0.0	0.032	44.0	LOS E	0.1	0.8	0.47	0.89	27.4
West: P467											
10	L	1	0.0	0.526	16.5	LOS C	4.4	31.0	0.80	0.13	41.2
11	T	33	0.0	0.553	8.3	LOS A	4.4	31.0	0.80	0.00	42.7
12	R	323	0.0	0.551	16.7	LOS C	4.4	31.0	0.80	1.09	41.2
Approach		357	0.0	0.551	16.0	LOS C	4.4	31.0	0.80	0.99	41.4
All Vehicles		1834	0.0	2.237	957.3	NA	545.2	3816.5	0.64	8.03	2.2

P228 / P467 PM

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%			v/c	sec				Vehicles
South: P228											
1	L	319	0.0	3.322	4225.1	LOS F	368.2	2577.4	1.00	11.17	0.5
2	T	1	0.0	1.053	4224.6	LOS F	368.2	2577.4	1.00	10.17	0.5
3	R	92	0.0	3.271	4224.8	LOS F	368.2	2577.4	1.00	10.28	0.5
Approach		412	0.0	3.308	4225.0	LOS F	368.2	2577.4	1.00	10.97	0.5
East: P467											
4	L	145	0.0	0.595	8.4	LOS A	7.7	54.1	0.17	0.84	49.0
5	T	1005	0.0	0.594	0.2	LOS A	7.7	54.1	0.17	0.00	56.7
6	R	1	0.0	0.526	8.6	LOS A	7.7	54.1	0.17	0.97	48.8
Approach		1152	0.0	0.594	1.2	LOS A	7.7	54.1	0.17	0.11	55.6
North: Entrance of Nutri Flo											
7	L	1	0.0	0.132	139.5	LOS F	0.4	2.8	0.65	0.51	12.5
8	T	1	0.0	0.132	139.1	LOS F	0.4	2.8	0.65	1.00	12.4
9	R	1	0.0	0.132	139.3	LOS F	0.4	2.8	0.65	1.01	12.4
Approach		3	0.0	0.126	139.3	LOS F	0.4	2.8	0.65	0.84	12.4
West: P467											
10	L	1	0.0	1.053	3388.9	LOS F	523.9	3667.2	1.00	0.00	0.6
11	T	18	0.0	2.982	3380.7	LOS F	523.9	3667.2	1.00	0.00	0.6
12	R	615	0.0	2.873	3389.1	LOS F	523.9	3667.2	1.00	15.59	0.6
Approach		634	0.0	2.867	3388.9	LOS F	523.9	3667.2	1.00	15.13	0.6
All Vehicles		2200	0.0	3.308	1767.4	NA	523.9	3667.2	0.56	6.47	1.2

10 Year Background Traffic & All Developments Traffic – Movement Summaries

P330 & P474 Intersection AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
East: P330											
5	T	496	0.0	0.944	70.3	LOS E	65.2	456.6	1.00	1.11	19.5
6	R	201	0.0	0.945	78.6	LOS E	65.2	456.6	1.00	1.11	19.4
Approach		697	0.0	0.944	72.7	LOS E	65.2	456.6	1.00	1.11	19.5
North: P474											
7	L	340	0.0	0.922	14.2	LOS B	6.2	43.4	0.58	0.76	43.3
9	R	488	0.0	0.962	104.8	LOS F	47.6	333.2	1.00	1.04	15.3
Approach		828	0.0	0.962	67.6	LOS E	47.6	333.2	0.83	0.93	21.0
West: P330											
10	L	234	0.0	0.452	22.1	LOS C	20.8	145.7	0.54	0.88	38.2
11	T	325	0.0	0.452	13.9	LOS B	20.8	145.7	0.54	0.49	41.0
Approach		559	0.0	0.453	17.3	LOS B	20.8	145.7	0.54	0.65	39.8
All Vehicles		2084	0.0	0.962	55.8	LOS E	65.2	456.6	0.81	0.92	23.4

