

APPENDIX 8. TRAFFIC INVESTIGATIONS (MFY)



Nevarc Development Pty Ltd

OLD BULL CREEK ROAD, STRATHALBYN CODE AMENDMENT

TRAFFIC ASSESSMENT

January 2024

23-0018

Traffic • Parking • Transport

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1.0 INTRODUCTION

A Code Amendment is being sought to rezone land located in Strathalbyn from Deferred Urban Zone and Neighbourhood Zone to Master Planned Township Zone. The proposed rezoning will facilitate residential development creating approximately 275 dwellings.

This report documents the traffic investigations completed to inform the Code Amendment assessment. Specifically, it includes a review of the access opportunities for the site to provide a safe and convenient access for all users, including pedestrians and cyclists.

An assessment of the forecast volumes which could be generated by the site should the development be realised as envisaged by the Code Amendment has also been completed with a view to identifying any resultant impact on the road network.

2.0 SUBJECT SITE

The subject site is located approximately 2 km north-west of Strathalbyn town centre. It has frontage to Old Bull Creek Road along its northern boundary and Dawson Creek along its southern boundary. The site also includes a dwelling located at the end of Abbotts Lane. It is currently zoned as Deferred Urban Zone and Neighbourhood Zone in the Planning and Design Code. Figure 1 identifies the subject site.

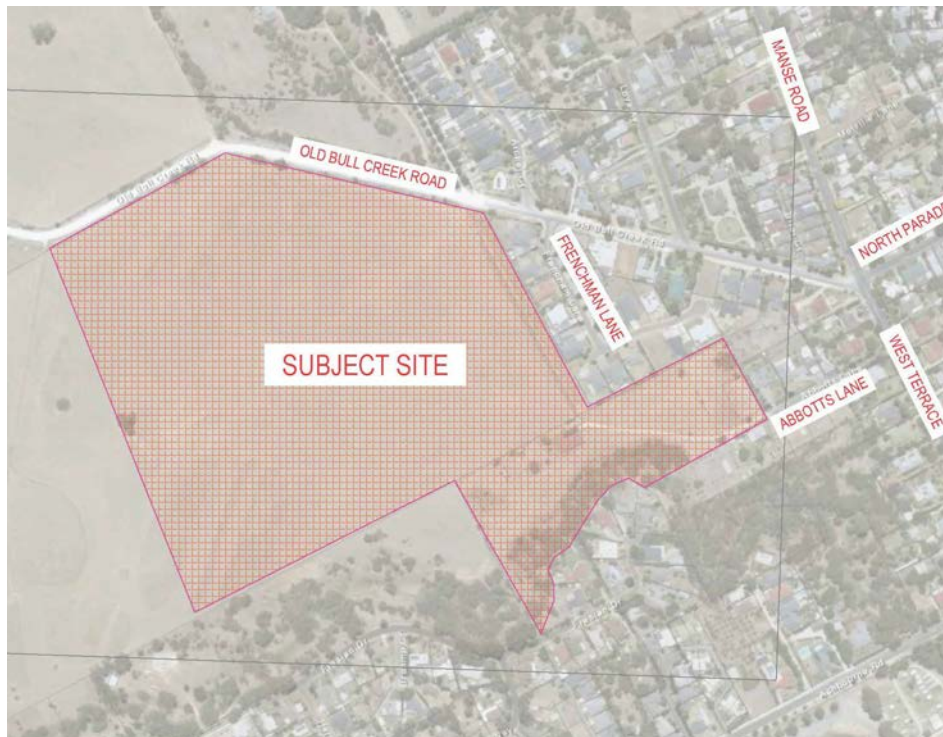


Figure 1: Subject site

2.1 ROAD NETWORK

Old Bull Creek Road is a rural road in the care and control of Alexandrina Council. The road has a daily volume of 200 vehicles adjacent to the site which increases to approximately 750 vehicles at the eastern end of the road.

The road is unsealed along the frontage of the site. This section of the road is approximately 19.5 m. The rural speed limit of 100 km/h applies to the road. It is winding in nature and has curve warning signs along its length.

Old Bull Creek Road is sealed east of the site and provides access to residential land within the township of Strathalbyn. The sealed carriageway has a width of approximately 6m with adjacent unsealed shoulders to the intersection with Love Avenue. East of Love Avenue, the road is kerbed and has indented parking bays both sides of the carriageway. The urban default speed limit of 50 km/h is applicable to the road.



Old Bull Creek Road forms a four-way intersection with West Terrace, Manse Road and North Parade. The intersection is controlled with give-way signage on Old Bull Creek Road and North Parade.

West Terrace and Manse Road are arterial roads in the care and control of the Commissioner of Highways. The roads are sealed and kerbed, with a width of approximately 12.5m. Footpaths are provided on the eastern side of the roads.

West Terrace provides a connection to the Strathalbyn town centre and has a daily traffic volume in the order of 4,400 vehicles. The road transitions into Manse Road north of Old Bull Creek Road, where it has a daily traffic volume in the order of 1,800 vehicles.

North Parade is a collector road within the care and control of Alexandrina Council. It forms an intersection with Adelaide Road at its eastern end, providing the most direct route between the site and Mount Barker and the South Eastern Freeway. It has a daily traffic volume in the order of 3,150 vehicles.

Abbotts Lane terminates along the eastern boundary of the subject site. Abbotts Lane is an unkerbed lane with a pavement width of approximately 5.0 m (albeit the width varies along its length). The lane has narrow verges and no footpath, with a dead end with no formal turning area. Abbotts Lane forms an intersection with West Terrace. There are existing sight distance limitations at this intersection (particularly to pedestrians) due to the large hedge and narrow verges.

3.0 PROPOSAL

It is proposed to rezone the subject land to a Master Planned Township Zone which will facilitate the creation of residential allotments. The Zone anticipates that the area will be developed for low density residential development.

A land supply and demand analysis undertaken by Future Urban estimates that the development will occur at a gross density of between 10 and 14 dwellings per hectare. As a result, between 199 and 275 dwellings are expected to be developed within the subject site.

As part of the proposal, it is anticipated that Old Bull Creek Road will be sealed to the western boundary of the subject site.

3.1 ACCESS INVESTIGATION

When identifying an access regime for any type of land use, it is important to consider the safety and convenience of road users. It is equally important to be aware of existing constraints that could impact the creation of access.

