Leinad Land Development Pty Ltd

DUBLIN EMPLOYMENT CODE DEVELOPMENT

TRAFFIC ASSESSMENT

October 2024

23-0246

Traffic • Parking • Transport

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1.0 INTRODUCTION

Leinad Land Developments (Dublin) Pty Ltd ('Leinad') has received approval from the Minister for Planning to prepare a Code Amendment that will seek to rezone land located to the south of Dublin for employment land uses.

The Code Amendment is proposing to rezone 436 hectares of land located in Dublin from Rural Zone to Employment Zone. The proposed rezoning will facilitate the development of commercial allotments which will primarily service industries to the north of the site. The site will connect to the arterial road network via the Port Wakefield Road/Thompson Road intersection.

This report documents the traffic investigations completed to inform the Code Amendment assessment. Specifically, it includes a review of the road network, potential access opportunities for the site and the upgrade requirements to accommodate the anticipated traffic.

An analysis of the Port Wakefield Road/Thompson Road intersection has also been completed. The analysis is based on anticipated employee forecast for the developable land and mining lease area and has considered potential growth on Port Wakefield Road.

2.0 SUBJECT SITE

The subject land is located immediately south of the Dublin township, west of Port Wakefield Road. It has frontage to Thompson Beach Road and is adjacent the intersection of Thompson Beach Road and Thompson Road. The land is currently zoned as Rural Zone in the Planning and Design Code and is identified in Figure 1.

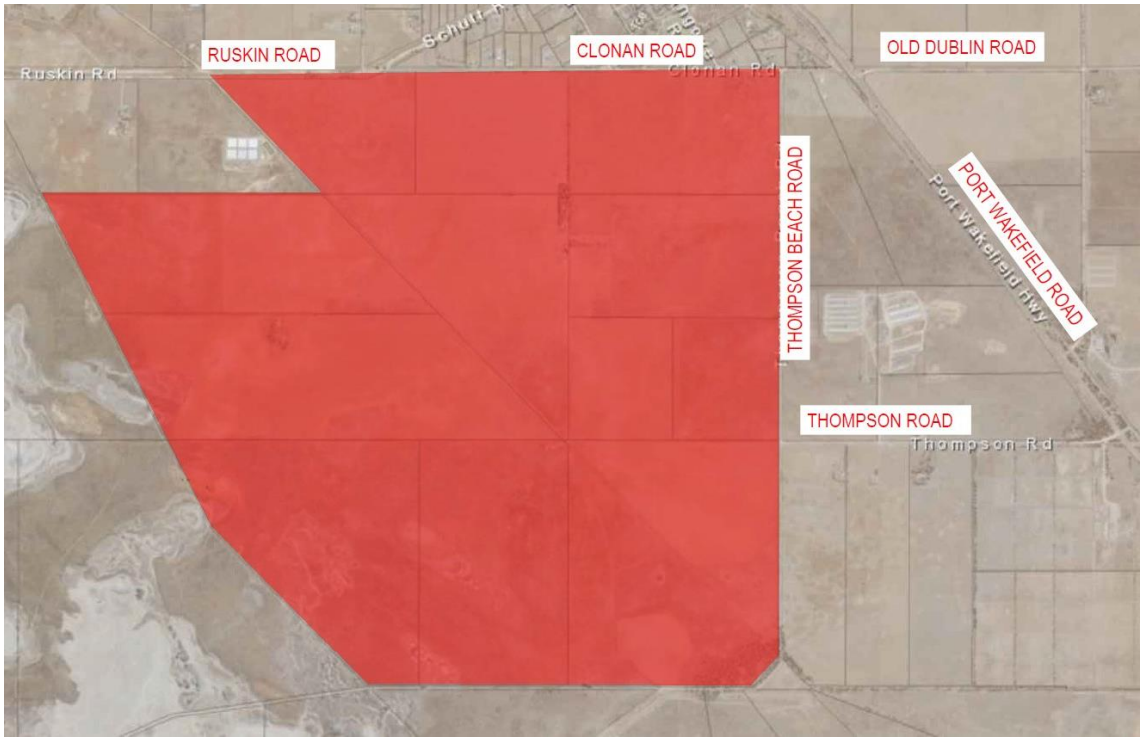

Figure 1: Subject site

The subject site includes a Mineral Claim (MC4557) located in the south-eastern corner. The min will use Thompson Road as its primary access. The traffic volumes generated by mining operations will be very low.

2.1 ROAD NETWORK

Thompson Beach Road and Thompson Road are unsealed roads within the care and control of the Adelaide Plains Council. The rural default speed limit of 100 km/h applies to these roads. The roads form a t-intersection in the south-eastern corner of the subject land.

Thompson Road forms an intersection with Port Wakefield Road which is treated with channelised left and right turn lanes on Port Wakefield Road. The intersection also includes the continuation of the northbound acceleration lane from the adjacent intersection of Carslake Road and Port Wakefield Road.

Port Wakefield Road is a controlled access road which forms part of National Highway 1 and is within the care and control of the Commissioner of Highways. It has a four-lane divided carriageway with a wide median. It is a major freight route and is gazetted for use by PBS Level 3A vehicles. Port Wakefield Road has a posted speed limit of 110 km/h.

Traffic data were collected at Port Wakefield Road service road intersections adjacent to the Dublin Township in 2012. Based on traffic growth from 2012, as identified in historical classification data, it is estimated that Port Wakefield Road adjacent to the site has a volume in the order of 4,500 vehicles per day.

3.0 PROPOSAL

The Code Amendment seeks to facilitate the supply of employment land for larger scale, larger land area and low intensity employment-type land uses. The Code Amendment seeks to rezone approximately 436 hectares of land from Rural Zone to Strategic Employment Zone. Figure 2 identifies an indicative future site layout plan for the land area proposed to be rezoned to Strategic Employment Zone.

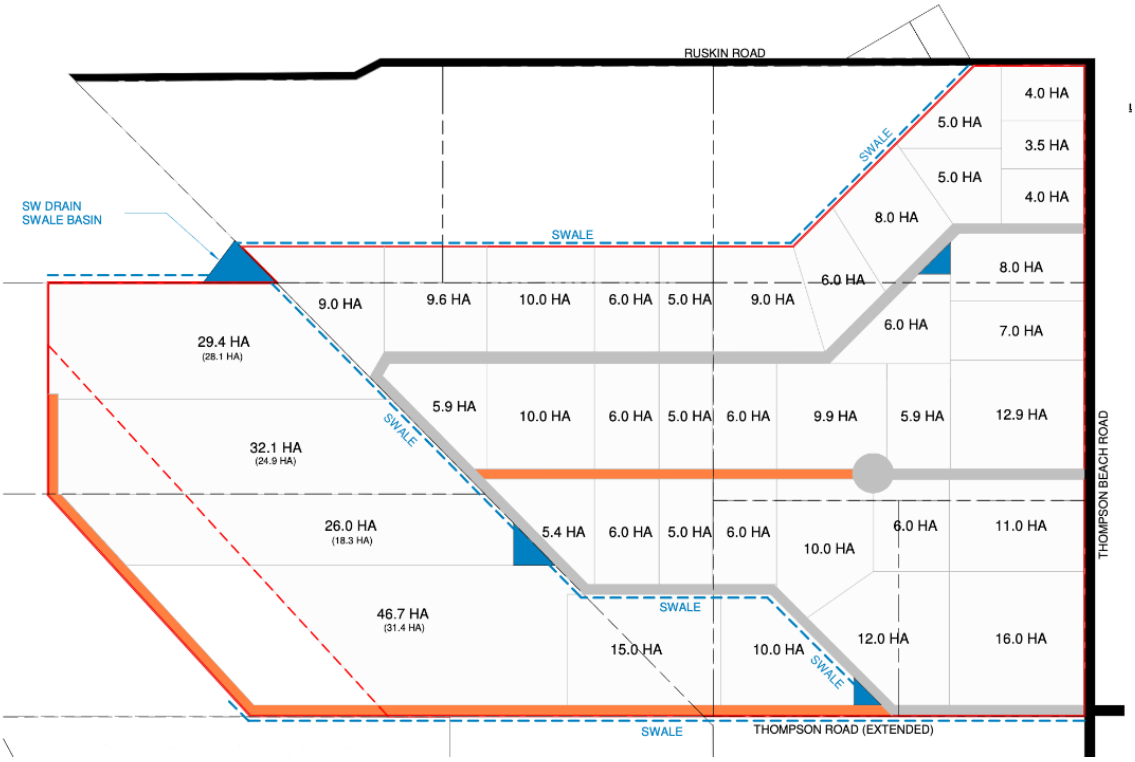

Figure 2: Indicative site plan (Source: Leinad)

3.1 THOMPSON ROAD/PORT WAKEFIELD ROAD INTERSECTION

Arterial road connection to and from the subject land will be provided via the Thompson Road/Port Wakefield Road intersection. The intersection will be upgraded to cater for the development in that acceleration and deceleration lanes will be constructed which comply with Austroads design guidelines.

Two options for the upgrade have been provided to the Department for Infrastructure and Transport (DIT) for its consideration. Both treatment options will include the following features:

- extension to the channelised right turn lane on Port Wakefield Road;
- acceleration lanes on both sides of Port Wakefield Road; and
- extension to the left turn treatment on Thompson Road.

The primary difference for the options relates to the design of the treatment within the central median on Port Wakefield Road. Option 1 would include a solid triangular median and would be consistent with the existing treatment at the Carlisle Road/Port Wakefield Road intersection, while Option 2 would include a painted median. All upgrades will be undertaken in accordance with *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersection (*AGRD-04A) and will be designed to cater for the movement of PBS Level 3 vehicles.

MFY Drawing No mfy_23-0246_02_SH01B illustrates Option 1 (Appendix A). Figure 3 identifies a concept layout of the median treatment in this option.

Figure 3: Concept design of the Port Wakefield Road/Thompson Road intersection – Option 1

Figure 4 identifies PBS Level 3 vehicles turning at the intersection in the Option 1 design.

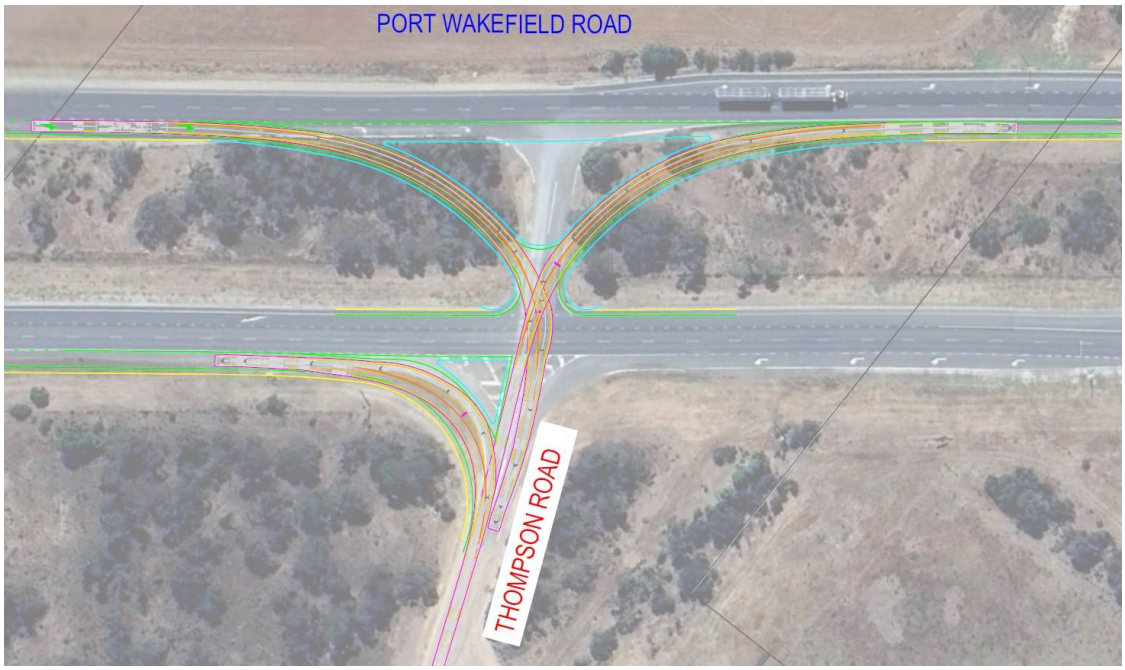

Figure 4: PBS Level 3 vehicle movements at the intersection in the Option 1 design

MFY Drawing No mfy_23-0246_02_SH02B illustrates Option 2 (Appendix A). Figure 5 identifies a concept layout of the intersection treatment in Option 2.

Figure 5: Concept design of the Port Wakefield Road/Thompson Road intersection – Option 2

Figure 6 identifies PBS Level 3 vehicles turning at the intersection in the Option 2 design.

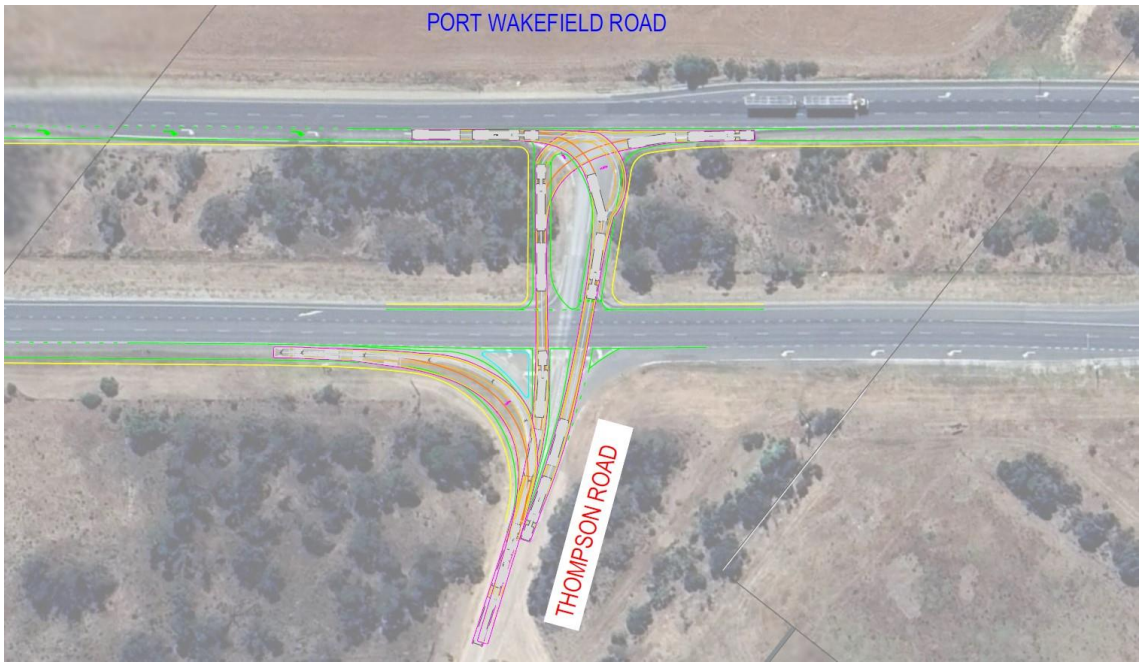

Figure 6: PBS Level 3 vehicle movements at the intersection in the Option 2 design

The proposed upgrade, regardless of the chosen option, will necessitate the extension of the northbound acceleration lane across the Carslake Road intersection, as illustrated in Figure 7.

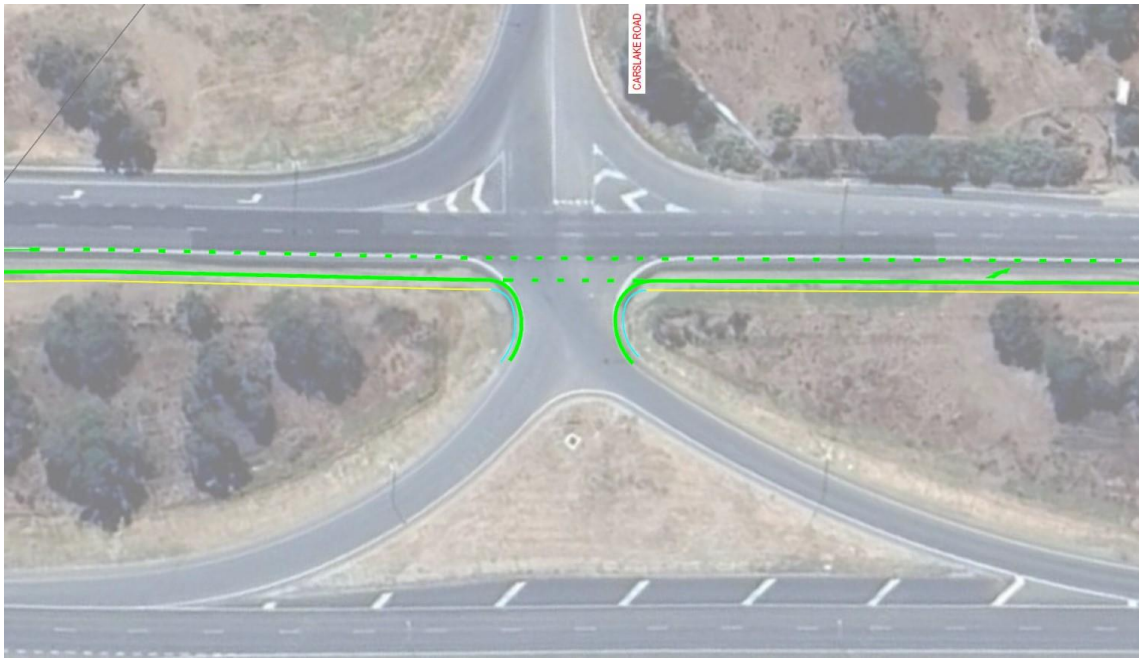

Figure 7: Acceleration lane extending across the Carslake Road intersection

The above treatment is consistent with the existing facility at the Thompson Road/Port Wakefield Road intersection in that it will result in an additional lane for drivers turning right from Carslake Road to cross.