P330 & P474 Intersection PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
East: P330											
5	T	288	0.0	0.940	66.1	LOS E	60.9	426.2	0.96	1.07	20.1
6	R	349	0.0	0.941	74.4	LOS E	60.9	426.2	0.96	1.11	19.9
Approach		638	0.0	0.941	70.7	LOS E	60.9	426.2	0.96	1.09	20.0
North: P474											
7	L	194	0.0	0.448	9.0	LOS A	2.3	16.4	0.24	0.66	48.1
9	R	231	0.0	0.931	100.0	LOS F	21.1	147.7	1.00	1.00	15.9
Approach		424	0.0	0.931	58.5	LOS E	21.1	147.7	0.65	0.84	23.0
West: P330											
10	L	291	0.0	0.427	13.6	LOS B	16.0	111.7	0.35	0.87	44.4
11	T	351	0.0	0.427	5.4	LOS A	16.0	111.7	0.35	0.32	49.9
Approach		641	0.0	0.427	9.1	LOS A	16.0	111.7	0.35	0.57	47.2
All Vehicles		1703	0.0	0.941	44.5	LOS D	60.9	426.2	0.65	0.83	26.7

P330 & P474 Intersection AM – Traffic Signals + extra lane

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	496	0.0	0.901	14.7	LOS B	11.0	77.0	0.86	0.83	40.4
6	R	201	0.0	0.791	30.5	LOS C	6.1	43.0	1.00	0.98	32.5
Approach		697	0.0	0.901	19.2	LOS B	11.0	77.0	0.90	0.87	37.8
North: P474											
7	L	340	0.0	0.637	11.4	LOS B	4.0	27.8	0.57	0.76	45.8
9	R	488	0.0	0.877	32.2	LOS C	13.9	97.4	1.00	1.06	31.7
Approach		828	0.0	0.877	23.7	LOS C	13.9	97.4	0.82	0.94	36.4
West: P330											
10	L	234	0.0	0.731	21.3	LOS C	12.0	84.3	0.91	0.94	39.3
11	T	325	0.0	0.731	13.1	LOS B	12.0	84.3	0.91	0.86	40.1
Approach		559	0.0	0.732	16.5	LOS B	12.0	84.3	0.91	0.89	39.8
All Vehicles		2084	0.0	0.901	20.3	LOS C	13.9	97.4	0.87	0.90	37.7

P330 & P474 Intersection PM – Traffic Signals + extra lane

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P330											
5	T	288	0.0	0.450	4.6	LOS A	4.6	32.2	0.45	0.38	51.3
6	R	349	0.0	0.872	40.3	LOS D	14.3	100.3	0.97	1.10	28.4
Approach		638	0.0	0.872	24.1	LOS C	14.3	100.3	0.73	0.77	35.6
North: P474											
7	L	194	0.0	0.381	9.4	LOS A	1.9	13.3	0.38	0.69	47.6
9	R	231	0.0	0.853	40.7	LOS D	9.1	63.5	1.00	1.00	28.2
Approach		424	0.0	0.853	26.4	LOS C	9.1	63.5	0.72	0.86	34.7
West: P330											
10	L	291	0.0	0.528	14.1	LOS B	11.2	78.1	0.59	0.87	44.4
11	T	351	0.0	0.528	5.9	LOS A	11.2	78.1	0.59	0.53	47.8
Approach		641	0.0	0.528	9.6	LOS A	11.2	78.1	0.59	0.68	46.2
All Vehicles		1703	0.0	0.872	19.3	LOS B	14.3	100.3	0.68	0.76	38.7

P474 & P228 Intersection AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	233	0.0	0.863	53.1	LOS D	20.0	139.9	1.00	0.96	24.3
6	R	153	0.0	0.863	53.1	LOS D	20.0	139.9	1.00	0.96	24.3
Approach		385	0.0	0.864	53.1	LOS D	20.0	139.9	1.00	0.96	24.3
North: P228											
7	L	202	0.0	0.648	15.2	LOS B	2.6	18.5	0.43	0.94	43.4
8	T	538	0.0	0.887	51.4	LOS D	27.8	194.9	1.00	0.99	24.7
Approach		740	0.0	0.887	41.5	LOS D	27.8	194.9	0.84	0.98	28.1
South West: P474											
30	L	276	0.0	0.862	51.4	LOS D	21.3	149.0	1.00	0.97	24.7
31	T	140	0.0	0.861	51.4	LOS D	21.3	149.0	1.00	0.97	24.7
Approach		416	0.0	0.862	51.4	LOS D	21.3	149.0	1.00	0.97	24.7
All Vehicles		1541	0.0	0.887	47.1	LOS D	27.8	194.9	0.92	0.97	26.1