The subject land has frontage to Old Bull Creek Road and Abbots Lane. However, Abbots Lane has a number of constraints, including limited pavement width, no footpaths, narrow verges and sight distance constraints. It is therefore not desirable to increase traffic volumes on that road.

Access to the site is therefore proposed to be via Old Bull Creek Road. The number of allotments which could be realised through a land division would necessitate two connections, particularly to ensure that safe alternative routes are available in the event of an emergency. This is consistent with the requirements of the Planning and Design Code which requires at least two separate and safe exit points to enable multiple avenues of evacuation in the event of a bushfire for new land divisions in a Hazards (Bushfire – Medium Risk) Overlay which applies to the subject land.

Old Bull Creek Road is winding in nature and there are, therefore, sight distance restrictions along the frontage of the site. While the speed limit on Old Bull Creek Road is currently 100km/h, the bends in the road result in a reduced speed of vehicles. Further, given the future residential nature of development on the subject land, it would be appropriate to consider that a reduced speed limit be applied to the road.

Accordingly, the intersections have been sited to ensure that Safe Intersection Sight Distance (SISD) will be available for drivers in accordance with the requirements in Austroads *“Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections”* for a 50 km/h speed limit. Figures 3 and 4 identify that the SISD will be met at both intersections.



Figure 3: SISD requirement at western intersection (50 km/h speed limit)

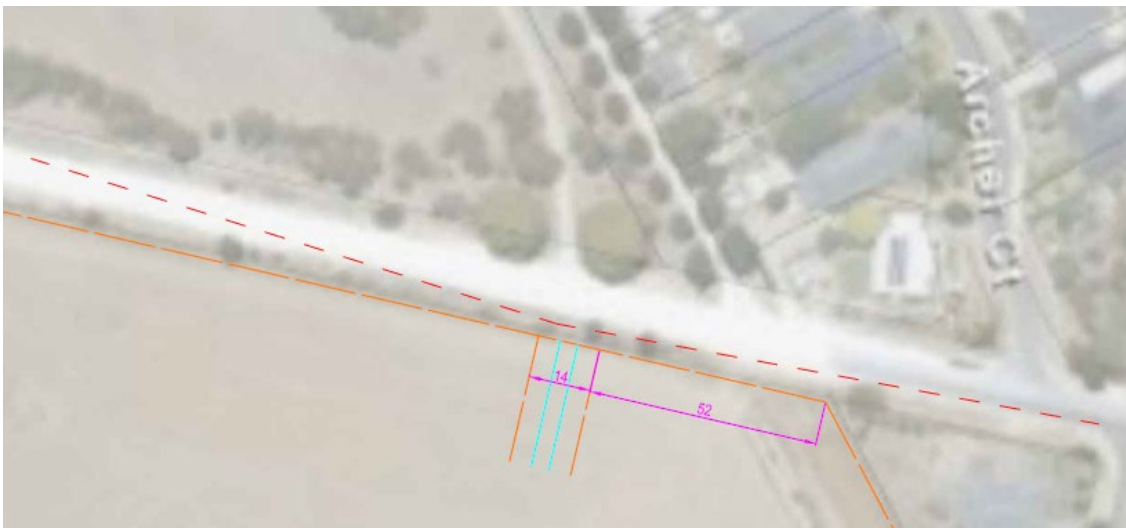


Figure 4: SISD requirement at eastern intersection (50 km/h speed limit)

The proposal will retain the existing access to the dwelling at the end of Abbots Lane.

3.2 PEDESTRIAN/CYCLIST CONNECTIVITY

Pedestrian and cyclist connectivity is an important consideration for future development of the land. The desire lines for pedestrians and cyclists are anticipated to be to and from the East, including destinations such as the town centre, shopping precincts and schools.



There are a number of opportunities which could be considered to facilitate pedestrian and cyclist connections to the site. These should desirably include routes along Old Bull Creek Road and Abbots Lane.

4.0 TRAFFIC ASSESSMENT

The traffic assessment has been based on the forecast higher number of dwellings of 275.

In forecasting the traffic generated by the development, a traffic generation rate of 8.0 trips per dwelling has been adopted. This rate is consistent with that adopted for a number of residential land divisions in South Australia and has been previously endorsed by the Department for Infrastructure and Transport (DIT). Based on this rate, 275 dwellings will generate in the order of 2,200 trips per day. This equates to approximately 220 vehicles per hour in the peak hours.

It is anticipated that 95% of the traffic will occur to and from the east and the remaining 5% will occur to and from the west on Old Bull Creek Road. The traffic distributing to the east will occur via the Old Bull Creek Road/West Terrace/Manse Road/North Parade intersection and the following distribution is anticipated at this intersection:

- 50% of the traffic will distribute to and from the south via West Terrace;
- 40% of the traffic will distribute to and from the east via North Parade; and
- 10% of the traffic will distribute to and from the north via Manse Road.

Having regard to the above distribution, Figure 5 identifies the forecast turning movements at the access points and the Old Bull Creek Road/West Terrace/Manse Road/North Parade intersection.