The existing facility would appear to be operating safely and effectively and the design complies with AGRD04A. The proposal, however, will incorporate additional heavy vehicle movements and introduce an addition lane opposite Carslake Road.

To further ensure that the proposed treatment will not compromise safety on the road network, the following analysis have been completed:

- minimum gap sight distance (MGSD) analysis in accordance with AGRD04A for drivers to move through three lanes of traffic at the Thompson Road/Port Wakefield Road and the Carslake Road/Port Wakefield Road intersections; and
- weaving segment analysis in accordance with Highway Capacity Manual (HCM) for drivers leaving Thompson Road to enter Carslake Road, albeit the demand for such movements is negligible.

The above assessments identified the following:

- MGSD requirements will be met for drivers exiting Thompson Road and Carslake Road; and
- Weaving segment will have a Level of Service (LOS) B.

The above outcomes reaffirm that the proposed intersection upgrades will be safe and operate efficiently.

3.2 THOMPSON ROAD, THOMPSON BEACH ROAD AND CLONAN ROAD

Thompson Road, Thompson Beach Road, and Clonan Road have a width of approximately 20 m which meet the recommendations in the SA Infrastructure Guidelines for Industrial Streets. As per the recommendations in the guidelines, a sealed carriageway width of 10.2 m could be readily provided with 4.9 m verge width on either side of the roads.

The indicative site plan identifies three intersections on Thompson Beach Road including two new T-intersections and the construction of the unmade section of Thomspon Road to form a four-way intersection. The Thompson Road/Thompson Beach Road intersection should be treated with give-way signage and line marking on Thompson Beach Road. Figure 8 identifies a concept layout of the intersection of Thompson Beach Road/Thompson Road.

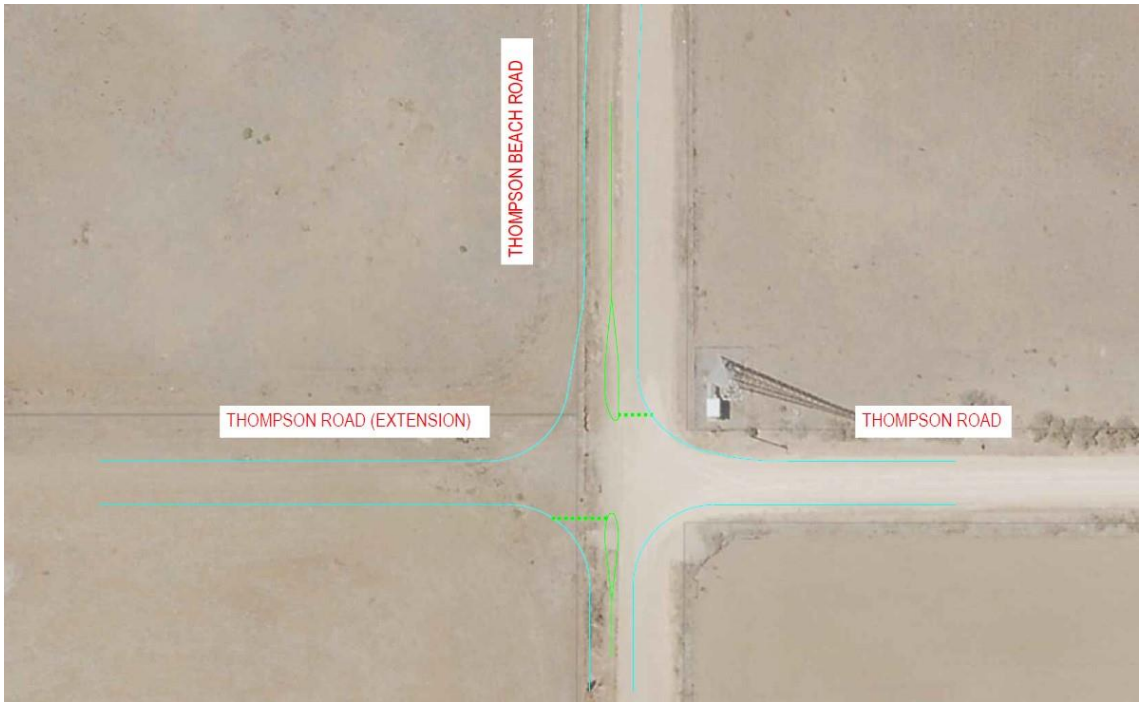

Figure 8: Concept design of intersection of Thompson Beach Road and Thompson Road

The above intersection will cater for the turning movements of PBS Level 3 vehicles (road trains), as illustrated in Figure 9.

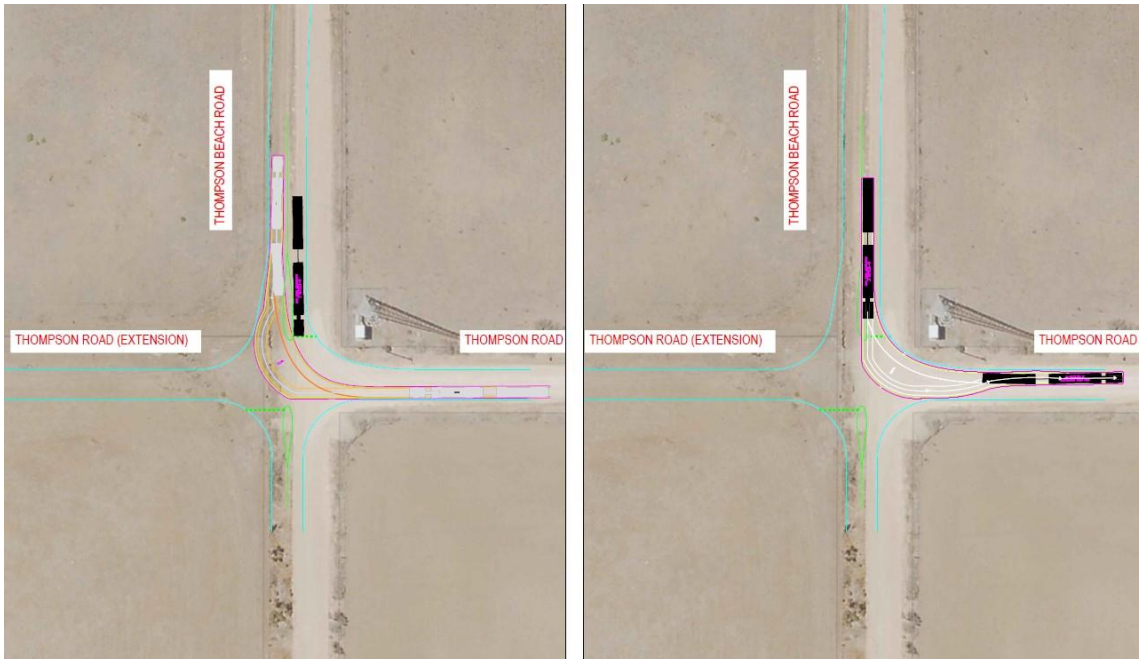

Figure 9: PBS Level 3 truck movements between Thompson Road and Thompson Beach Road

New intersections which will be created to provide access to the site. While there would be some flexibility in respect to the location of the intersections, they should be designed to cater for the turning movements of PBS Level 3 vehicles, as illustrated in Figure 10.

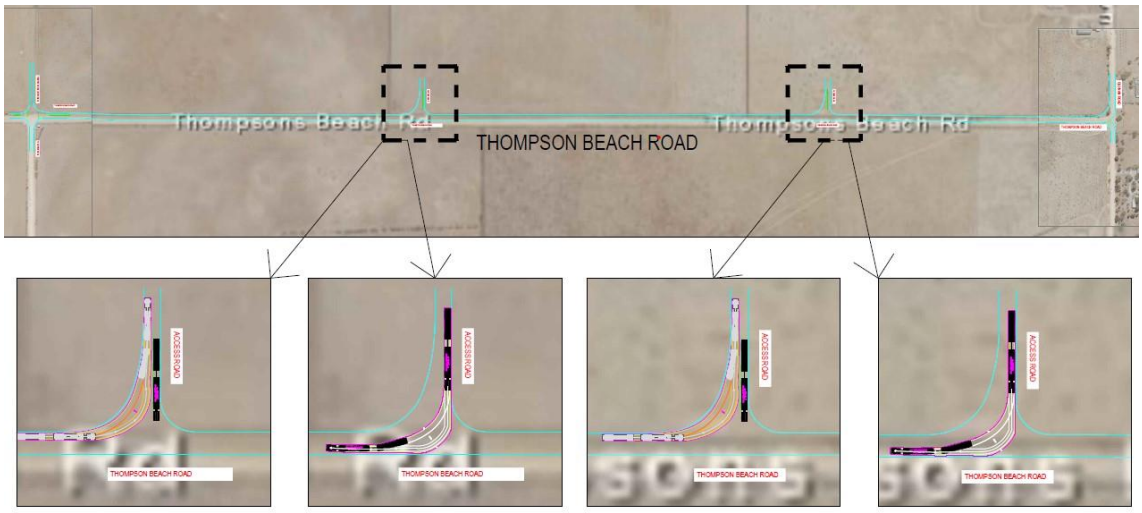

Figure 10: Simultaneous PBS Level 3 vehicle movements at potential intersections

One allotment will be accessed via Clonan Road. The Clonan Road/Thompson Beach Road intersection will be realigned to provide priority for the movements from Clonan Road to Thompson Beach Road as shown in Figure 11.

Figure 11: Potential realignment of the Clonan Road/Thompson Road intersection

The above intersection treatment will provide priority to the higher volume traffic movements and improve safety at the intersections.

4.0 TRAFFIC ASSESSMENT

An analysis of the Port Wakefield Road/Thompson Road intersection has been completed to identify any capacity constraints at this location and whether improvements are required at the intersection to accommodate the forecast traffic volumes. The analysis has been completed for the am and pm peak hours.

4.1 ANTICIPATED LAND USE

Investigations have identified that Dublin has attractive attributes for larger scale, larger land area, low intensity land uses which will result in a lower labour demand than typical industrial facilities. Table 1 identifies the forecast labour for the envisaged uses.

Table 1: Envisaged use and potential staff demand

Envisaged Use	Staff	Envisaged Use	Staff
Bioreactor facility	10	Manufacturing facility	40
Fertiliser storage facility	5	Agricultural processing plant	9
Liquid CO2 and H2 facility	7	Assembly/Manufacturing	20
Recycling Facility	10	Grain storage business	10
Mining Businesses	10	Large crash repair	20
Vertical farming (vegetables)	50	Construction storage facility	30
Vertical farming (algae)	25	Trucks and transport	25
TOTAL			**271**

The above labour demand equates to approximately 0.62 staff per hectare of total land area.

4.2 TRAFFIC GENERATION

In forecasting traffic generation for the anticipated uses, consideration has been given to the information in the Guide to Traffic Generating Developments Technical Direction TDT 2013/04A, specifically the data collected at industrial and business park estates.

A review of these data identified that the average person-trips at the surveyed sites is approximately 19 person-trips per hectare in the am peak hour and 15 person-trips per hectare in the pm peak hour. This indicates that developments included in the RMS Guide are more labour intensive than that envisaged at the subject site and, therefore, adopting the average peak hour traffic generation rates will result in an overestimation of the traffic forecast.

To ensure that the traffic forecast is reflective of the anticipated staff demand, trip generation rates based on the number of staff have been forecast.

Based on employee information provided in the data, it was identified that the peak hour person-trips were approximately 70% of the number of employees. Applying this proportion, an estimation of the number of employees has been identified for each site. A comparison of the estimated number of employees to the am and pm peak hour identified the following median peak hour rates:

- 0.61 trips per staff in the am peak hour; and
- 0.60 trips per staff in the pm peak hour.

Based on the above rates, it is anticipated that there would be in the order of 165 trips generated during the am and pm peak hours.

4.3 MINING AREA

The Mining Lease Proposal dated March 2024 details the planned activities at the mining area. The document specifies a traffic forecast of 20 truck trips per day. It is estimated that this would equate to two truck trips in the peak hour.

In the event that the mining activities were to intensify, there would be an increase in traffic forecast. For example, should the activities increase by 200% there would potentially be an increased volume to 60 truck trips per day or six truck trips in the peak hour. In order to adopt a robust traffic solution for the site, the assessment has catered for the intensification of mining activities on the adjacent site.

Staff associated with the mining activities will also generate traffic. Such volumes will be in the order of five vehicles in the peak hour based on the light vehicle traffic counts at the Boral quarry site on Majors Road.

4.4 TRAFFIC DISTRIBUTION

It is anticipated that 70% of the traffic will be light vehicles generated primarily by employee traffic and 30% will be delivery vehicles. Considering that the prospective businesses will be primarily servicing industries to the north, it is anticipated that most delivery vehicles will originate to and from the north. Accordingly, the following distribution has been adopted for the assessment:

- Light vehicles – of the 70%;
  - 10% will be local to the adjacent areas;
  - 30% will be distributed to suburbs north, west and east of the site including Mallala, Balaklava and Port Wakefield; and
  - 30% will be distributed to suburbs south of the site including Two Wells and Gawler.
- Delivery vehicles – of the 30%;
  - 5% will be local to the adjacent area;

- 20% will be distributed to the north; and
- 5% will be distributed to the south.

Figure 12 identifies the forecast traffic movement at the Port Wakefield Road/Thompson Road intersection.

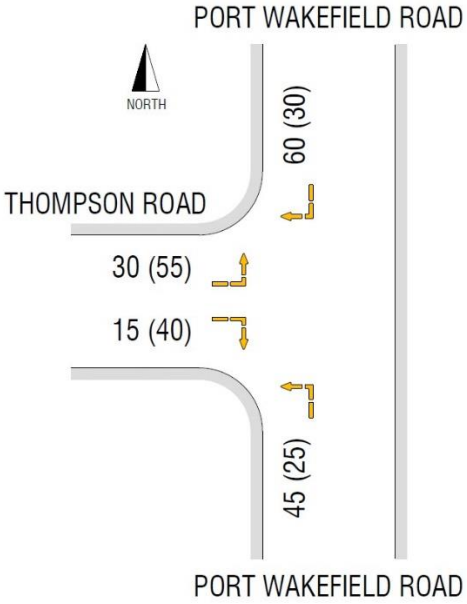

Figure 12: Forecast traffic movements at the Port Wakefield Road/Thompson Road intersection am (pm)

4.5 TRAFFIC ANALYSIS

SIDRA modelling of the forecast traffic movements was completed for the current day traffic volumes and a 20-year design horizon. A growth rate of 1.0 %, as identified by DIT, has been adopted for the through volumes on Port Wakefield Road. Table 2 summarises the performance of the right turn movements (critical movements) at the intersection.

Table 2: SIDRA analysis summary am (pm)

Critical Movements	2024 Design Year			2044 Design Year		
	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)
Right turn from PWR	0.18 (0.10)	1 (1)	16.0 (17.0)	0.21 (0.15)	1 (1)	18.2 (20.8)
Right turn to PWR	0.07 (0.17)	1 (1)	17.3 (18.6)	0.08 (0.21)	1 (1)	19.5 (23.2)

The above results indicate that the intersection will operate satisfactorily in the current day and 2044 design year. There will be minimal queues for drivers and the average delays will be low.

4.6 SENSITIVITY ANALYSIS

In addition to the above assessment, consideration has been given to the following sensitivity scenarios:

- Scenario 1: 25% increase in employee requirement;
- Scenario 2: greater distribution of employee traffic to/from the south;
- Scenario 3: a 100% increase in the traffic generation rate.

4.6.1 SENSITIVITY SCENARIO 1

Sensitivity Scenario 1 considers a 25% increase in forecast employment will result in the following traffic forecast:

- 230 trips in the am peak hour; and
- 255 trips in the pm peak hour

Figure 13 identifies the forecast turning movements at the Port Wakefield Road/Thompson Road intersection considering the above.