P474 & P228 Intersection PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: P474											
5	T	104	0.0	0.818	52.6	LOS D	14.4	101.0	1.00	0.92	24.4
6	R	171	0.0	0.817	52.6	LOS D	14.4	101.0	1.00	0.92	24.4
Approach		275	0.0	0.817	52.6	LOS D	14.4	101.0	1.00	0.92	24.4
North: P228											
7	L	127	0.0	0.439	12.5	LOS B	1.4	9.7	0.27	0.94	45.4
8	T	287	0.0	0.829	52.7	LOS D	15.1	105.6	1.00	0.93	24.4
Approach		415	0.0	0.829	40.4	LOS D	15.1	105.6	0.78	0.94	28.5
South West: P474											
30	L	513	0.0	0.833	36.7	LOS D	30.4	212.9	0.95	0.93	29.7
31	T	184	0.0	0.834	36.7	LOS D	30.4	212.9	0.95	0.93	29.7
Approach		697	0.0	0.834	36.7	LOS D	30.4	212.9	0.95	0.93	29.7
All Vehicles		1386	0.0	0.834	40.9	LOS D	30.4	212.9	0.91	0.93	28.1

P467 & P228 Intersection AM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: P228											
1	L	593	0.0	1.002	15.5	LOS B	10.0	70.0	0.94	0.87	42.0
2	T	1	0.0	1.053	7.7	LOS A	10.0	70.0	0.94	0.80	41.7
3	R	211	0.0	0.615	25.9	LOS C	5.6	39.4	0.96	0.85	35.0
Approach		806	0.0	1.002	18.2	LOS B	10.0	70.0	0.94	0.87	40.0
East: P467											
4	L	85	0.0	0.738	18.7	LOS B	13.9	97.4	0.85	0.97	42.1
5	T	626	0.0	0.740	10.5	LOS B	13.9	97.4	0.85	0.82	43.3
6	R	1	0.0	0.752	18.9	LOS B	13.9	97.4	0.85	0.98	42.1
Approach		713	0.0	0.740	11.5	LOS B	13.9	97.4	0.85	0.83	43.2
North: Entrance of Nutri Flo											
7	L	1	0.0	0.009	22.4	LOS C	0.1	0.6	0.82	0.66	37.8
8	T	1	0.0	0.009	14.2	LOS B	0.1	0.6	0.82	0.52	38.9
9	R	1	0.0	0.009	22.5	LOS C	0.1	0.6	0.82	0.66	37.8
Approach		3	0.0	0.009	19.7	LOS B	0.1	0.6	0.82	0.61	38.1
West: P467											
10	L	1	0.0	1.053	42.5	LOS D	31.9	223.1	1.00	1.42	29.1
11	T	915	0.0	0.942	34.3	LOS C	31.9	223.1	1.00	1.42	29.3
12	R	274	0.0	1.000 ³	26.9	LOS C	7.6	53.2	1.00	0.84	34.4
Approach		1189	0.0	1.000	32.6	LOS C	31.9	223.1	1.00	1.29	30.3
All Vehicles		2684	0.0	1.002	23.0	LOS C	31.9	223.1	0.95	1.05	35.7