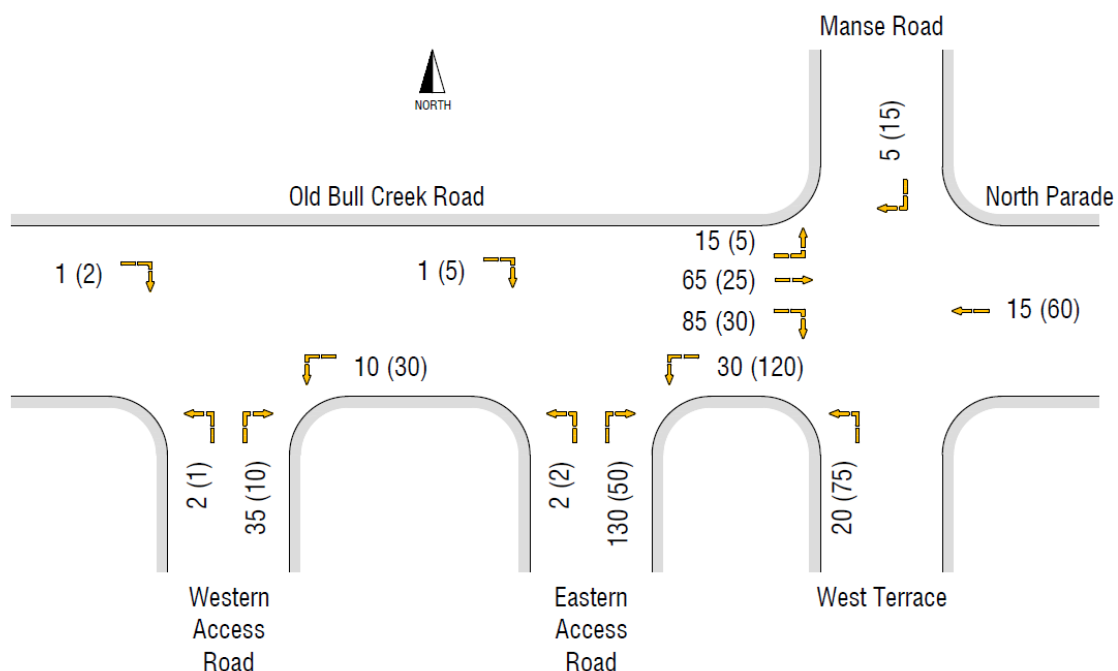


Figure 5: Forecast additional turning movements at the proposed intersections and Old Bull Creek Road/West Terrace/Manse Road/North Parade intersection am (pm)

4.1 PROPOSED INTERSECTIONS REVIEW

Figure 6 identifies the forecast turning volumes and the through movements at each intersection including the existing through movements.

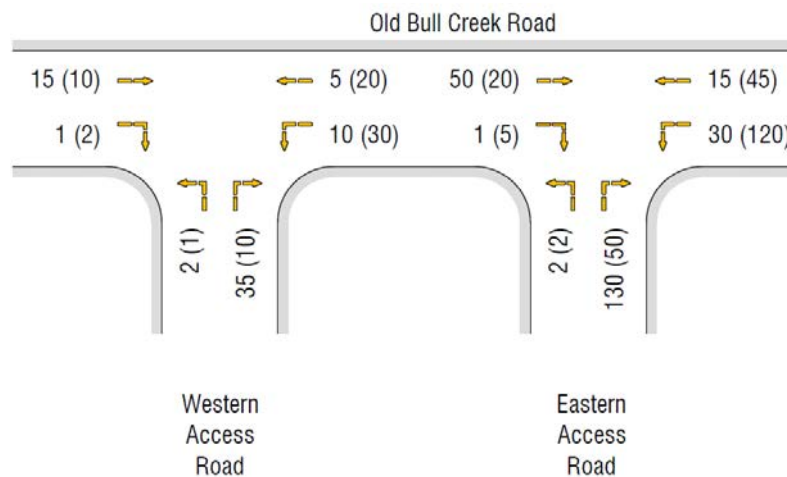


Figure 6: Forecast movements at each proposed intersection on Old Bull Creek Road am (pm)

The forecast turning volumes are low and therefore will not create an impact on the capacity of the intersection. However, it is relevant to assess if the intersections have been appropriately treated to provide a safe facility.

Consideration has been given to the warrants for turn treatments on major roads at unsignalised intersections as defined in Austroads “*Guide to Traffic Management – Part 6: Intersections, Interchanges and Crossings*” (AGTM06), which relates to an assessment of the turning movements against the major road traffic volume. The assessment has been completed for 50 km/h speed limit.

Figure 7 identifies the warrant assessment for the western intersection.

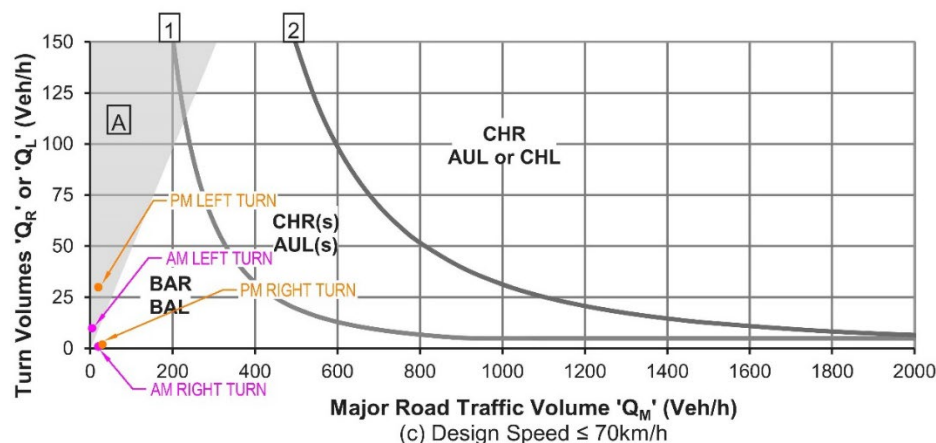


Figure 7: Warrant assessment for the western intersection

Figure 8 identifies the warrant assessment for the eastern intersection.

- all approaches will operate at a Level of Service (LOS A); and
- there will be a maximum queue of one vehicle queue on all approaches and such queues will not impact the operation of the arterial road.

The assessment confirms that the forecast traffic will have minimal impact on the operation of the intersection.

4.3 ROAD NETWORK FUNCTION REVIEW

Having regard to the above distribution, Figure 10 the forecast additional daily traffic on the road network.