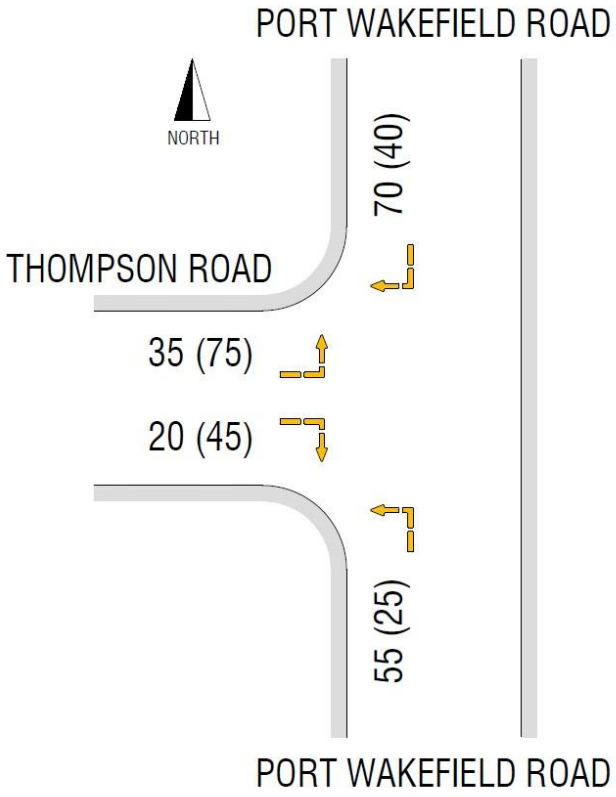

Figure 13: Forecast turning movements for Sensitivity Scenario 1

SIDRA analysis was completed for the current year and design years based on the above traffic forecast. Table 3 summarises the results.

Table 3: Sensitivity Scenario 1 SIDRA analysis summary am (pm)

Critical Movements	2024 Design Year			2044 Design Year		
	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)
Right turn from PWR	0.22 (0.14)	1 (1)	16.7 (17.3)	0.25 (0.17)	1 (1)	19.4 (21.0)
Right turn to PWR	0.09 (0.21)	1 (1)	18.2 (19.5)	0.10 (0.25)	1 (1)	20.6 (23.8)

The above analysis indicates that the intersection will operate satisfactorily even if the forecast employment were to increase by 25%. The queues at the intersection will be low and there will be minimal delays for drivers.

4.6.2 SENSITIVITY SCENARIO 2

Sensitivity Scenario 2 considers a greater distribution of traffic to/from the south. Of the 70% of vehicles, the following distribution has been considered:

- 10% will be local to the proposed adjacent residential land division;
- 20% will be distributed to suburbs north, west and east of the site including Mallala, Balaklava and Port Wakefield; and
- 40% will be distributed to suburbs south of the site including Two Wells and Gawler.

Figure 14 identifies the forecast turning movements at the Port Wakefield Road/Thompson Road intersection considering the above.

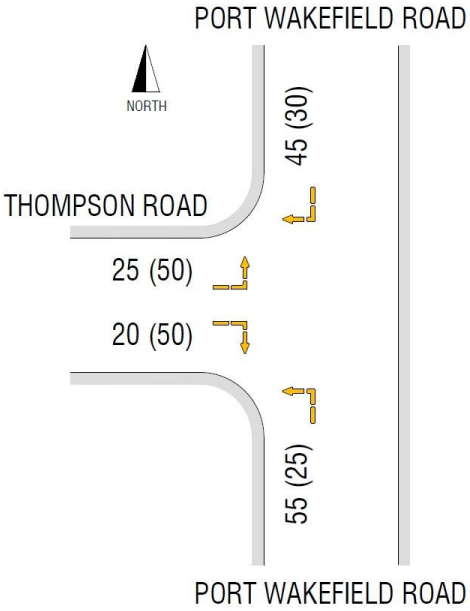

Figure 14: Forecast turning movements for Sensitivity Scenario 2

SIDRA analysis was completed for the current year and design years based on the above traffic forecast. Table 3 summarises the results.

Table 3: Sensitivity Scenario 2 SIDRA analysis summary am (pm)

Critical Movements	2024 Design Year			2044 Design Year		
	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)
Right turn from PWR	0.14 (0.10)	1 (1)	16.2 (17.1)	0.16 (0.13)	1 (1)	18.3 (20.6)
Right turn to PWR	0.08 (0.19)	1 (1)	16.9 (18.8)	0.09 (0.24)	1 (1)	19.0 (23.0)

The above analysis indicates that the intersection will operate satisfactorily in the event there was a greater proportion of traffic distributed to the south.

4.6.3 SENSITIVITY SCENARIO 3

Sensitivity Scenario 3 considers the doubling of the traffic generation rate in the peak hours. This will result in approximately 330 trips in the peak hours. Figure 15 identifies the forecast traffic movements at the Port Wakefield Road/Thompson Road intersection.

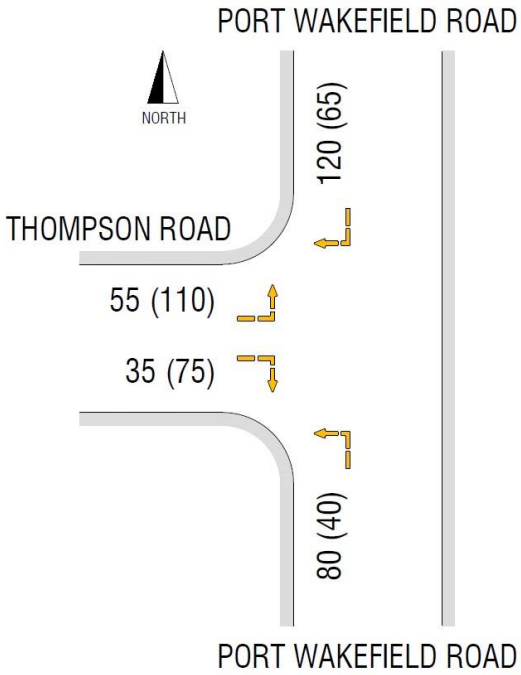

Figure 15: Forecast turning movements for Scenario 3

The above forecast is, in effect, the same as a 100% increase to the labour demand with the trip generation rate maintained at 0.61 trips per staff.

SIDRA analysis was completed for the current year and design years based on the above traffic forecast. Table 4 summarises the results.

Table 4: Sensitivity Scenario 3 SIDRA analysis summary am (pm)

Critical Movements	2024 Design Year			2044 Design Year		
	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)
Right turn from PWR	0.41 (0.24)	2 (1)	20.8 (19.0)	0.47 (0.30)	2 (1)	24.6 (24.1)
Right turn to PWR	0.18 (0.36)	1 (3)	22.8 (24.5)	0.21 (0.44)	1 (2)	24.1 (31.7)

The above analysis indicates that the intersection will operate satisfactorily in the event the trip generation was to double.

4.6.4 MAXIMUM CAPACITY

The above sensitivity analysis has confirmed that even in a high case traffic generation scenario anticipated for the subject area, there will be ample capacity at the intersection and low queues and delays.

For completeness, an assessment of the peak volume which could be generated by the site has been assessed, adopting a Level of Service E criteria (delay of less than 50 seconds) for the right turning movements. Table 5 identifies the Sidra output for this scenario and confirms that a volume of 160 vph could be accommodated turning right from Port Wakefield Road at the intersection.

Table 4: Maximum Capacity SIDRA analysis summary am (pm)

Critical Movements	2024 Design Year			2044 Design Year		
	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)	Degree of Saturation	95th-percentile queue (veh)	Average Delay (s)
Right turn from PWR	0.61 (0.31)	3 (1)	27.3 (20.9)	0.71 (0.39)	4 (1)	34.4 (26.8)
Right turn to PWR	0.29 (0.51)	2 (6)	29.9 (32.0)	0.33 (0.63)	2 (8)	36.8 (46.9)

The above volume is approximately three times the anticipated forecast right turn volume and is unlikely to occur given the anticipated use of the site. Nonetheless, the analysis has identified that the proposed configuration of the intersection will be able to support a growth to this volume.

5.0 SUMMARY

The subject Code Amendment would enable potential development on the subject land to service growth industries in South Australia, including mining and agriculture projects in the north of the State.

The subject land will be accessed via Thomspon Road and Thompson Beach Road. These roads will be upgraded to cater for the anticipated vehicle type and traffic volume. Potential intersections could readily be designed to cater for the simultaneous movements of the largest vehicles anticipated to access the land and there would be options for flexible design given the length of road frontage adjacent the site.

Access to the arterial road network will be provided via the Port Wakefield Road/Thompson Road intersection. This intersection will be upgraded in accordance with the requirements in AGRD04A to provide for safe and convenient access to the development area. The design options for the intersection included additional assessment to have regard to the unusual (albeit compliant) design criteria associated with the extension of the acceleration lanes.

Analysis of the intersection confirmed that the upgrade will not extend to any requirement to increase capacity at the intersection with sensitivity testing identifying that the intersection will readily accommodate the forecast traffic volumes.

APPENDIX A

MFY DRAWING NOS MFY_23-0246-02-SH01B AND MFY_23-0246-02-SH02B

PORT WAKEFIELD ROAD/THOMPSON ROAD INTERSECTION TREATMENT OPTIONS

LEINAD LAND DUBLIN - Urban Development

Port Wakefield Road / Thompson Road Intersection

Intersection Upgrade (as per Austroads)

Drawing:	MFY_230246_01_SH01	**Revision:**	B
Drawn:	CJH	**Scale:**	1:2000
Date:	14.08.2024	**Paper Size:**	A3

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Wednesday, August 14, 2024 15:24:45

LEINAD LAND DUBLIN - Urban Development

Port Wakefield Road / Thompson Road Intersection Intersection Upgrade (as per Austroads) - Scenario 2

Drawing:	MFY_230246_01_SH02	**Revision:**	B
Drawn:	CJH	**Scale:**	1:2000
Date:	14.08.2024	**Paper Size:**	A3

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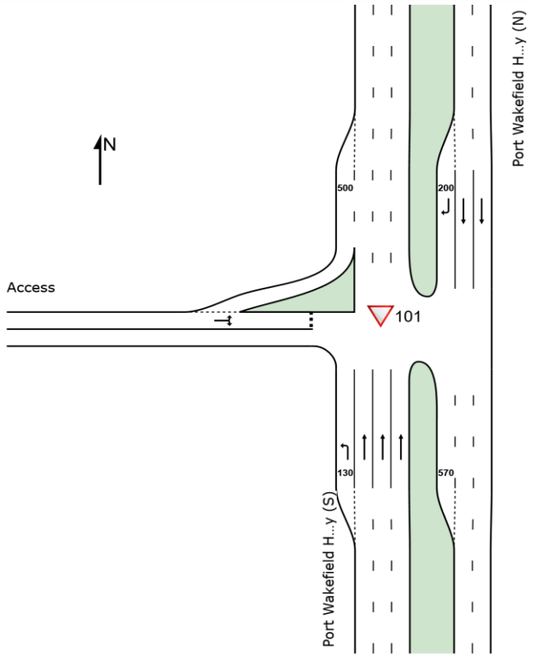
APPENDIX B

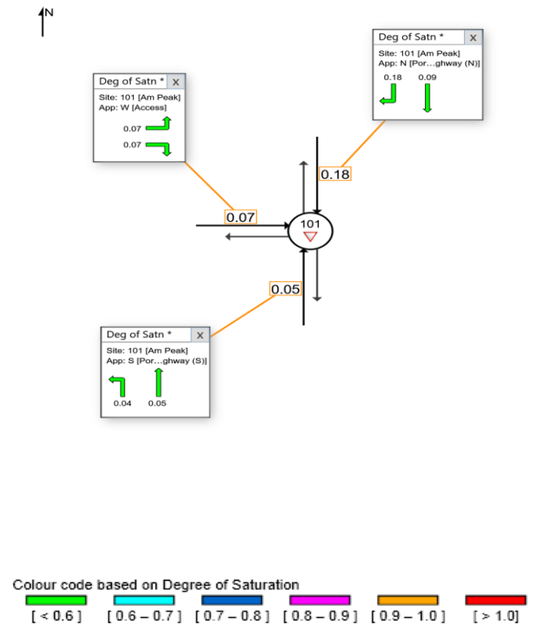
SIDRA ANALYSIS

PORT WAKEFIELD ROAD/THOMPSON ROAD

INTERSECTION LAYOUT



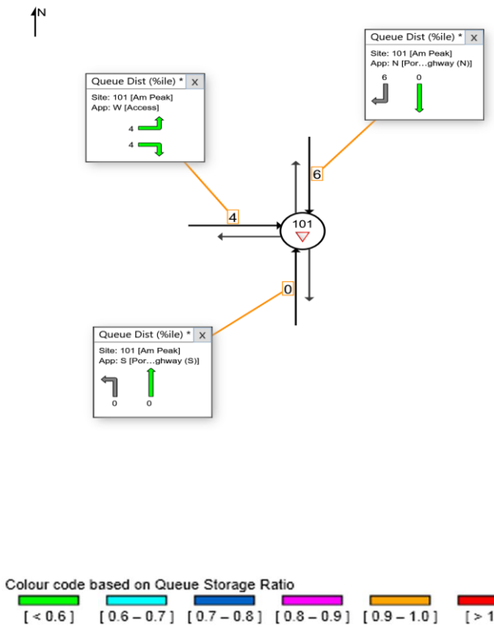
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

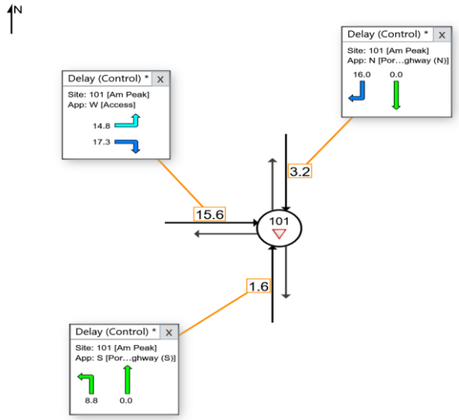
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

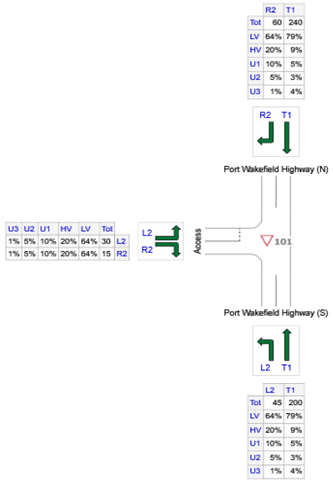


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

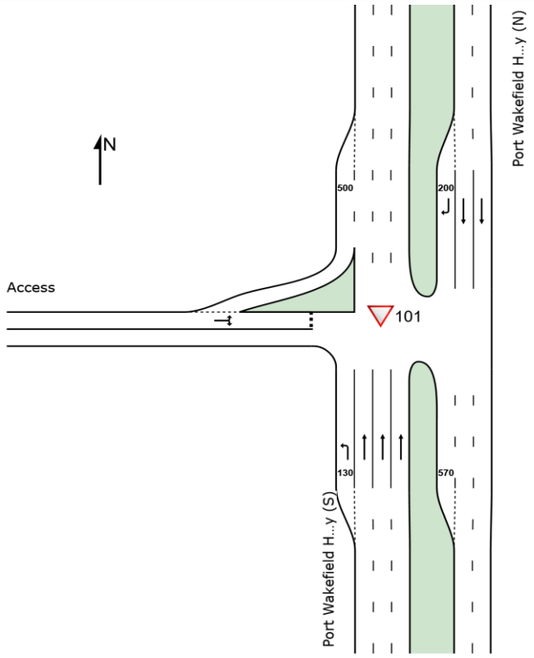
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

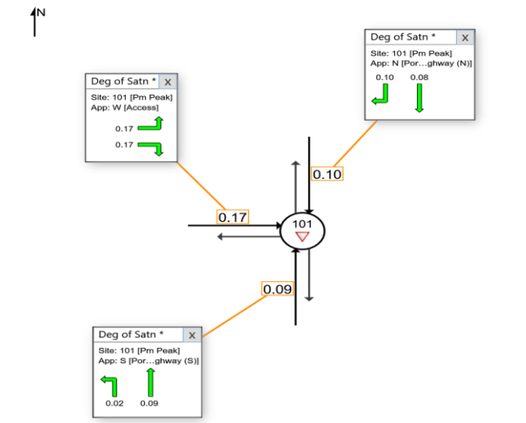


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development
	AM Peak

INTERSECTION LAYOUT



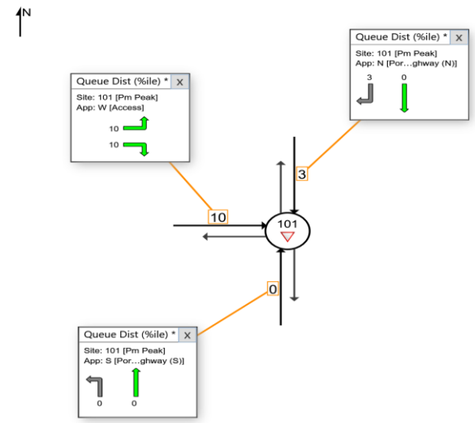
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