P467 & P228 Intersection PM – Traffic Signals

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
South: P228											
1	L	322	0.0	0.667	22.4	LOS C	9.2	64.3	0.97	0.87	37.2
2	T	1	0.0	0.689	14.6	LOS B	9.2	64.3	0.97	0.83	37.0
3	R	95	0.0	0.435	35.1	LOS D	3.7	25.7	0.98	0.77	30.4
Approach		418	0.0	0.667	25.3	LOS C	9.2	64.3	0.97	0.84	35.4
East: P467											
4	L	146	0.0	0.895	28.8	LOS C	37.3	260.8	0.89	1.14	35.3
5	T	1016	0.0	0.893	20.6	LOS C	37.3	260.8	0.89	1.02	36.0
6	R	1	0.0	0.965	29.0	LOS C	37.3	260.8	0.89	1.15	35.3
Approach		1163	0.0	0.893	21.6	LOS C	37.3	260.8	0.89	1.04	35.9
North: Entrance of Nutri Flo											
7	L	1	0.0	0.016	32.8	LOS C	0.1	0.9	0.91	0.64	32.1
8	T	1	0.0	0.016	24.6	LOS C	0.1	0.9	0.91	0.57	32.6
9	R	1	0.0	0.016	32.9	LOS C	0.1	0.9	0.91	0.64	32.0
Approach		3	0.0	0.016	30.1	LOS C	0.1	0.9	0.91	0.62	32.2
West: P467											
10	L	1	0.0	0.782	14.1	LOS B	15.6	109.1	0.65	0.87	44.3
11	T	870	0.0	0.681	5.9	LOS A	15.6	109.1	0.65	0.60	47.2
12	R	170	0.0	1.000 ³	44.2	LOS D	7.5	52.3	1.00	0.93	27.0
Approach		1041	0.0	1.000	12.1	LOS B	15.6	109.1	0.71	0.65	42.1
All Vehicles		2625	0.0	1.000	18.5	LOS B	37.3	260.8	0.83	0.85	38.0

Proposed Intersection of P228/Access Road to Tinley Manor AM

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
South: P228											
1	L2	298	2.5	0.800	25.9	LOS C	6.0	42.9	0.95	2.40	35.1
2	T1	202	2.5	0.794	27.6	LOS C	5.2	36.9	0.95	2.36	33.9
3	R2	28	0.0	0.794	33.9	LOS C	5.2	36.9	0.95	2.36	33.9
Approach		528	2.4	0.800	27.0	LOS C	6.0	42.9	0.95	1.19	34.6
East: Seaton Delaval Access											
4	L2	55	2.5	0.455	16.6	LOS B	2.5	17.6	0.89	2.00	41.8
5	T1	219	2.5	0.455	16.9	LOS B	2.5	17.6	0.90	2.01	40.9
6	R2	1	0.0	0.455	24.6	LOS C	2.2	15.6	0.90	2.01	40.0
Approach		275	2.5	0.455	16.9	LOS B	2.5	17.6	0.90	1.00	41.0
North: Access to Tinley Manor											
7	L2	1	0.0	0.309	8.8	LOS A	1.3	9.6	0.52	1.31	49.1
8	T1	228	2.5	0.309	7.3	LOS A	1.3	9.6	0.52	1.31	49.1
9	R2	1885	2.5	0.839	18.0	LOS B	12.2	87.4	0.87	2.05	41.1
Approach		2114	2.5	0.839	16.8	LOS B	12.2	87.4	0.84	0.98	41.8
West: P228											
10	L2	995	2.5	0.345	6.4	LOS A	1.7	11.9	0.19	1.10	50.7
11	T1	110	2.5	0.321	5.5	LOS A	1.8	12.9	0.41	1.31	46.3
12	R2	301	2.5	0.321	11.9	LOS B	1.8	12.9	0.41	1.31	46.3
Approach		1406	2.5	0.345	7.5	LOS A	1.8	12.9	0.25	0.58	49.3
All Vehicles		4323	2.5	0.839	15.0	LOS B	12.2	87.4	0.66	0.88	42.7