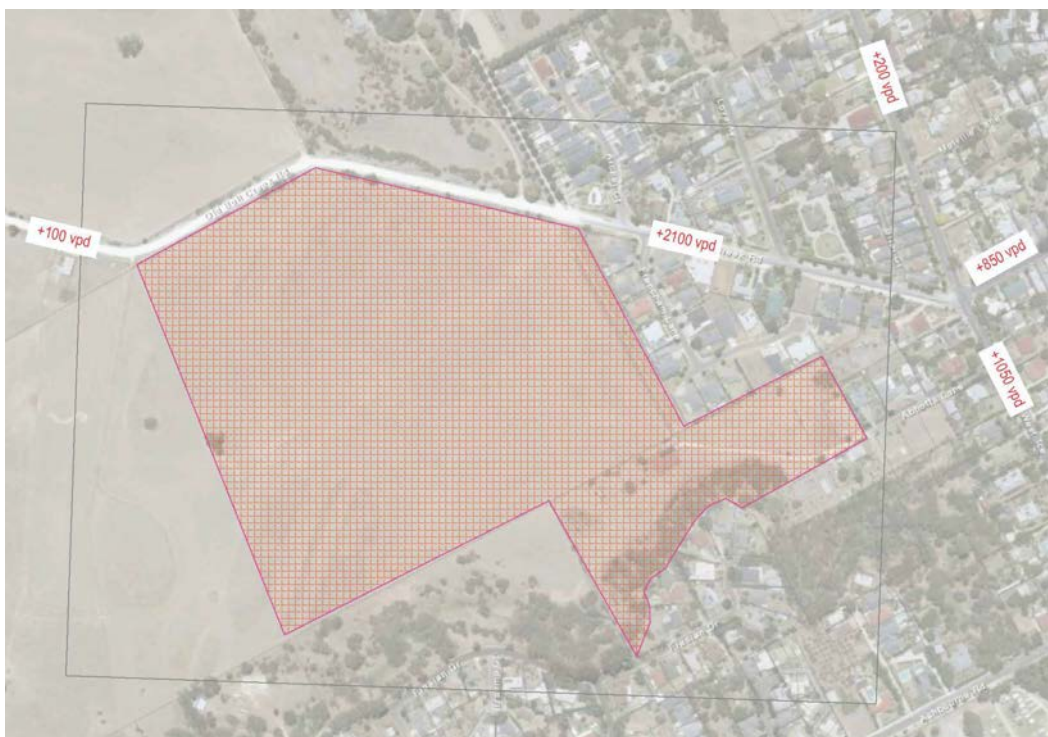


Figure 10: Additional daily traffic on the road network

A review of the road hierarchy has been completed and is summarised in Table 1.

Table 1: Forecast daily traffic volumes (vehicles per day)

Road	Current Volume	Current Function	Forecast Volume	Future Function
Old Bull Creek Road	750 vpd	Rural Road	2850 vpd	Rural Road
Manse Road	1800 vpd	Arterial Road	2000 vpd	Arterial Road
North Parade	3150 vpd	Collector Road	4000 vpd	Collector Road
West Terrace	4400 vpd	Arterial Road	5450 vpd	Arterial Road

The above assessment confirms that the forecast traffic generated by the rezoning will not change the nature and function of the road network.

5.0 SUMMARY

This report has assessed the potential impact of traffic associated with the rezoning of land located in Strathalbyn.

Access will be provided to Old Bull Creek Road where two intersections will be created to ensure alternate routes will be developed in accordance with the requirements in the Planning and Design Code and best practice traffic engineering design requirements. Forecast traffic volumes will be readily accommodated and the intersections. A reduction in the speed limit on Old Bull Creek Road will facilitate safe access to the site, albeit the curvilinear nature of the road alignment will already result in lower vehicle speeds on this road.

Infrastructure improvements to Old Bull Creek Road, such as providing a sealed carriageway adjacent to the subject land, will provide for safe and convenient access for residents.

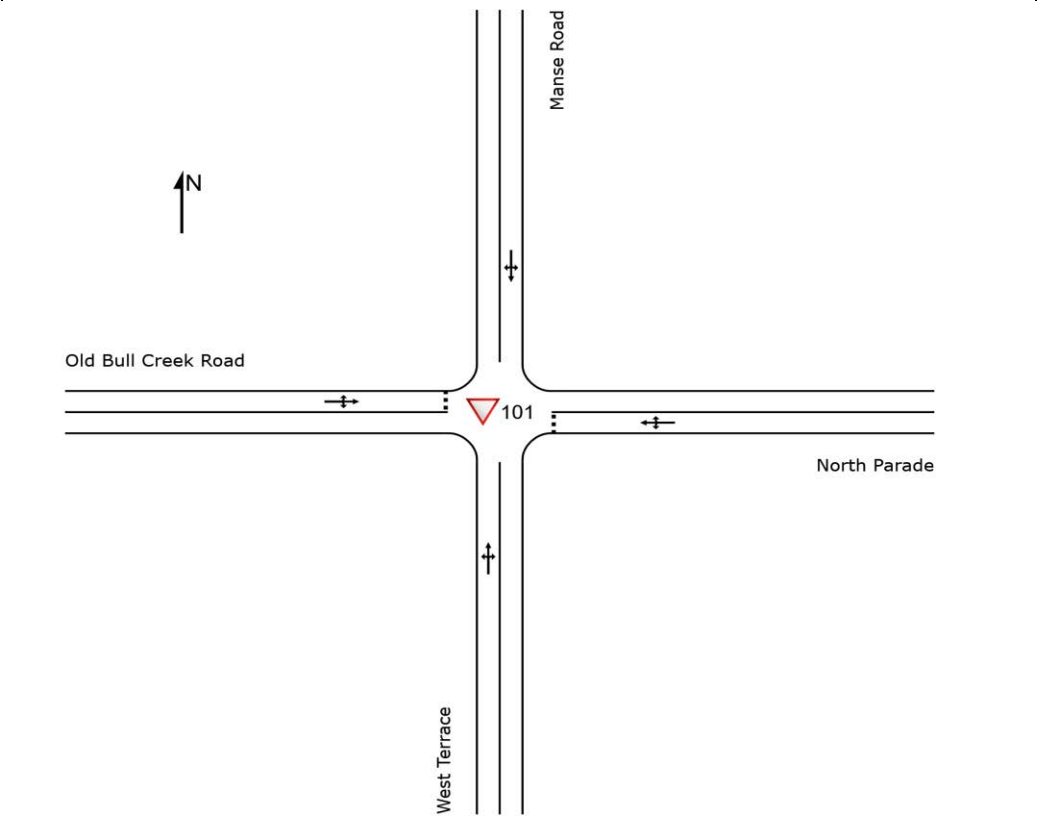
Potential pedestrian and cyclist routes have been identified which should be investigated during the development of the site to ensure that a safe and convenient route are provided for these road users.