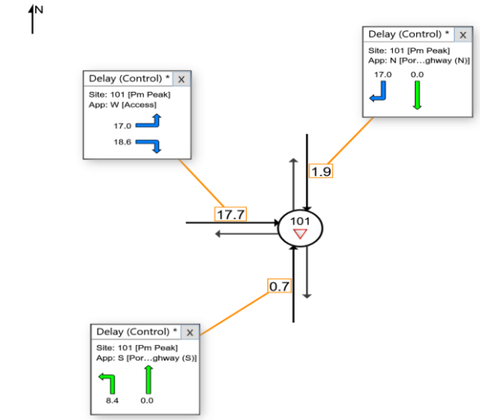
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

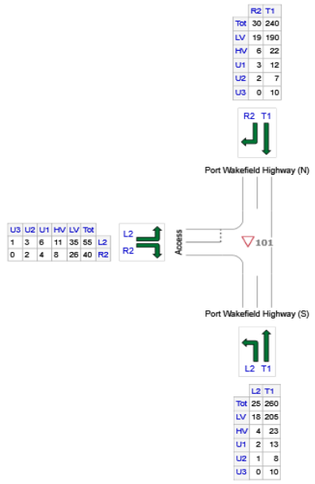


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

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

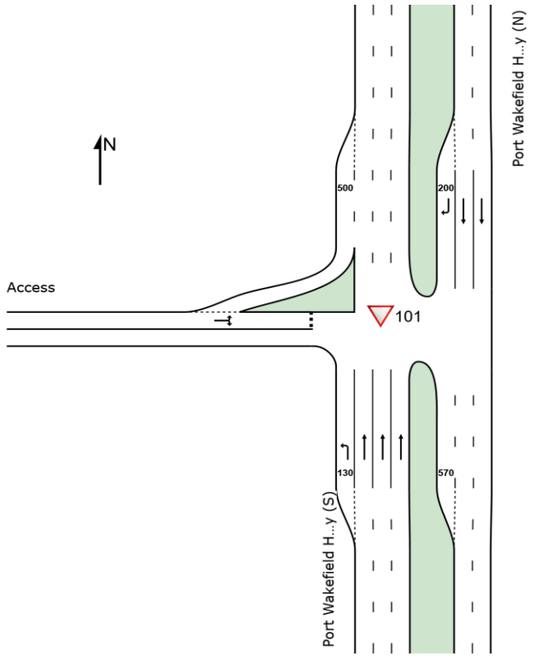
INPUT VOLUMES



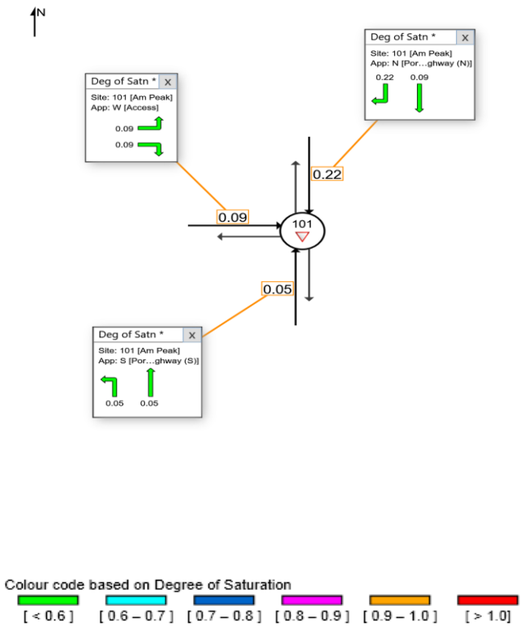
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development
	PM Peak

INTERSECTION LAYOUT



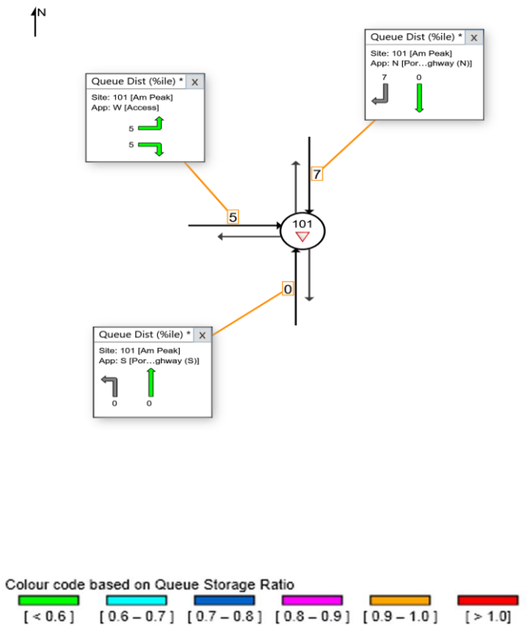
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

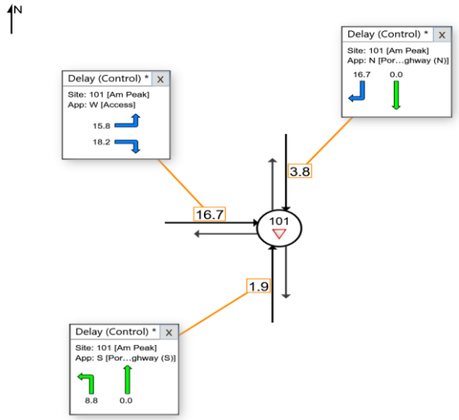
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

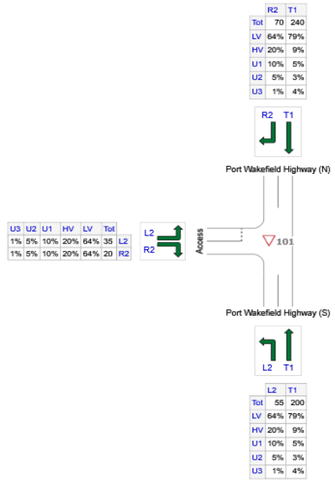


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

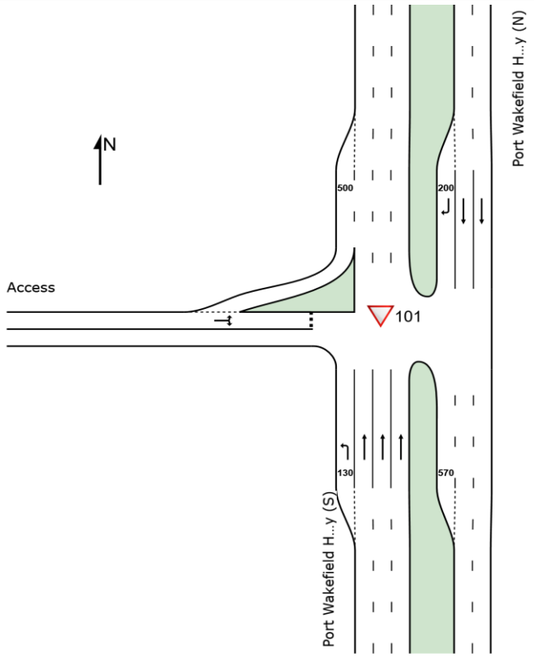
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

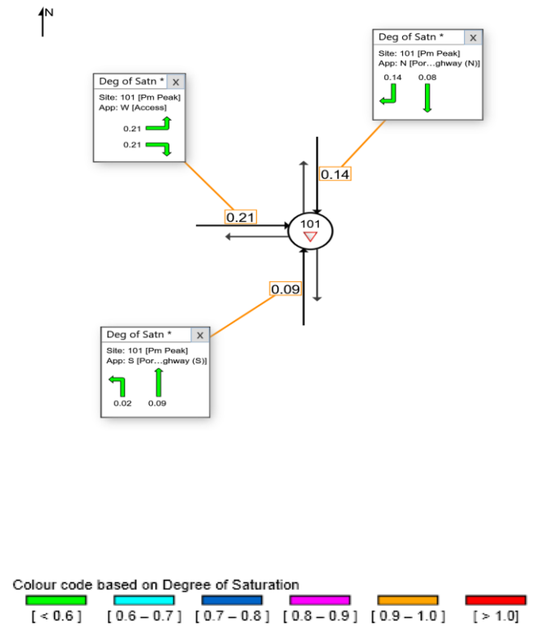


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 1
	AM Peak

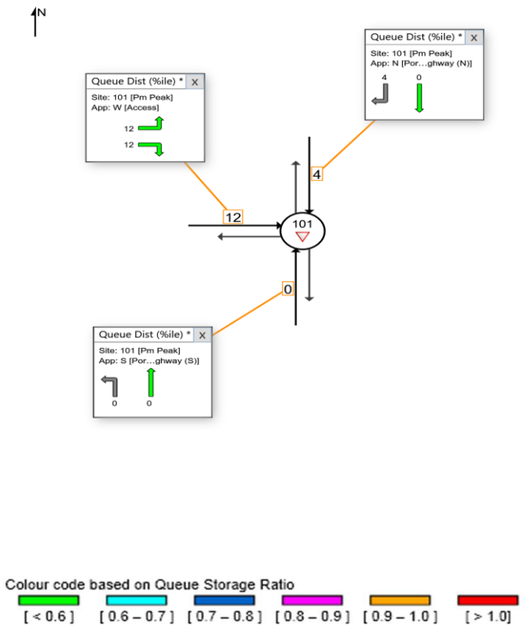
INTERSECTION LAYOUT



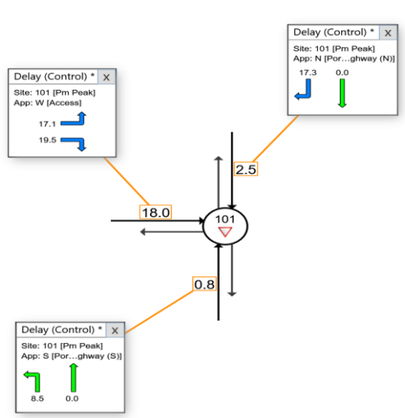
DEGREE OF SATURATION



95%ile QUEUE DISTANCE (metres)



DELAY (CONTROL) & LEVEL OF SERVICE

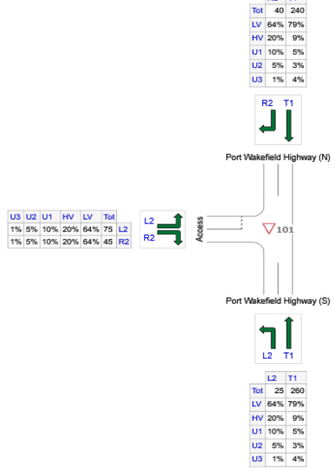


Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

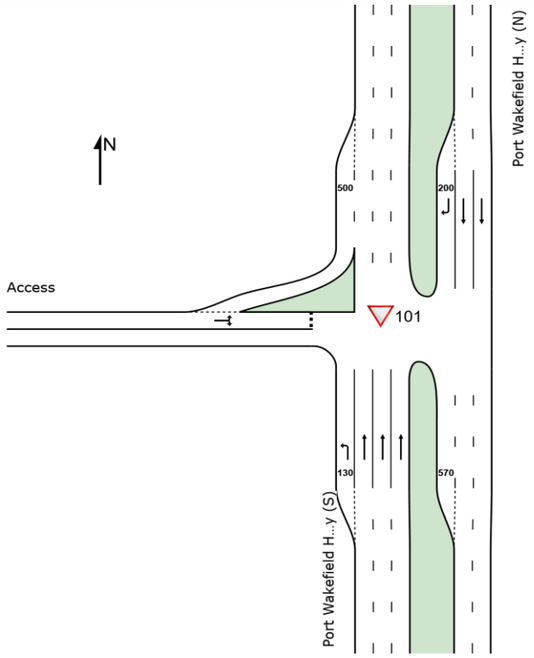
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

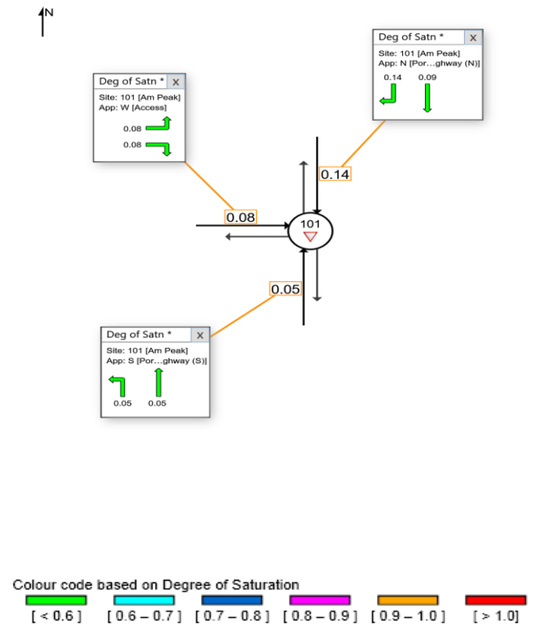


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 1
	PM Peak

INTERSECTION LAYOUT



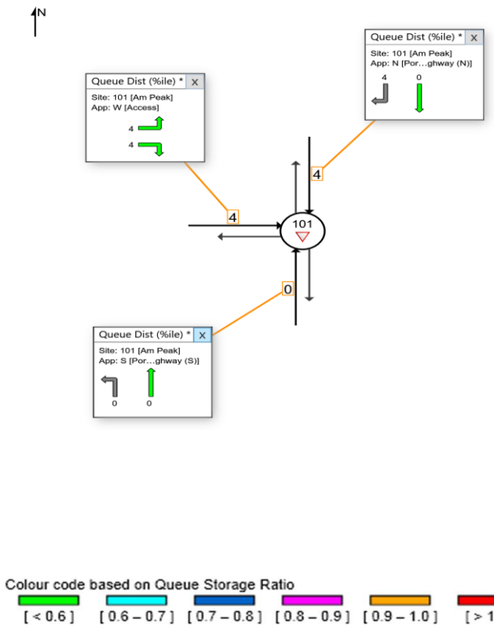
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

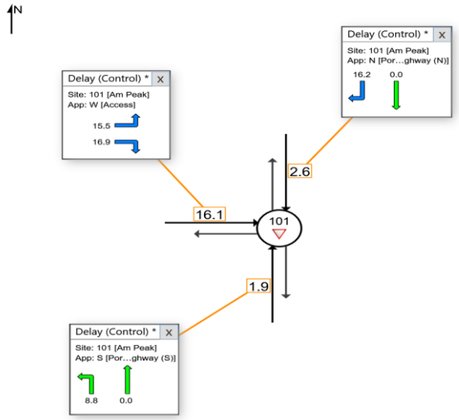
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

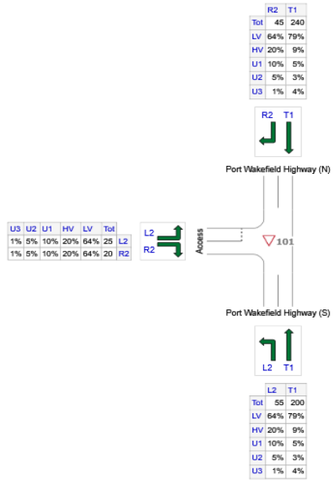


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

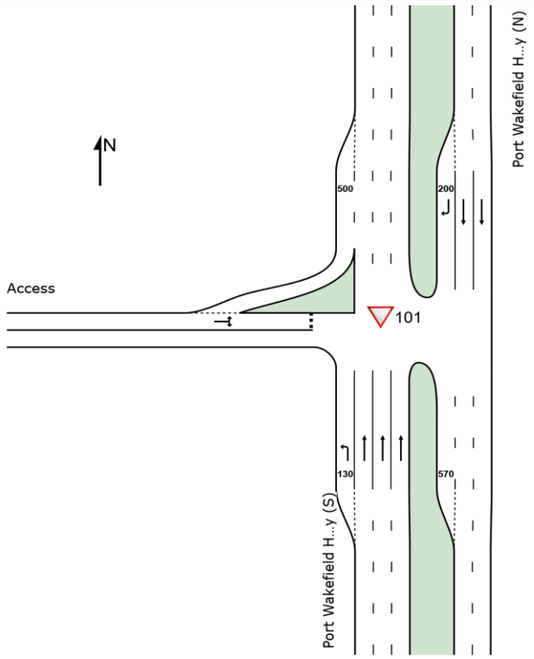
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