Proposed Intersection of P228/Access Road to Tinley Manor AM

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
South: P228											
1	L2	308	2.5	0.421	9.1	LOS A	2.0	14.1	0.69	1.63	47.3
2	T1	186	2.5	0.373	8.2	LOS A	1.6	11.5	0.67	1.60	46.9
3	R2	56	0.0	0.373	14.5	LOS B	1.6	11.5	0.67	1.60	46.9
Approach		550	2.2	0.421	9.4	LOS A	2.0	14.1	0.68	0.81	47.1
East: Seaton Delaval Access											
4	L2	29	2.5	0.125	9.1	LOS A	0.5	3.6	0.67	1.48	47.8
5	T1	115	2.5	0.125	8.3	LOS A	0.5	3.6	0.67	1.51	47.9
6	R2	1	0.0	0.125	14.8	LOS B	0.5	3.4	0.67	1.53	48.0
Approach		145	2.5	0.125	8.5	LOS A	0.5	3.6	0.67	0.75	47.9
North: Access to Tinley Manor											
7	L2	1	0.0	0.222	9.2	LOS A	1.0	7.1	0.57	1.38	48.8
8	T1	159	2.5	0.222	7.8	LOS A	1.0	7.1	0.57	1.38	48.8
9	R2	1007	2.5	0.507	14.4	LOS B	3.5	25.1	0.68	1.74	43.7
Approach		1167	2.5	0.507	13.5	LOS B	3.5	25.1	0.67	0.84	44.3
West: P228											
10	L2	1899	2.5	0.664	8.6	LOS A	6.8	48.8	0.28	1.34	48.6
11	T1	224	2.5	0.452	5.9	LOS A	2.6	18.6	0.45	1.31	46.9
12	R2	304	2.5	0.452	12.2	LOS B	2.6	18.6	0.45	1.31	46.9
Approach		2427	2.5	0.664	8.8	LOS A	6.8	48.8	0.32	0.67	48.2
All Vehicles		4289	2.5	0.664	10.1	LOS B	6.8	48.8	0.47	0.74	46.9

Proposed Diamond Interchange by UWP – Movement Summaries

P228 / N2 AM – West Intersection

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: N2 Off ramp											
1	L	386	0.0	0.401	10.5	LOS B	3.8	26.7	0.62	0.76	46.3
2	T	1	0.0	0.921	21.7	LOS C	12.3	85.9	1.00	1.10	32.9
3	R	939	0.0	0.877	30.1	LOS C	12.3	85.9	1.00	1.10	32.7
Approach		1326	0.0	0.877	24.4	LOS C	12.3	85.9	0.89	1.00	35.8
East: P228											
5	T	550	0.0	0.768	13.5	LOS B	11.5	80.2	0.94	0.92	39.4
6	R	226	0.0	1.000 ³	62.7	LOS E	9.9	69.0	1.00	1.63	21.9
Approach		776	0.0	1.000	27.9	LOS C	11.5	80.2	0.96	1.13	32.0
West: P 228											
10	L	255	0.0	0.867	22.7	LOS C	13.2	92.4	0.99	0.97	38.5
11	T	1001	0.0	0.867	17.5	LOS B	15.3	107.0	0.99	1.07	37.6
Approach		1256	0.0	0.867	18.5	LOS B	15.3	107.0	0.99	1.05	37.8
All Vehicles		3358	0.0	1.000	23.0	LOS C	15.3	107.0	0.94	1.05	35.5

P228 / N2 PM – West Intersection

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV Deg. Satn %	Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
							Vehicles veh	Distance m			
South: N2 Off ramp											
1	L	674	0.0	1.000 ³	18.3	LOS B	13.2	92.5	0.70	0.87	40.1
2	T	23	0.0	0.986	67.8	LOS E	63.0	440.8	1.00	1.20	19.4
3	R	1884	0.0	0.977	76.1	LOS E	63.0	440.8	1.00	1.20	19.3
Approach		2581	0.0	1.000	61.0	LOS E	63.0	440.8	0.92	1.11	22.4
East: P228											
5	T	625	0.0	0.996	88.7	LOS F	44.5	311.6	1.00	1.64	16.9
6	R	168	0.0	1.000 ³	64.1	LOS E	9.9	69.0	1.00	1.01	21.6
Approach		793	0.0	1.000	83.5	LOS F	44.5	311.6	1.00	1.51	17.7
West: P 228											
10	L	102	0.0	0.676	31.2	LOS C	9.3	65.2	0.83	0.87	33.3
11	T	577	0.0	0.677	24.0	LOS C	15.2	106.4	0.90	0.78	34.1
Approach		679	0.0	0.677	25.1	LOS C	15.2	106.4	0.89	0.80	34.0
All Vehicles		4053	0.0	1.000	59.3	LOS E	63.0	440.8	0.93	1.14	22.5