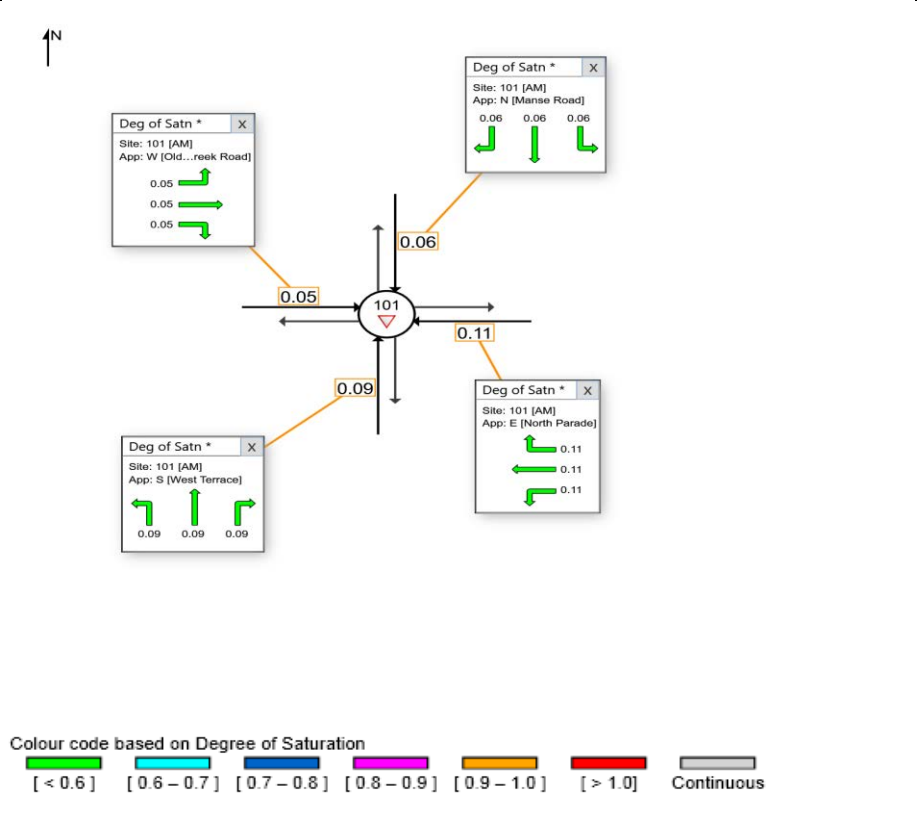
APPENDIX A

SIDRA ANALYSIS

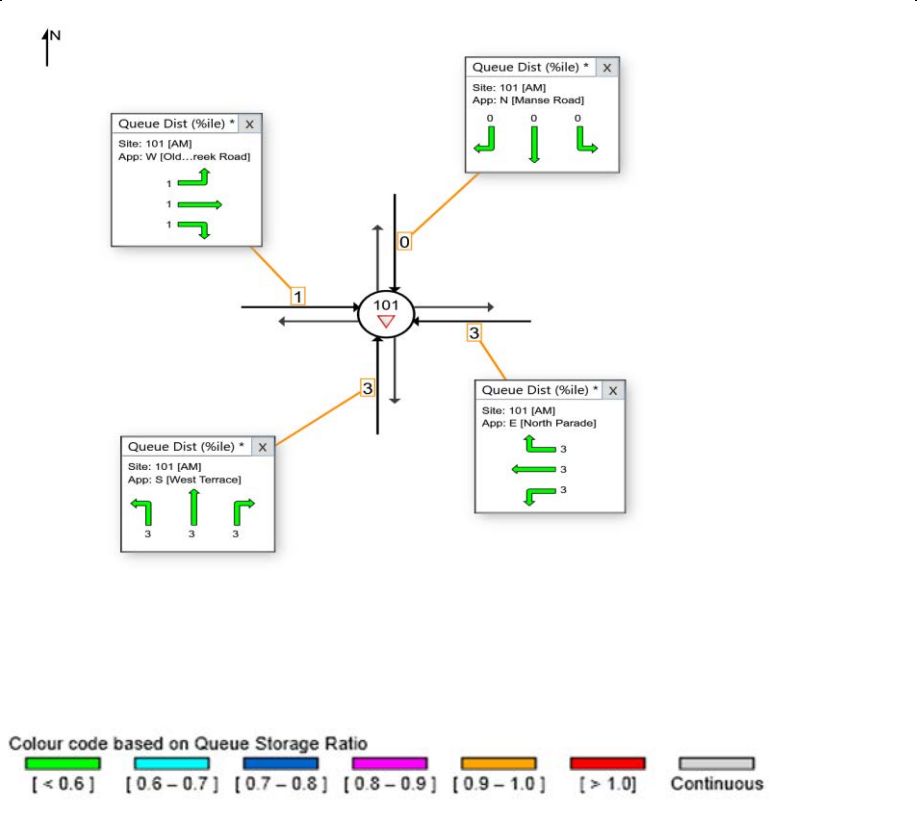
INTERSECTION LAYOUT



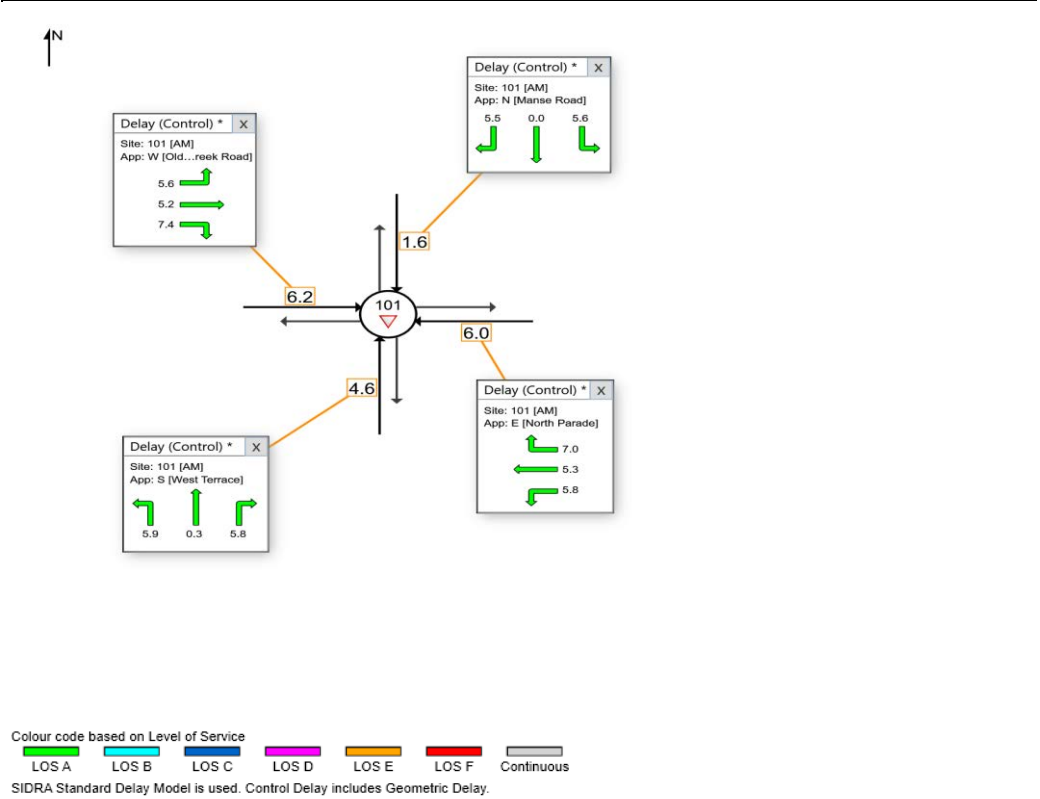
DEGREE OF SATURATION



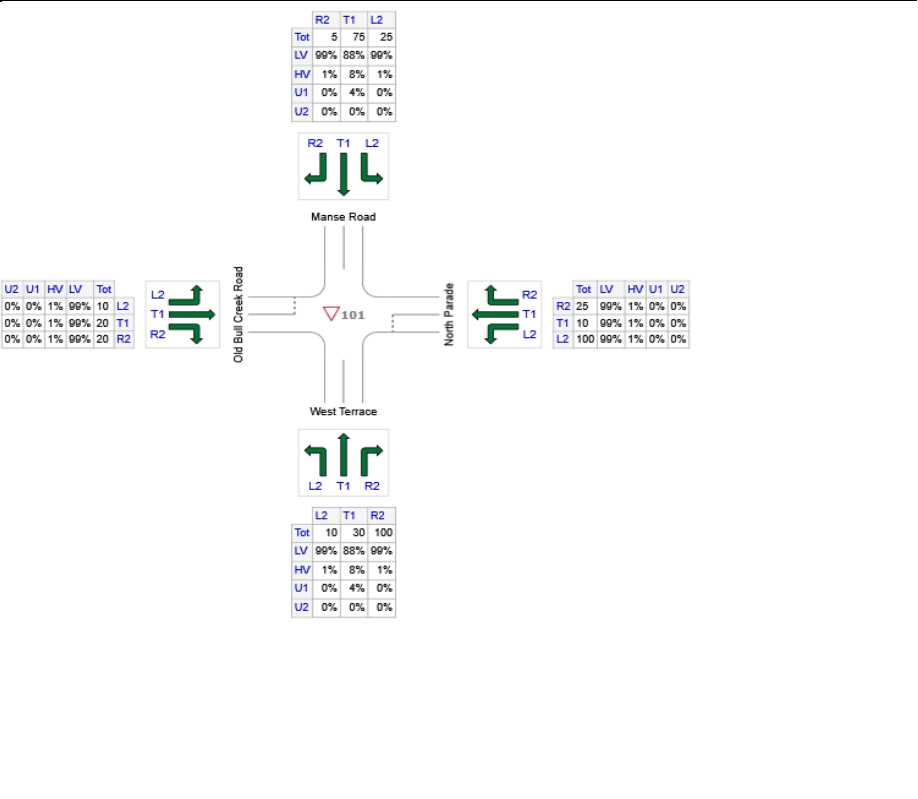
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DELAY (CONTROL) & LEVEL OF SERVICE