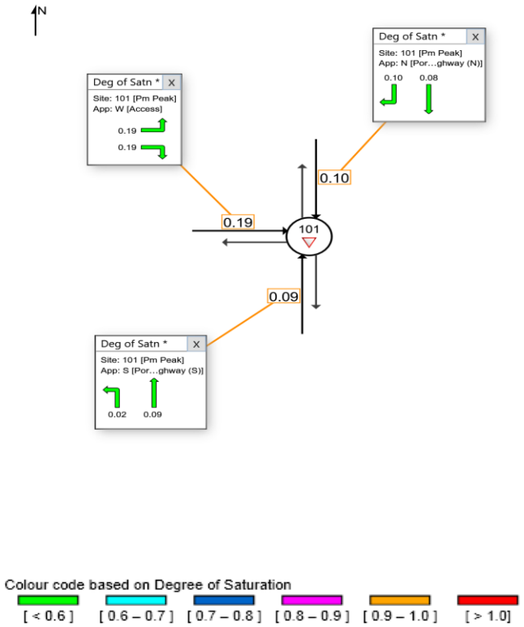


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 2
	AM Peak

INTERSECTION LAYOUT



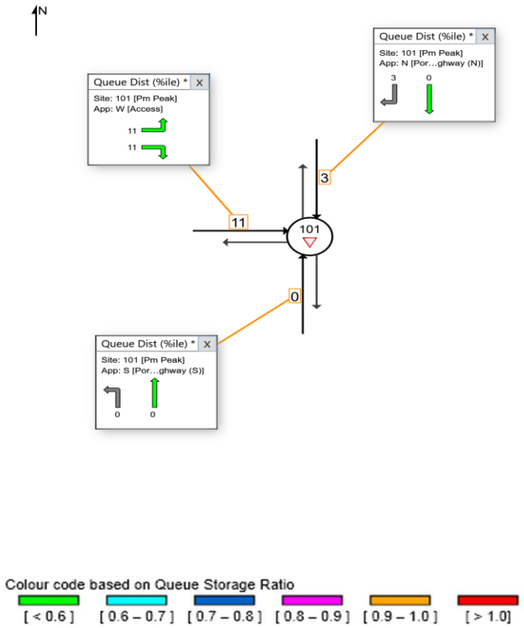
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

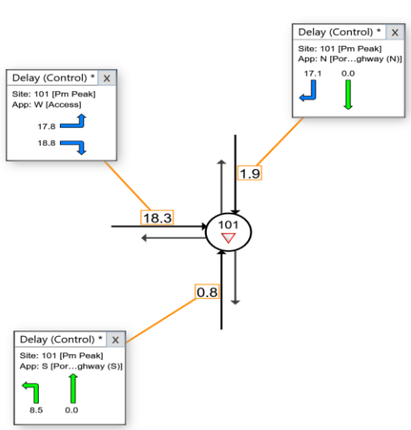
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

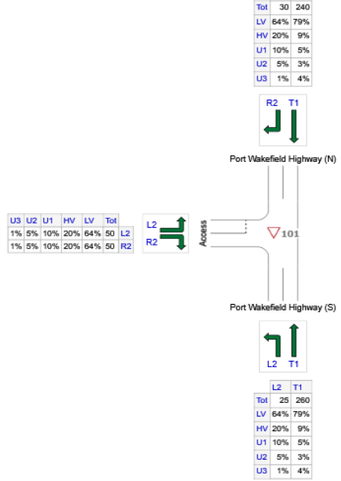


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

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

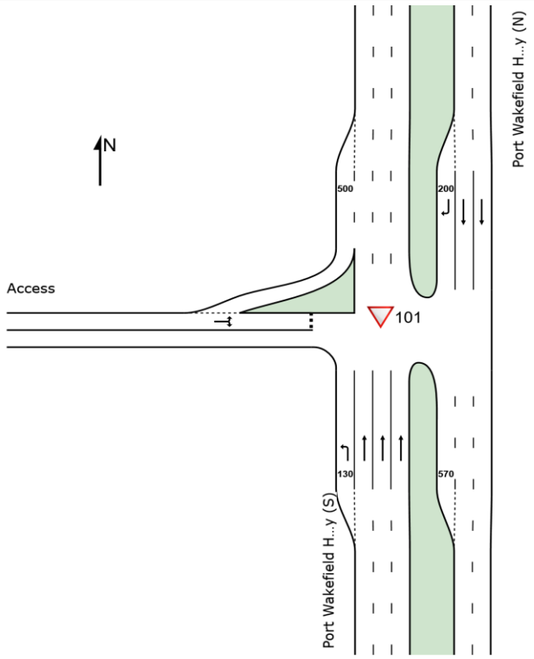
INPUT VOLUMES



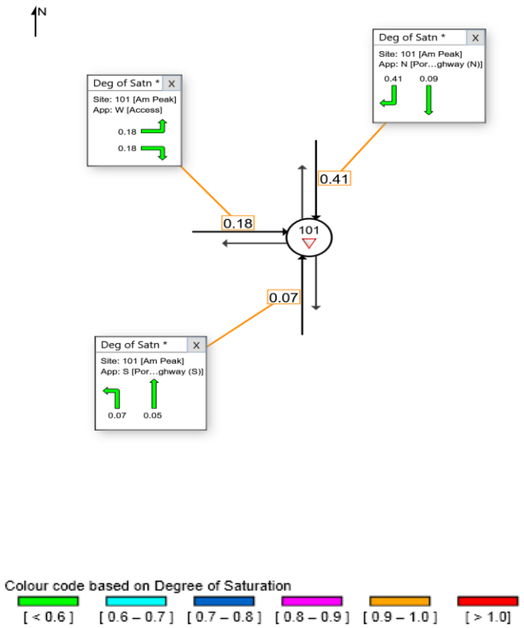
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 2
	PM Peak

INTERSECTION LAYOUT



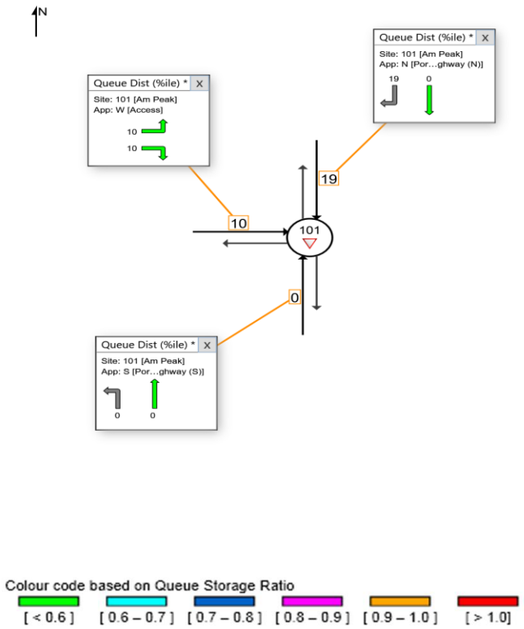
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

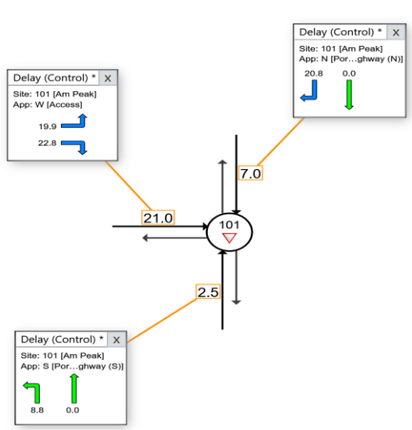
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

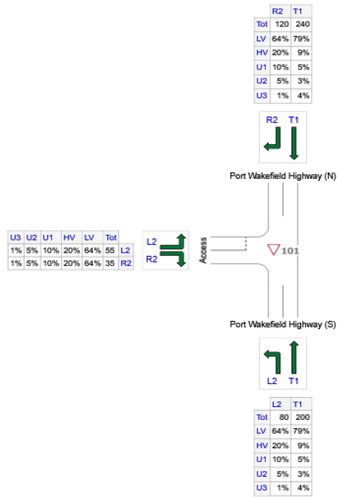


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

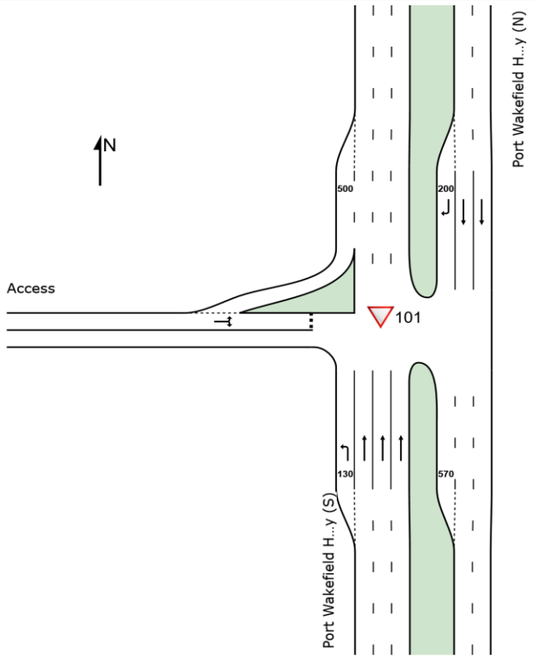
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

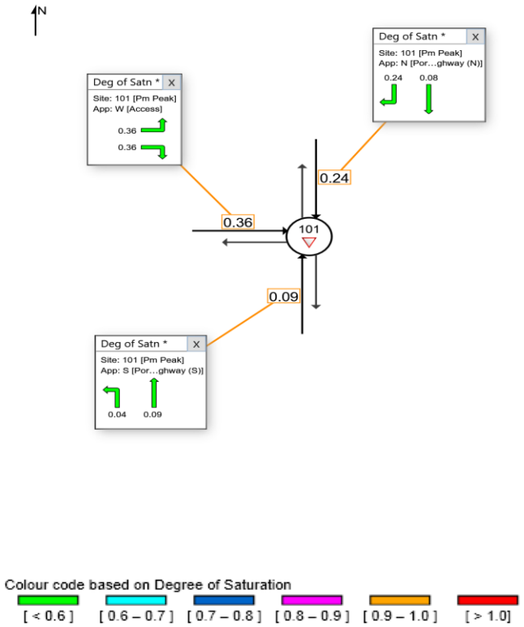


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 3 AM Peak

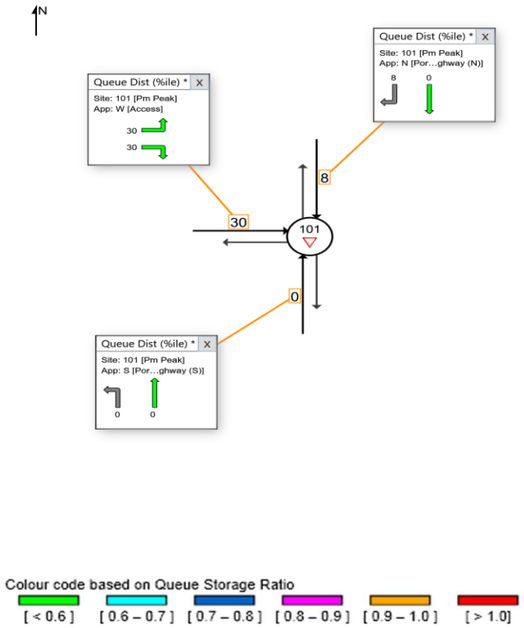
INTERSECTION LAYOUT



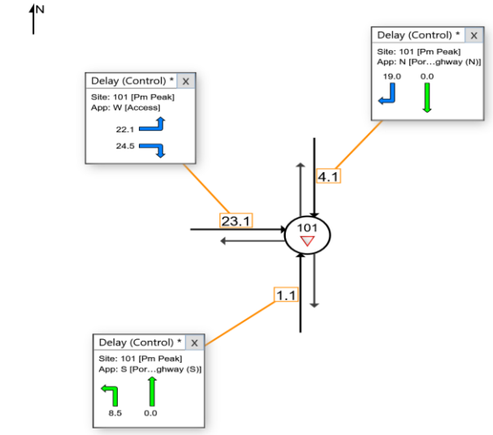
DEGREE OF SATURATION



95%ile QUEUE DISTANCE (metres)

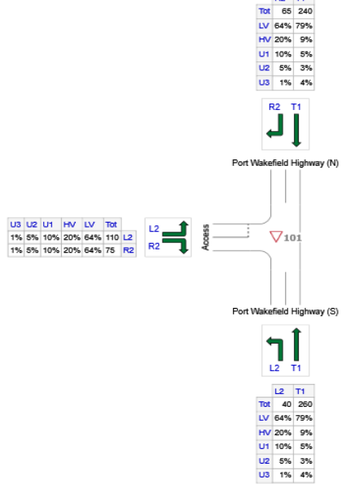


DELAY (CONTROL) & LEVEL OF SERVICE



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

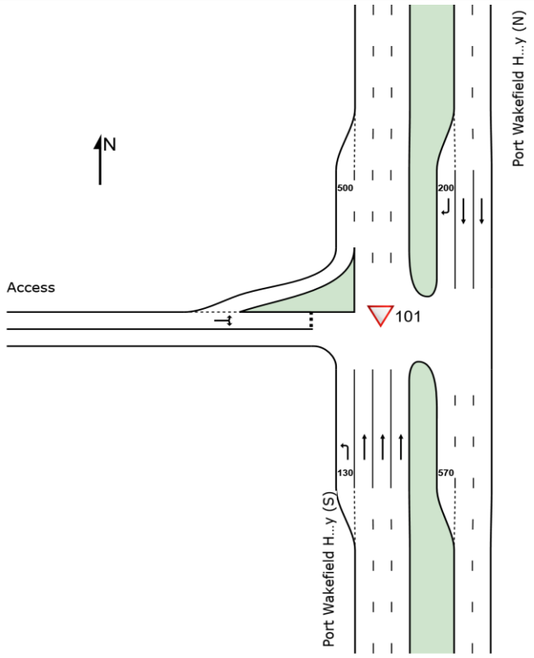
INPUT VOLUMES



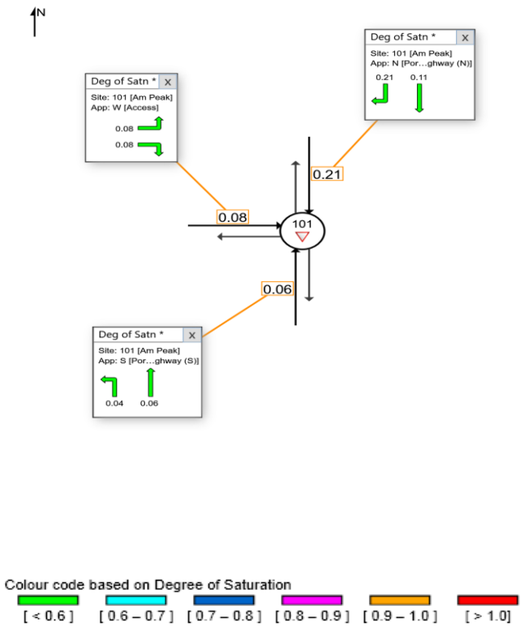
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Development Variable 3 PM Peak

INTERSECTION LAYOUT



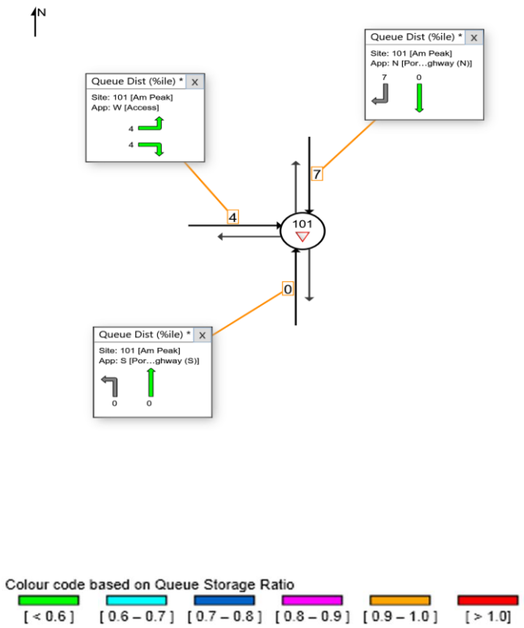
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

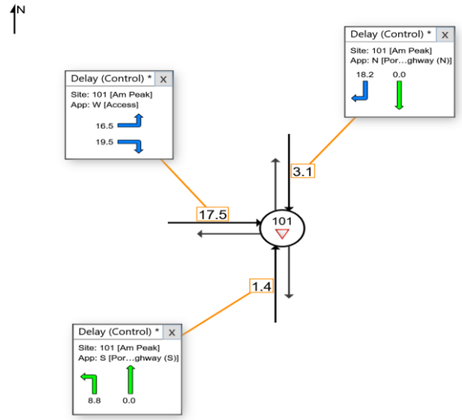
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