P228 / N2 AM – East Intersection

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: east											
4	L	789	0.0	1.000 ³	17.2	LOS B	13.2	92.4	1.00	0.91	40.7
5	T	1740	0.0	1.071	179.5	LOS F	243.4	1703.8	1.00	1.66	9.8
Approach		2528	0.0	1.071	128.9	LOS F	243.4	1703.8	1.00	1.43	12.9
North: off ramp											
7	L	224	0.0	0.717	18.6	LOS B	8.1	56.9	0.49	0.78	39.9
8	T	2	0.0	1.080	240.1	LOS F	15.4	107.5	1.00	1.52	7.7
9	R	100	0.0	1.088	248.3	LOS F	15.4	107.5	1.00	1.52	7.6
Approach		326	0.0	1.087	90.4	LOS F	15.4	107.5	0.65	1.01	17.3
West: west											
11	T	1872	0.0	0.794	3.6	LOS A	34.5	241.8	0.42	0.40	51.5
12	R	68	0.0	1.037	161.2	LOS F	8.7	60.6	1.00	1.24	11.0
Approach		1940	0.0	1.037	9.2	LOS A	34.5	241.8	0.44	0.43	45.6
All Vehicles		4795	0.0	1.087	77.8	LOS E	243.4	1703.8	0.75	0.99	18.6

P228 / N2 PM – East Intersection

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV Deg.	Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c			sec	Vehicles			
East: east											
4	L	638	0.0	1.000 ³	20.7	LOS C	13.2	92.4	1.00	0.89	38.2
5	T	867	0.0	0.636	7.1	LOS A	20.0	139.7	0.58	0.53	46.9
Approach		1505	0.0	1.000	12.9	LOS B	20.0	139.7	0.76	0.68	42.8
North: off ramp											
7	L	412	0.0	1.000 ³	44.6	LOS D	16.1	113.0	1.00	1.02	27.2
8	T	63	0.0	1.114	265.2	LOS F	44.0	308.0	1.00	2.04	7.1
9	R	257	0.0	1.113	273.4	LOS F	44.0	308.0	1.00	2.04	7.0
Approach		732	0.0	1.113	143.8	LOS F	44.0	308.0	1.00	1.47	12.1
West: west											
11	T	2257	0.0	1.139	208.8	LOS F	254.5	1781.7	0.84	2.29	8.8
12	R	204	0.0	1.000 ³	27.3	LOS C	8.7	60.9	0.93	0.87	34.2
Approach		2461	0.0	1.139	193.7	LOS F	254.5	1781.7	0.85	2.17	9.4
All Vehicles		4698	0.0	1.139	128.0	LOS F	254.5	1781.7	0.84	1.58	13.1

Proposed Diverging Diamond Interchange by Aurecon South Africa – Movement Summaries

P228 / N2 AM – West Intersection

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
SouthEast: Freeway Off-Ramp											
1	L1	367	2.5	0.286	9.9	LOS A	1.8	12.7	0.33	0.71	43.9
2	R3	892	2.5	0.358	10.8	LOS B	1.9	13.5	0.32	0.77	38.1
Approach		1259	2.5	0.358	10.5	LOS B	1.9	13.5	0.32	0.75	39.9
East: Westbound Internal											
3	T1	291	2.5	0.217	6.6	LOS A	1.4	10.3	0.38	0.31	31.9
4	R3	446	2.5	0.276	5.6	LOS A	0.0	0.0	0.00	1.78	26.6
Approach		737	2.5	0.276	6.0	LOS A	1.4	10.3	0.15	1.20	29.2
West: Eastbound External											
5	L1	242	2.5	0.127	9.5	LOS A	0.0	0.0	0.00	0.70	55.4
6	T1	951	2.5	0.645	17.9	LOS B	11.7	83.8	0.81	0.79	43.1
Approach		1193	2.5	0.645	16.2	LOS B	11.7	83.8	0.64	0.77	45.6
All Vehicles		3189	2.5	0.645	11.6	LOS B	11.7	83.8	0.40	0.86	41.4