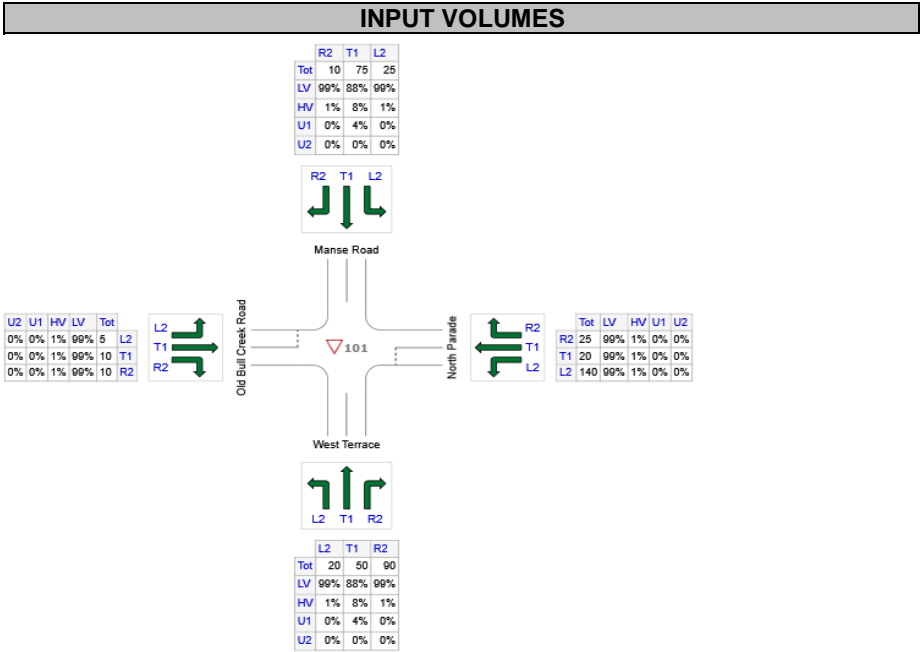
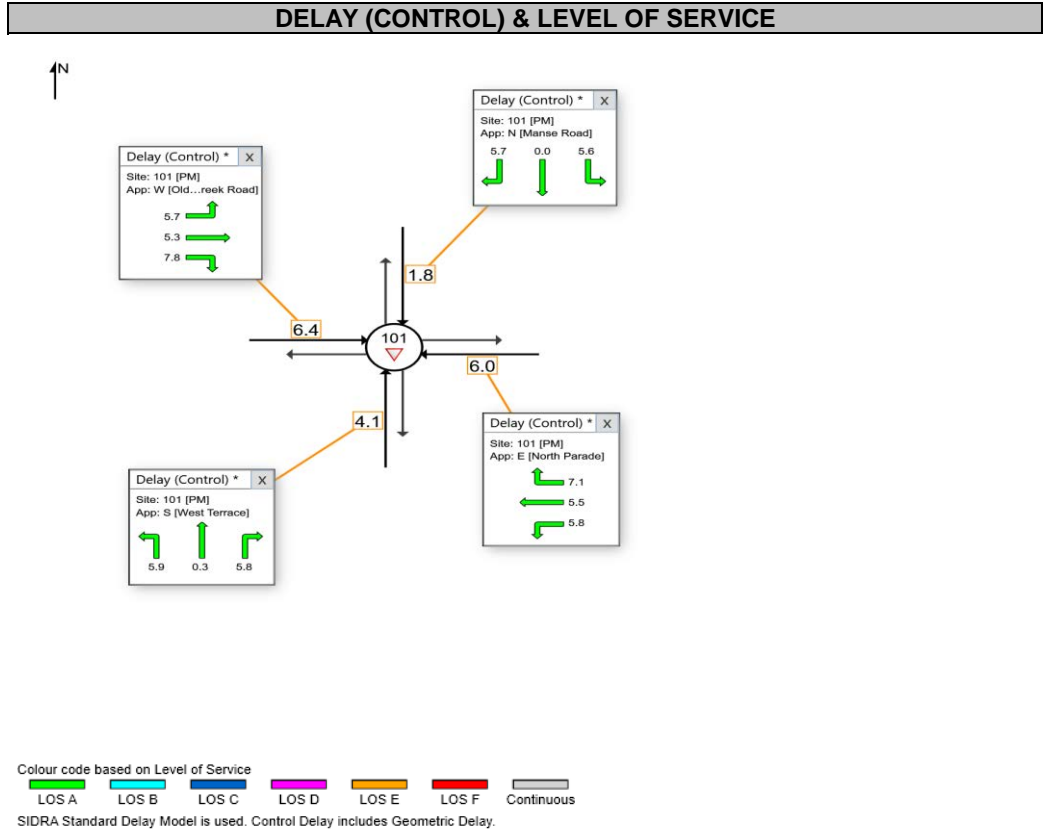
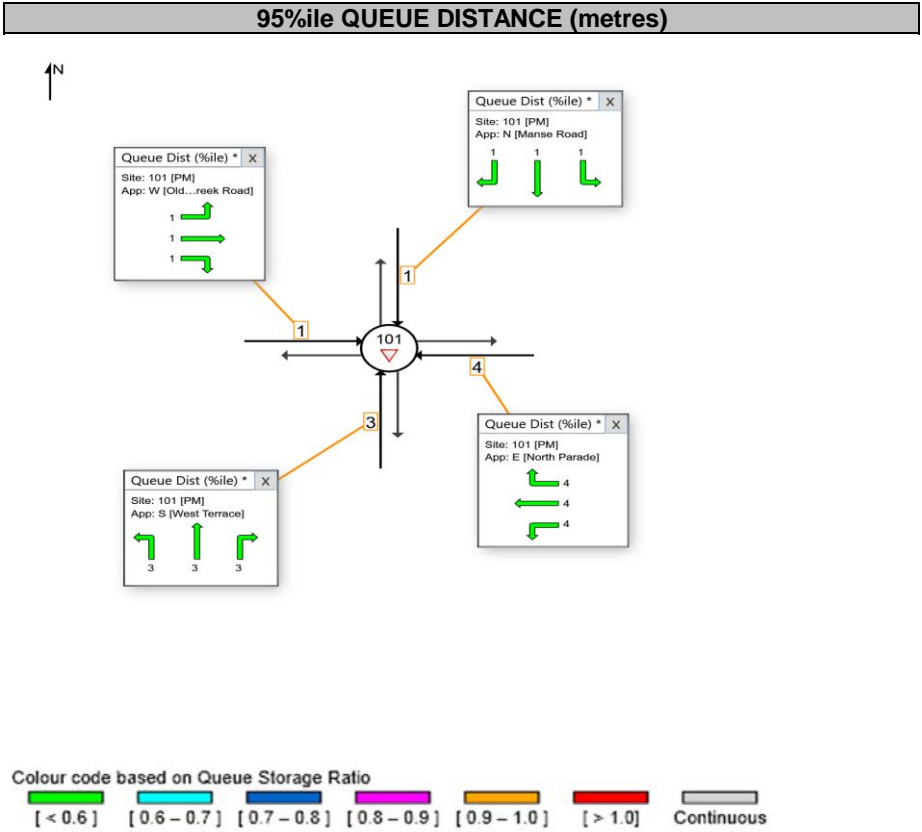