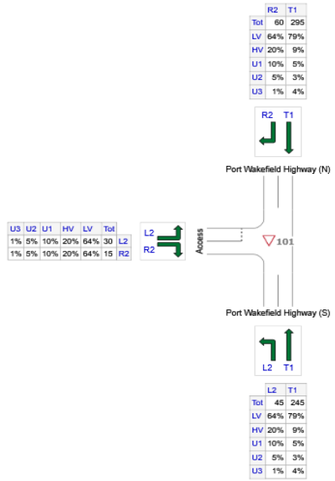


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

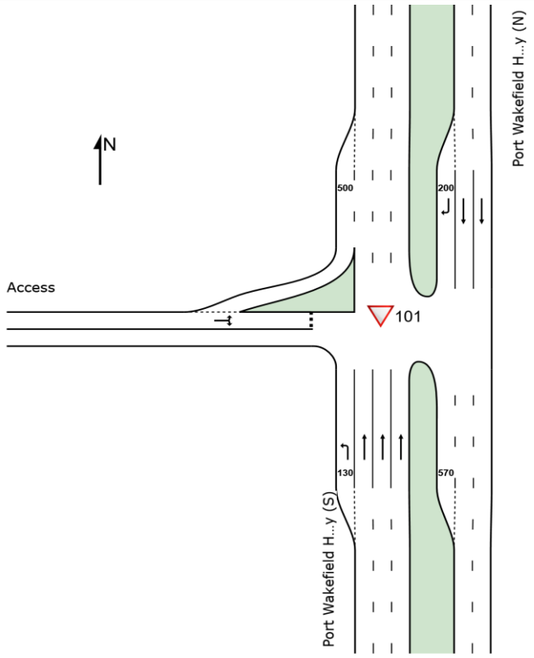
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

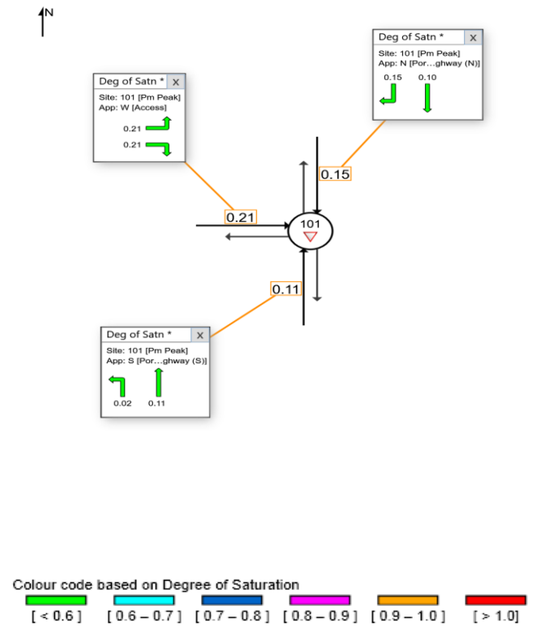


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development AM Peak

INTERSECTION LAYOUT



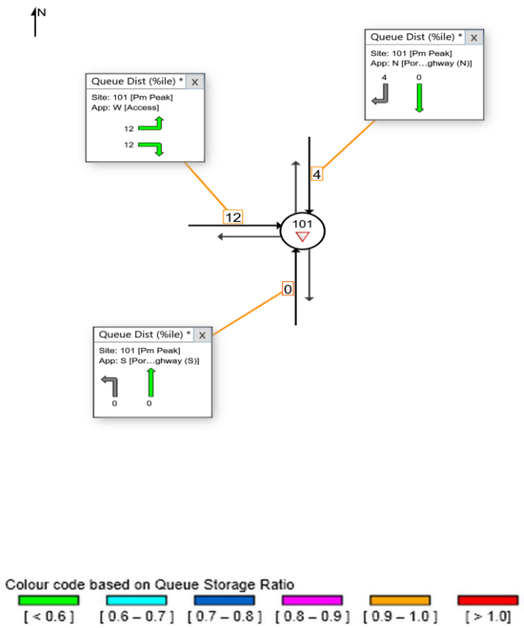
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

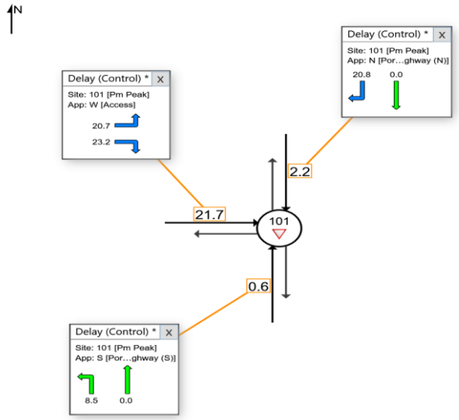
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

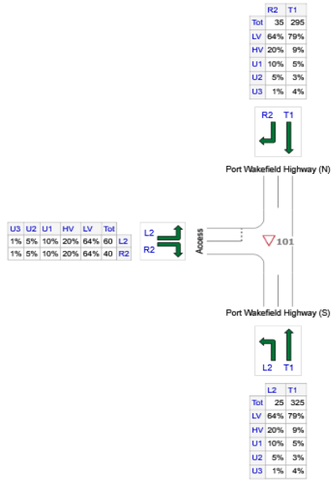


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

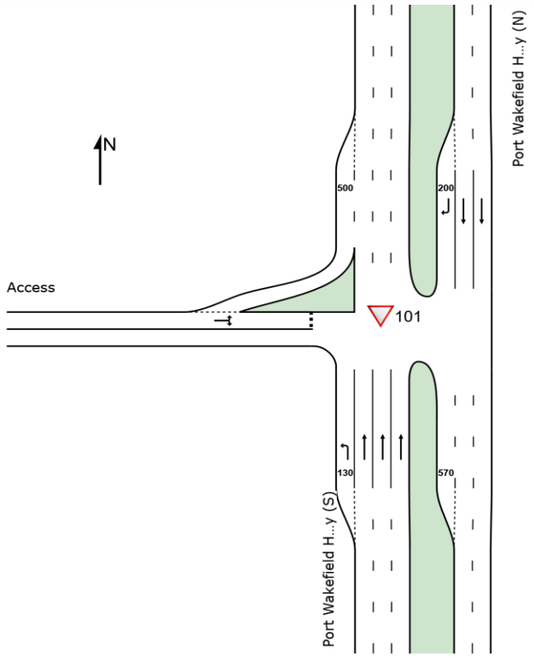
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

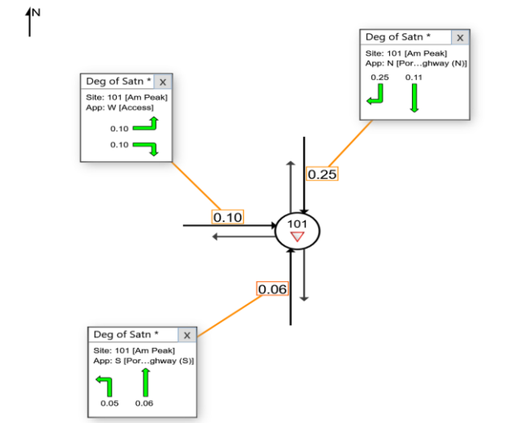


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development PM Peak

INTERSECTION LAYOUT



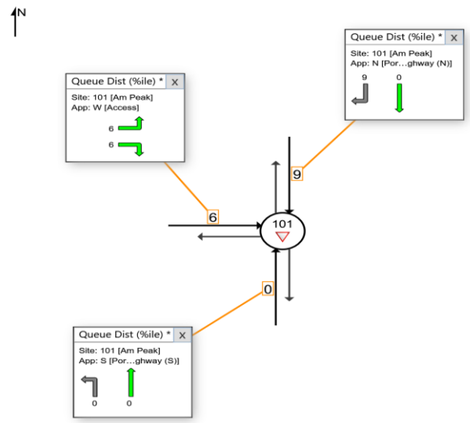
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

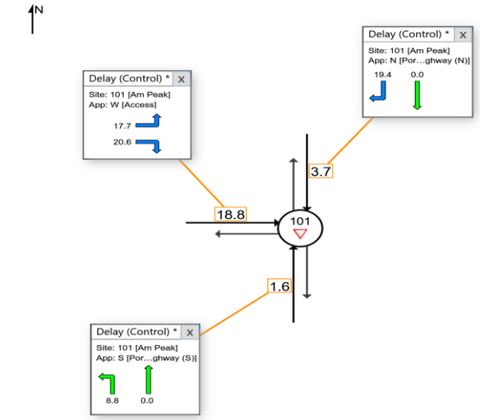
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

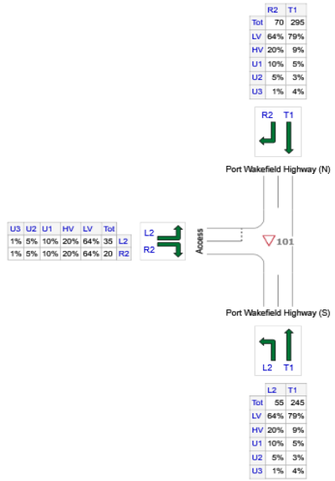


Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

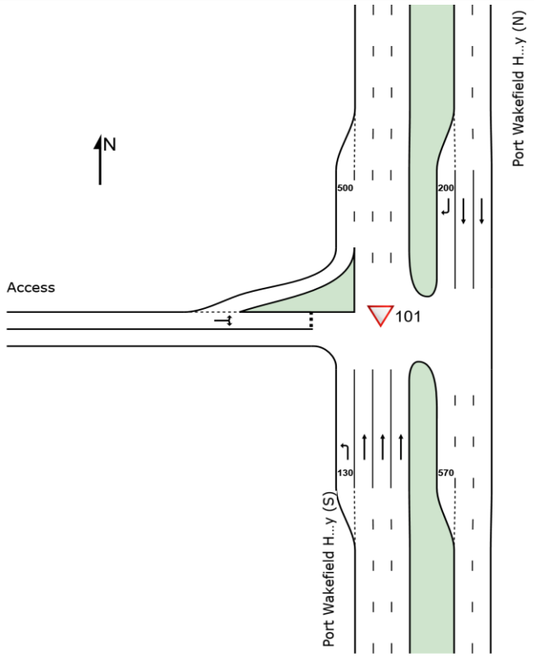
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

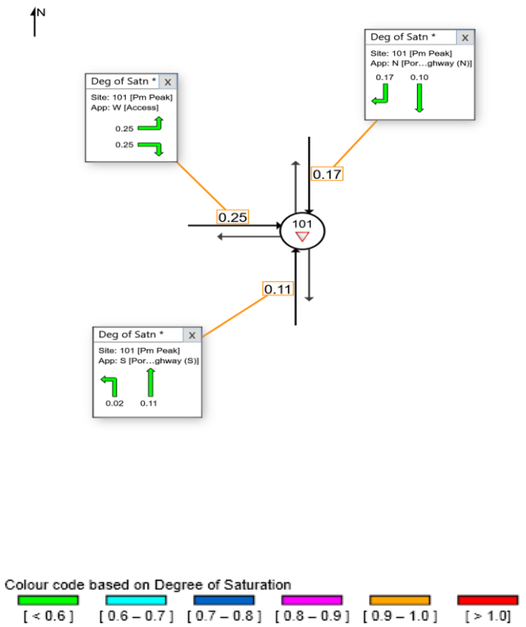


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 1 AM Peak

INTERSECTION LAYOUT



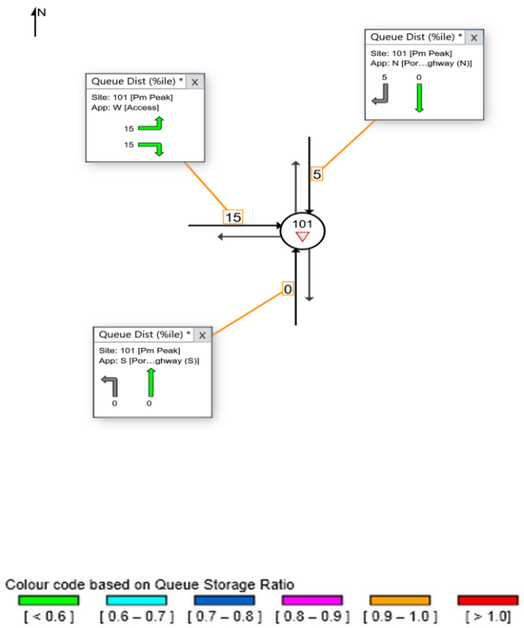
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

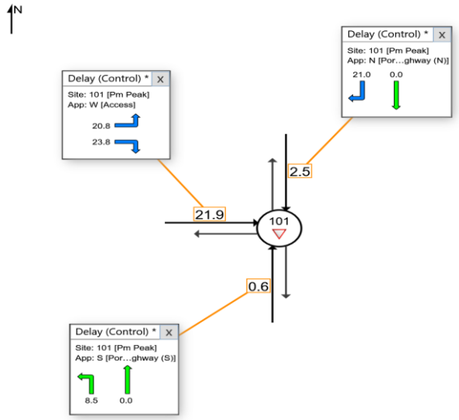
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

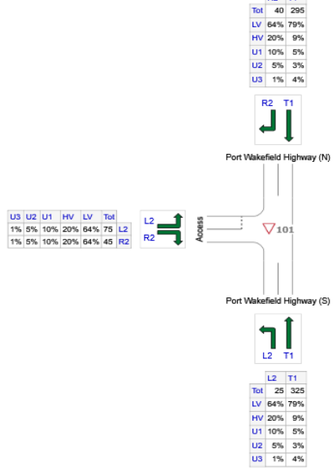


Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

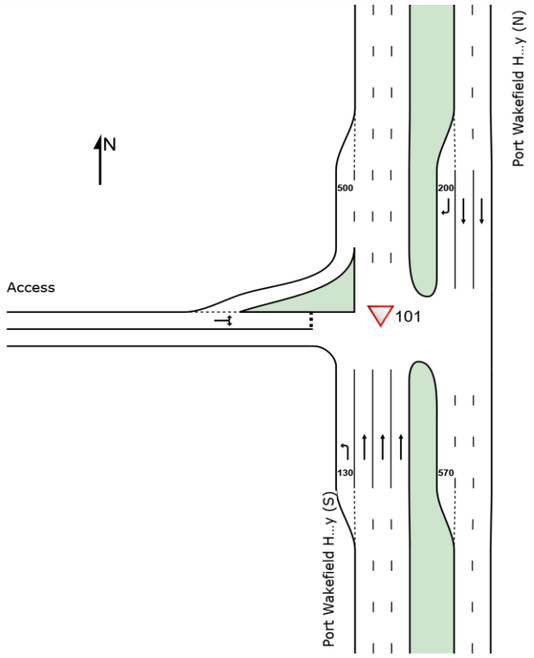
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

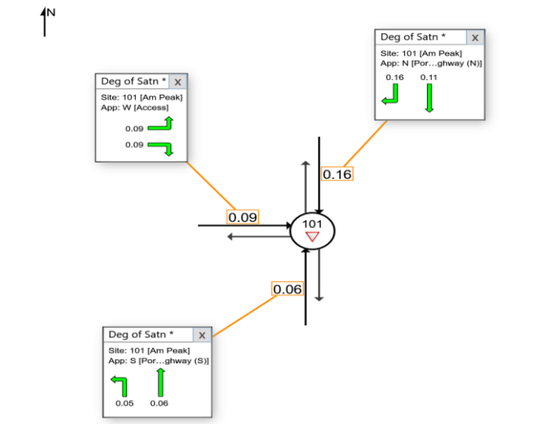


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 1 PM Peak

INTERSECTION LAYOUT



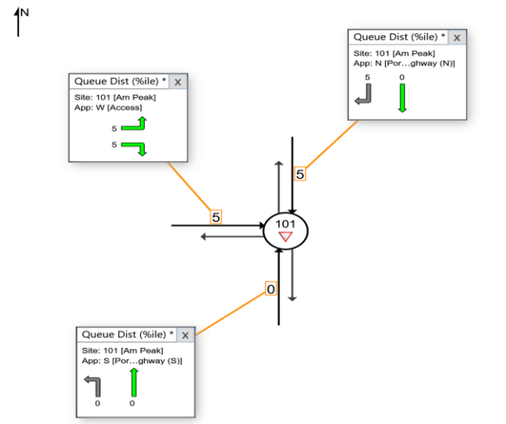
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

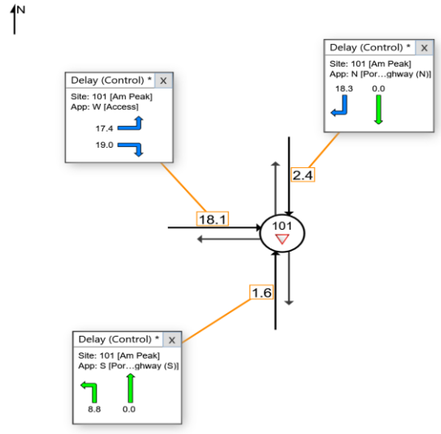
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