P228 / N2 PM – West Intersection

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
SouthEast: Freeway Off-Ramp											
1	L1	661	2.5	0.611	11.1	LOS B	6.5	46.2	0.54	0.77	42.2
2	R3	1790	2.5	0.778	14.3	LOS B	9.6	68.6	0.55	0.84	33.6
Approach		2451	2.5	0.778	13.4	LOS B	9.6	68.6	0.55	0.83	36.0
East: Westbound Internal											
3	T1	536	2.5	0.400	7.1	LOS A	3.1	22.5	0.45	0.38	30.7
4	R3	217	2.5	0.134	5.6	LOS A	0.0	0.0	0.00	1.78	26.6
Approach		753	2.5	0.400	6.7	LOS A	3.1	22.5	0.32	0.78	29.8
West: Eastbound External											
5	L1	97	2.5	0.051	9.5	LOS A	0.0	0.0	0.00	0.70	55.4
6	T1	548	2.5	0.336	16.1	LOS B	5.1	36.6	0.70	0.71	44.9
Approach		645	2.5	0.336	15.1	LOS B	5.1	36.6	0.59	0.71	46.5
All Vehicles		3849	2.5	0.778	12.4	LOS B	9.6	68.6	0.51	0.80	37.7

P228 / N2 AM – East Intersection

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
East: Westbound External											
5	L1	1760	2.5	0.464	8.1	LOS A	0.0	0.0	0.00	2.32	49.0
6	T1	642	2.5	0.828	22.4	LOS C	5.8	41.1	1.00	1.02	39.2
Approach		2402	2.5	0.828	11.9	LOS B	5.8	41.1	0.27	1.97	46.1
NorthWest: Freeway Off-Ramp											
1	L1	213	2.5	0.114	8.3	LOS A	0.0	0.0	0.00	0.61	47.3
2	R3	95	2.5	0.099	11.3	LOS B	0.3	2.3	0.44	0.75	37.4
Approach		308	2.5	0.114	9.2	LOS A	0.3	2.3	0.14	0.65	44.4
West: Eastbound Internal											
3	T1	1193	2.5	0.769	3.6	LOS A	5.1	36.5	0.55	0.52	33.2
4	R3	650	2.5	0.709	11.9	LOS B	5.6	40.3	0.90	0.10	42.8
Approach		1843	2.5	0.769	6.5	LOS A	5.6	40.3	0.68	0.37	36.0
All Vehicles		4553	2.5	0.828	9.6	LOS A	5.8	41.1	0.42	1.24	43.5

P228 / N2 PM – East Intersection

Movement Performance - Vehicles											
Mov ID	ODMo v	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %				Vehicles veh	Distance m			
East: Westbound External											
5	L1	921	2.5	0.243	8.1	LOS A	0.0	0.0	0.00	2.32	49.0
6	T1	509	2.5	0.938	45.1	LOS D	8.9	63.7	1.00	1.23	27.0
Approach		1430	2.5	0.938	21.3	LOS C	8.9	63.7	0.36	1.93	38.5
NorthWest: Freeway Off-Ramp											
1	L1	449	2.5	0.240	8.3	LOS A	0.0	0.0	0.00	0.61	47.3
2	R3	244	2.5	0.202	10.8	LOS B	0.9	6.7	0.30	0.75	38.2
Approach		693	2.5	0.240	9.2	LOS A	0.9	6.7	0.11	0.66	44.3
West: Eastbound Internal											
3	T1	1978	2.5	0.823	2.2	LOS A	6.6	47.0	0.25	0.25	40.7
4	R3	360	2.5	0.308	9.6	LOS A	3.5	24.8	0.65	-2.20	42.0
Approach		2338	2.5	0.823	3.4	LOS A	6.6	47.0	0.31	-0.12	40.9
All Vehicles		4461	2.5	0.938	10.0	LOS B	8.9	63.7	0.29	0.66	40.0



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