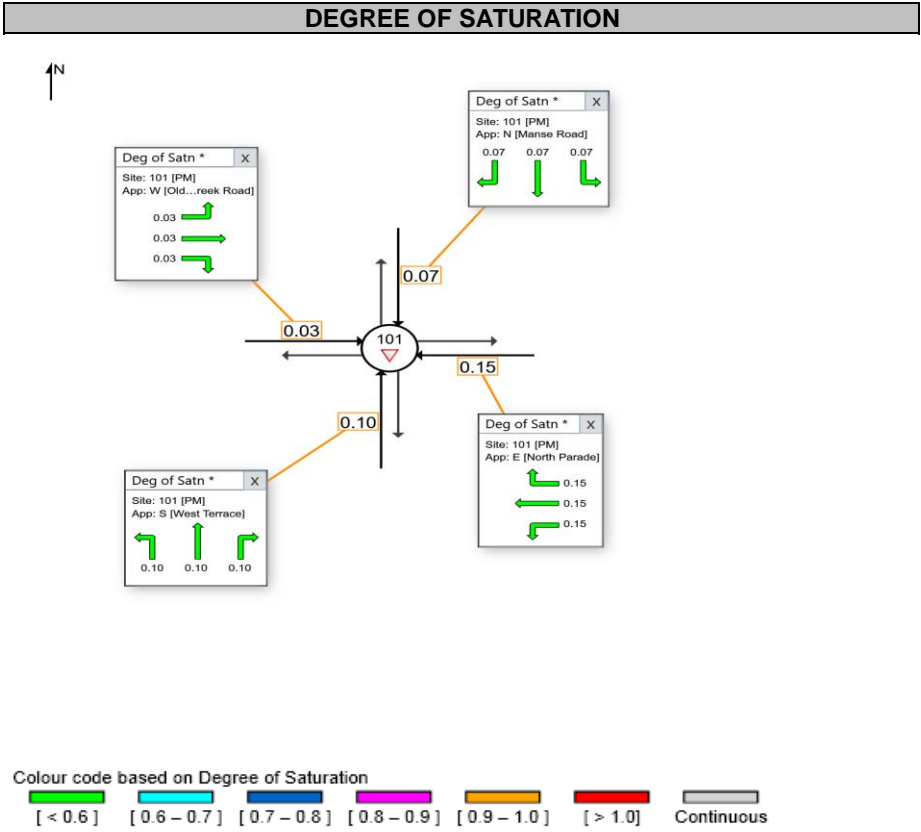
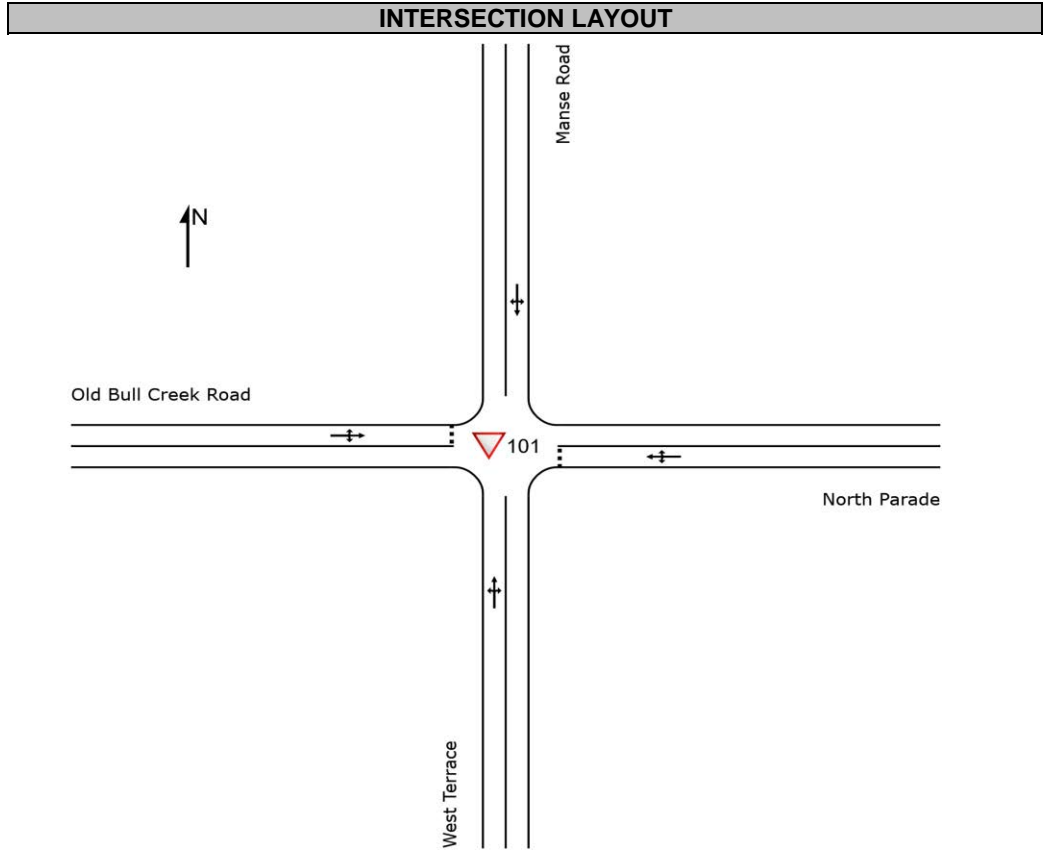
INPUT VOLUMES