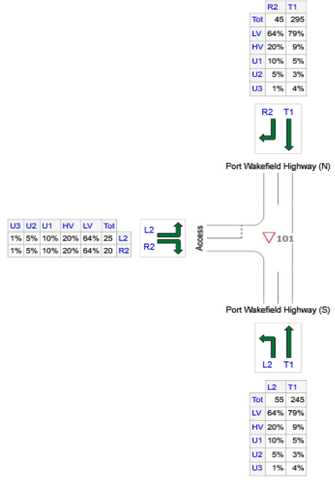


Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

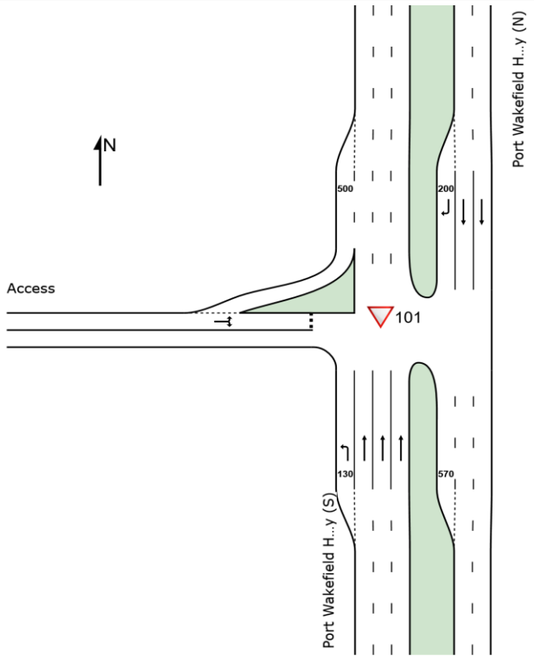
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

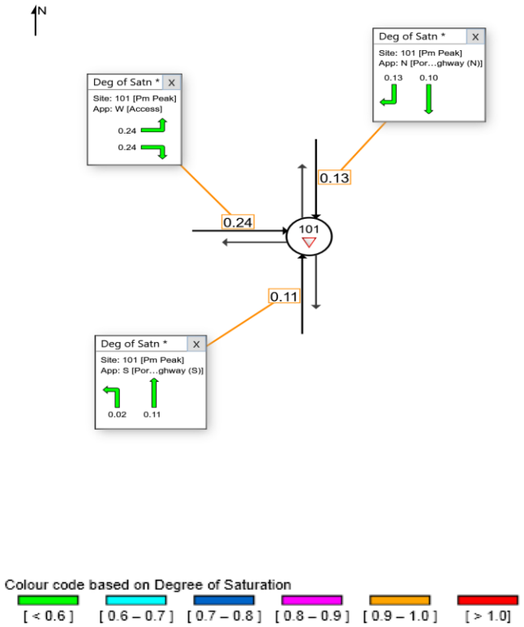


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 2 AM Peak

INTERSECTION LAYOUT



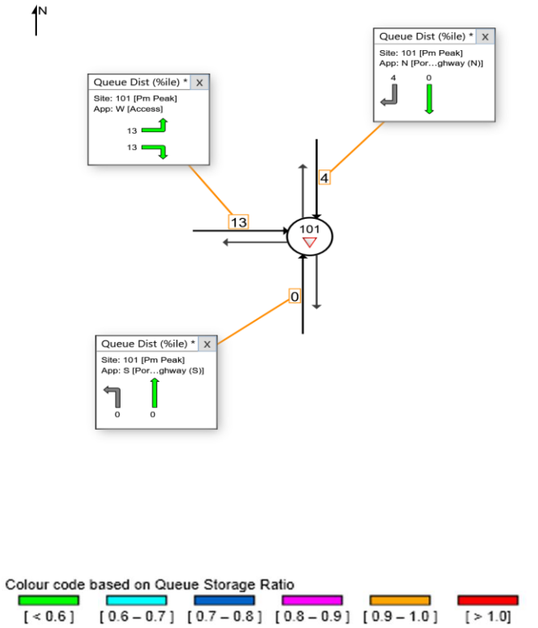
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

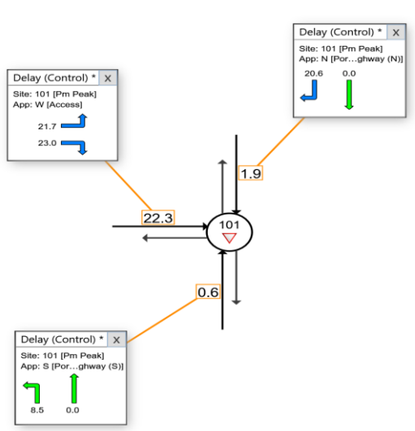
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

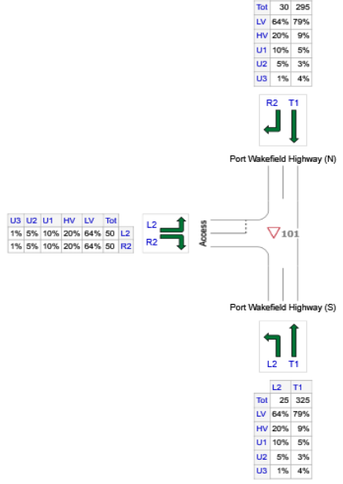


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

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

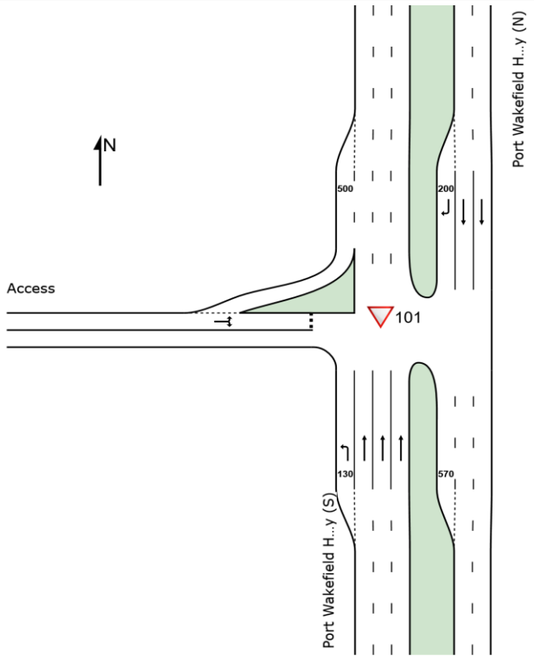
INPUT VOLUMES



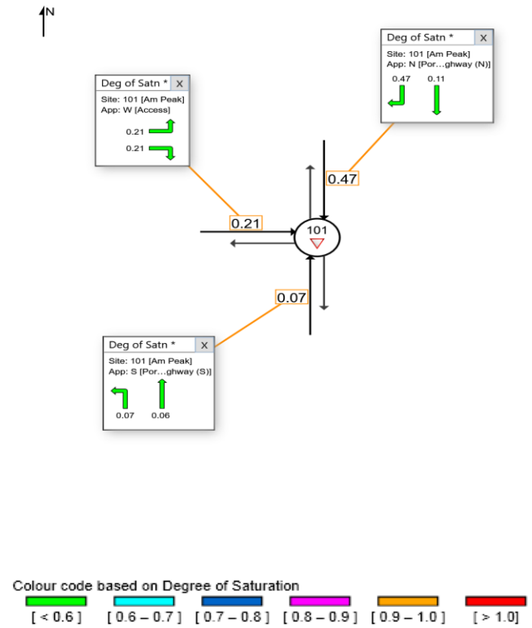
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 2
	PM Peak

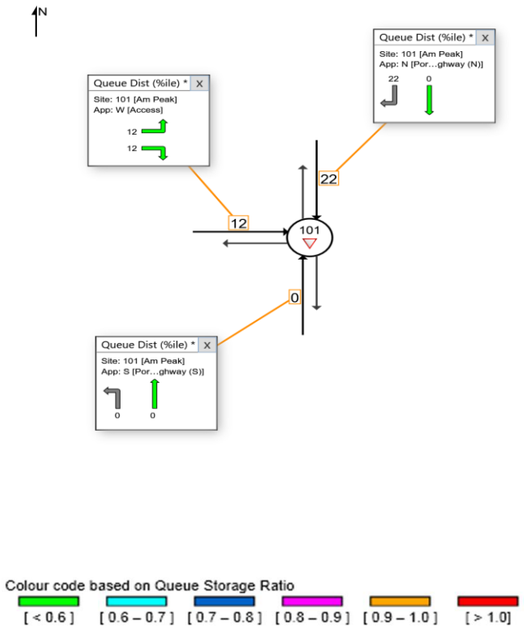
INTERSECTION LAYOUT



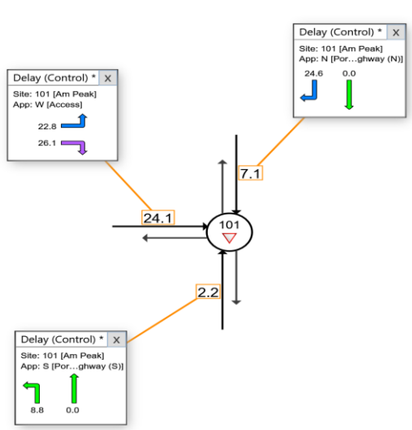
DEGREE OF SATURATION



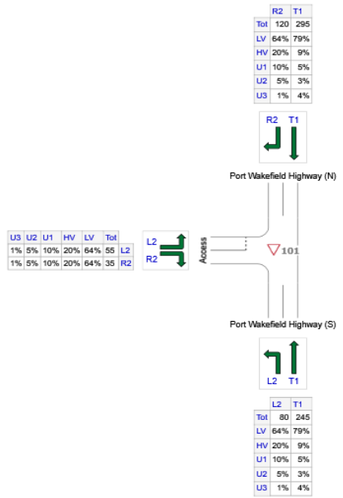
95%ile QUEUE DISTANCE (metres)



DELAY (CONTROL) & LEVEL OF SERVICE



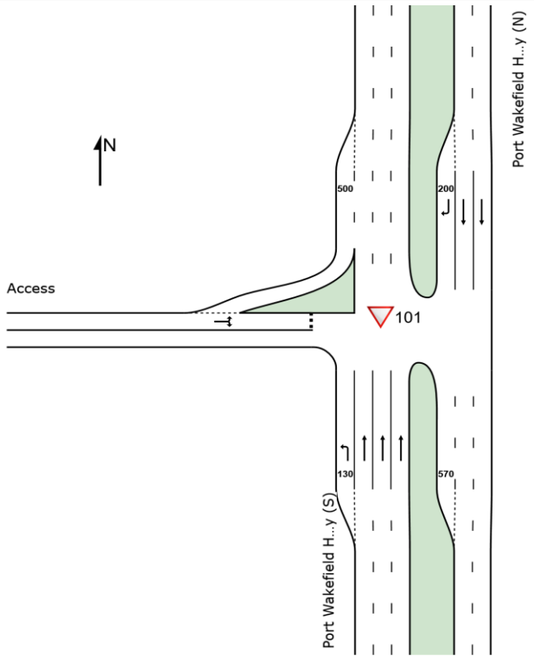
INPUT VOLUMES



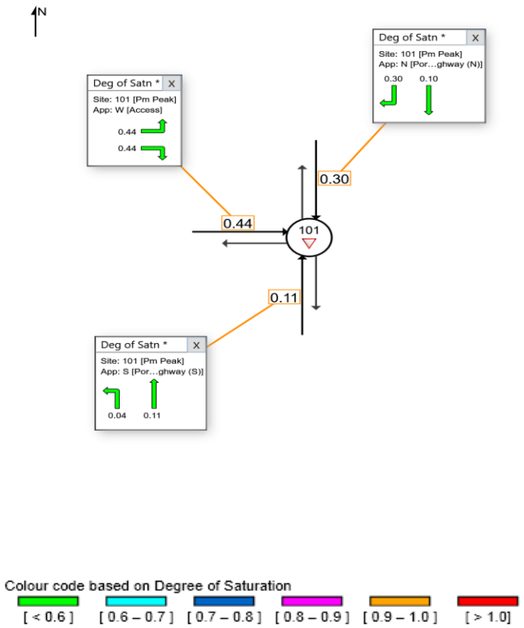
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 3
	AM Peak

INTERSECTION LAYOUT



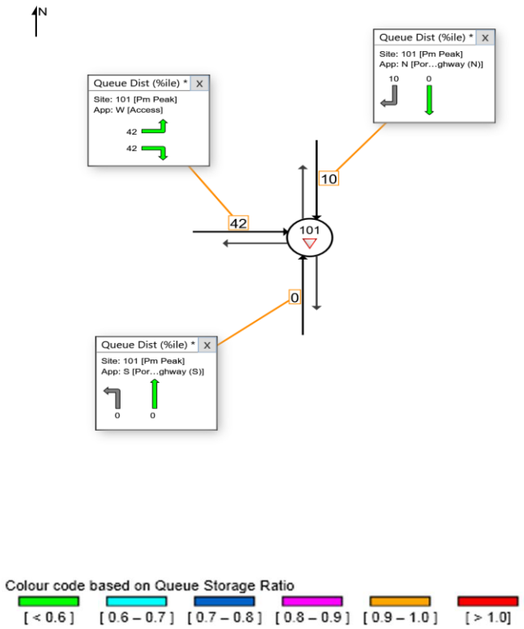
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

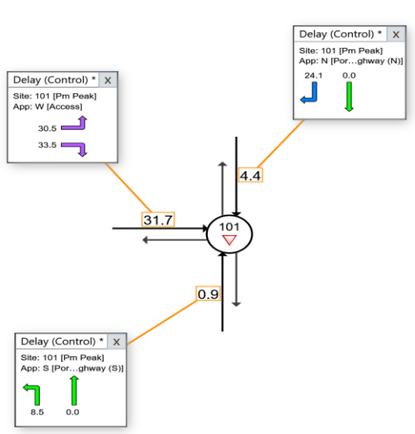
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

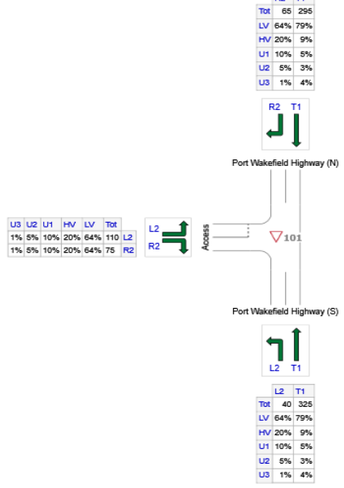


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

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

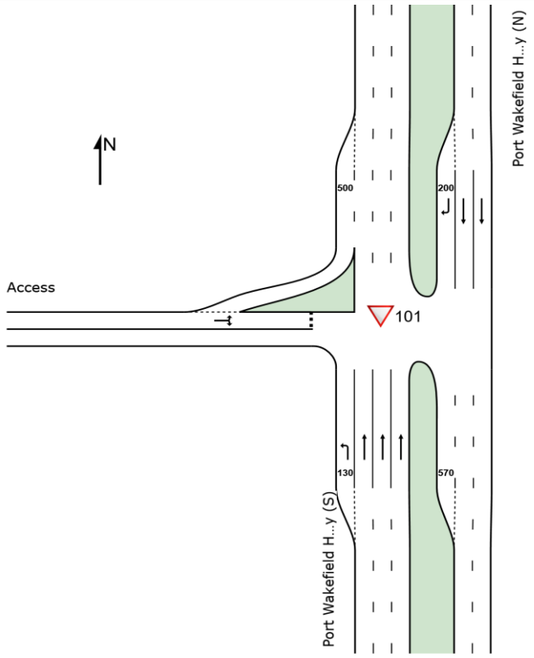
INPUT VOLUMES



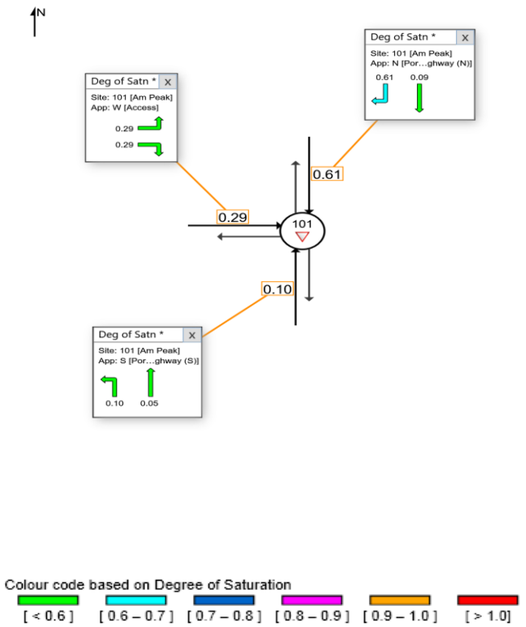
JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment

INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Development Variable 3 PM Peak

INTERSECTION LAYOUT



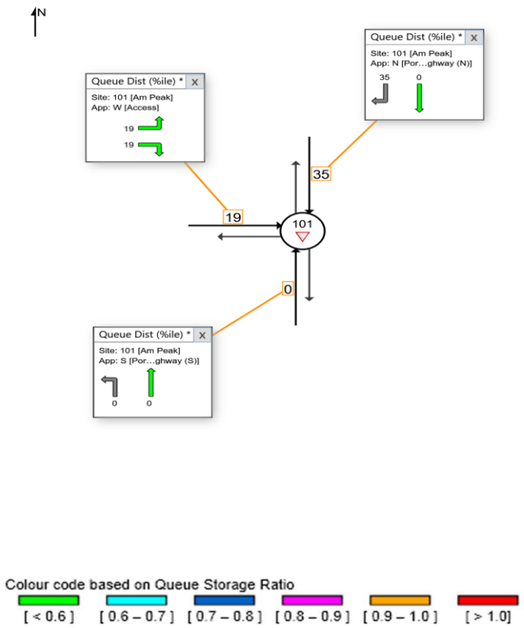
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

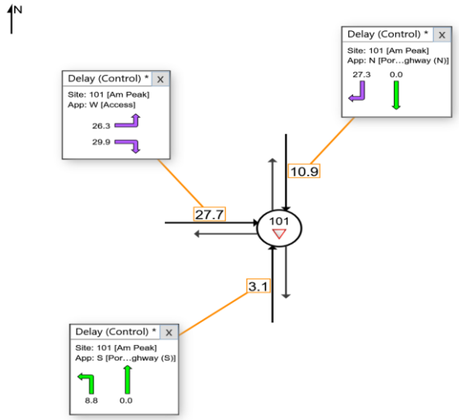
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

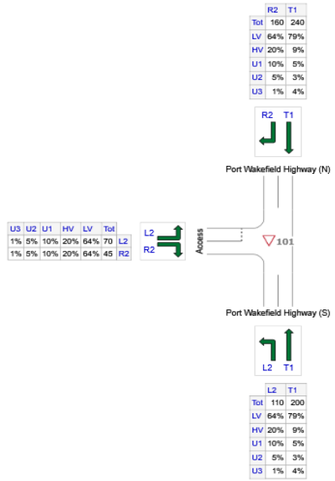


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

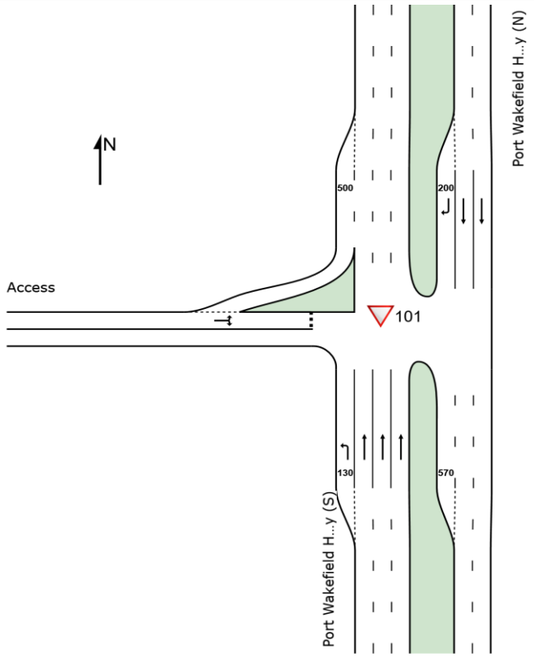
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

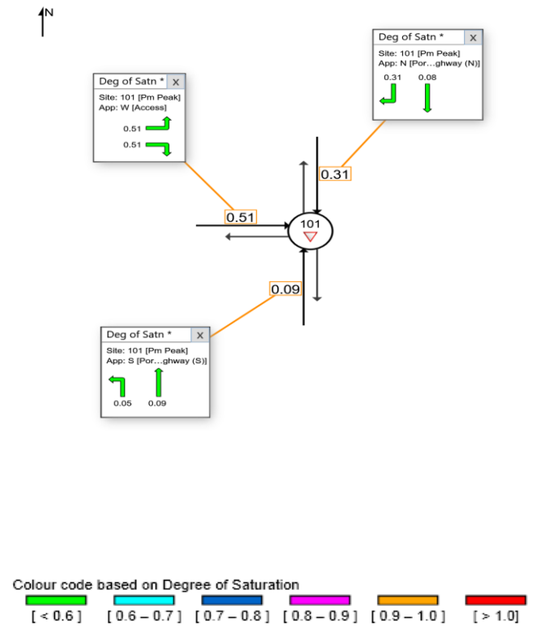


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Maximum Capacity AM Peak

INTERSECTION LAYOUT



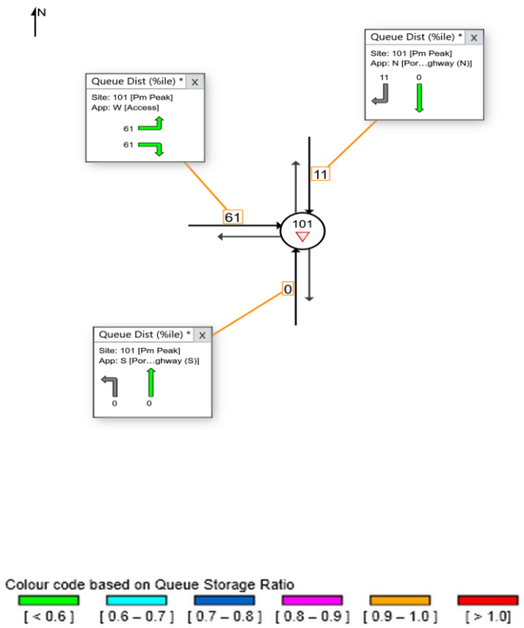
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

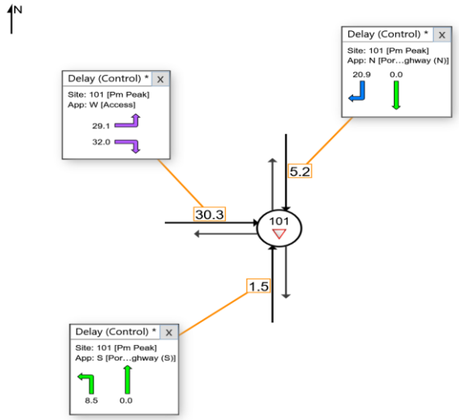
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

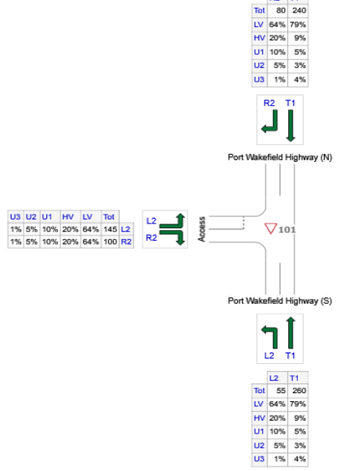


Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

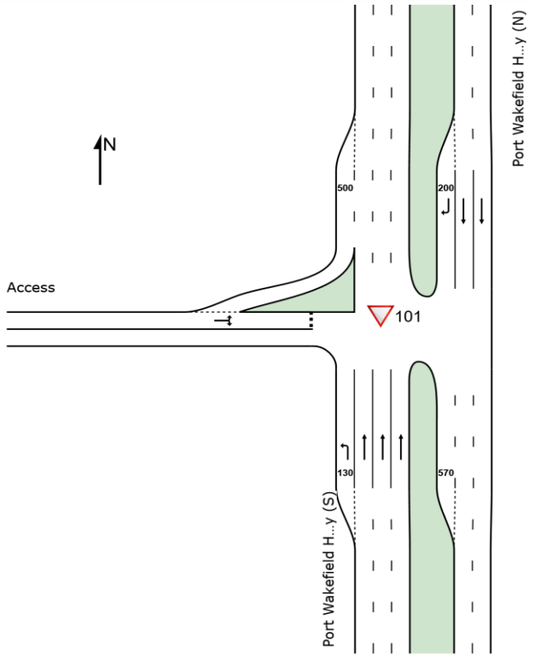
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

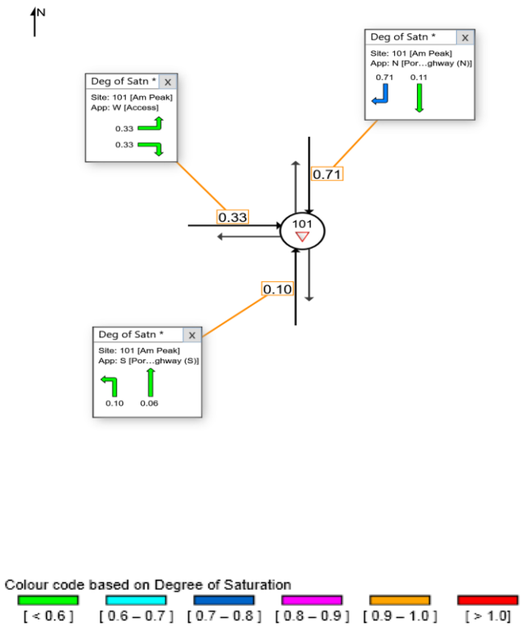


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2024 Maximum Capacity PM Peak

INTERSECTION LAYOUT



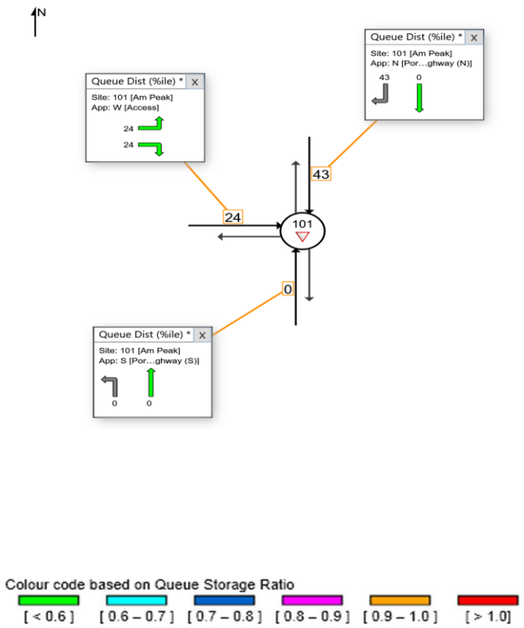
DEGREE OF SATURATION



Colour code based on Degree of Saturation

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

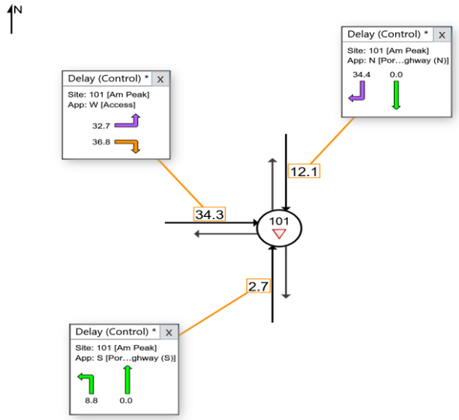
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL) & LEVEL OF SERVICE

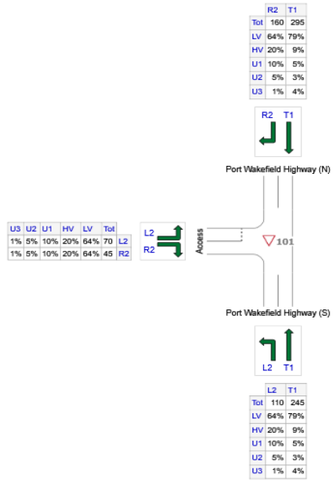


Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

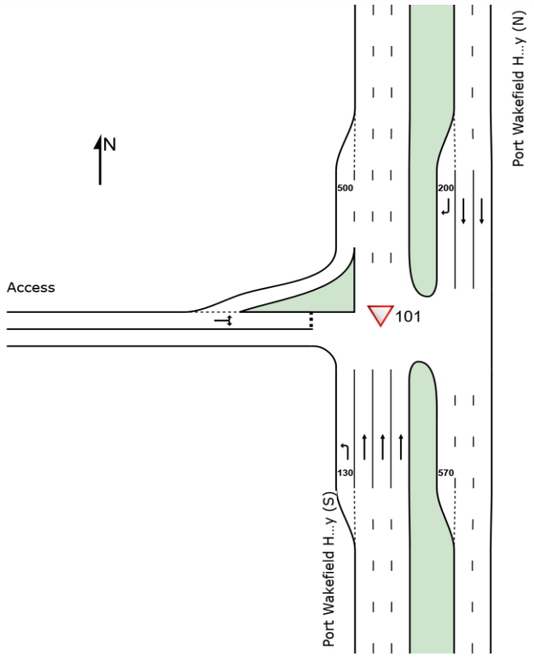
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

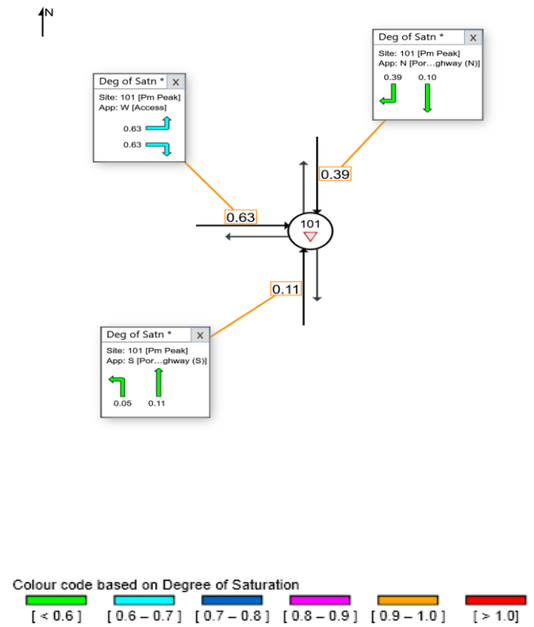


JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin
	Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Maximum Capacity
	AM Peak

INTERSECTION LAYOUT



DEGREE OF SATURATION



Colour code based on Degree of Saturation

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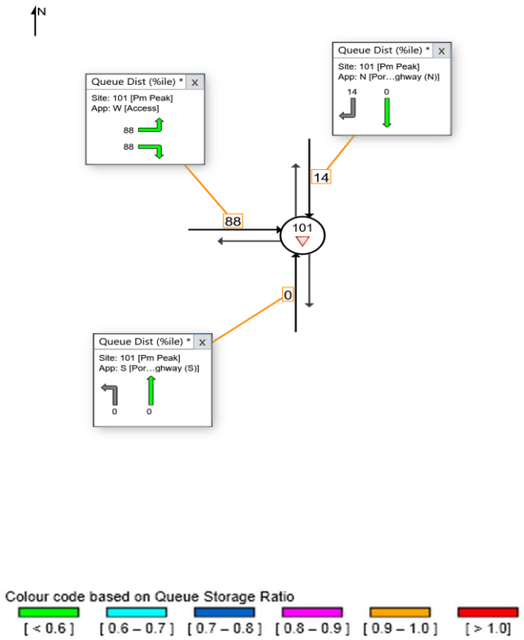
95%ile QUEUE DISTANCE (metres)



Colour code based on Queue Storage Ratio

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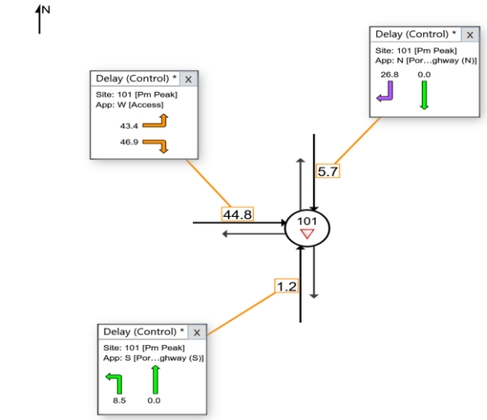
DELAY (CONTROL) & LEVEL OF SERVICE



Colour code based on Level of Service

LOS A LOS B LOS C LOS D LOS E LOS F

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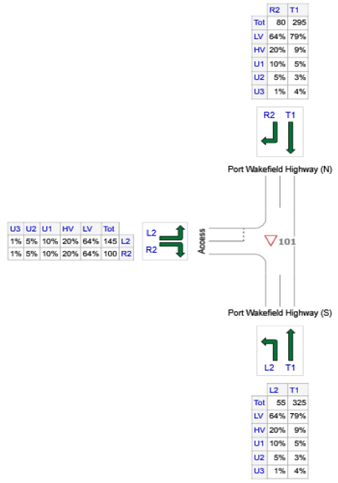

JOB NUMBER:	23-0246
PROJECT NAME:	Leinad Land Development, Dublin Code Amendment
INTERSECTION:	Port Wakefield Highway - Thompson Road
SCENARIO:	2044 Maximum Capacity PM Peak