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INTERSECTION:	OLD BULL CREEK ROAD/WEST TERRACE/MANSE ROAD/NORTH PARADE
SCENARIO:	EXISTING AM PEAK





JOB NUMBER: 23-0018

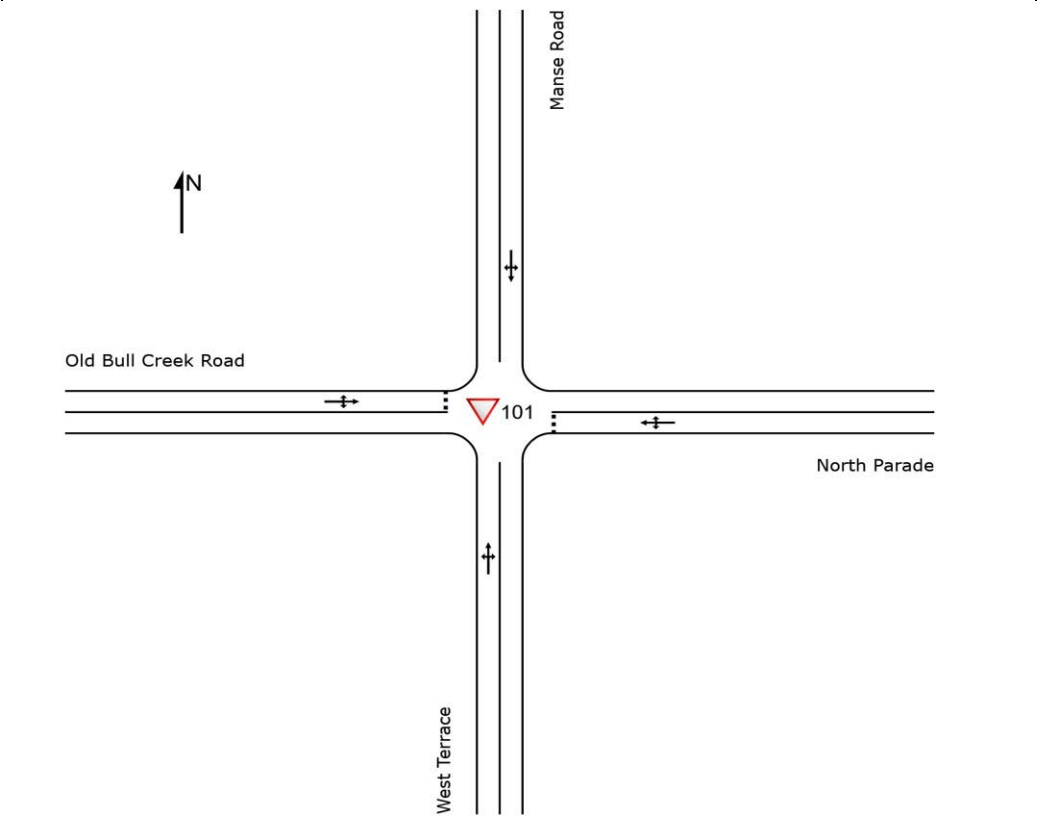
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CODE AMMENDMENT

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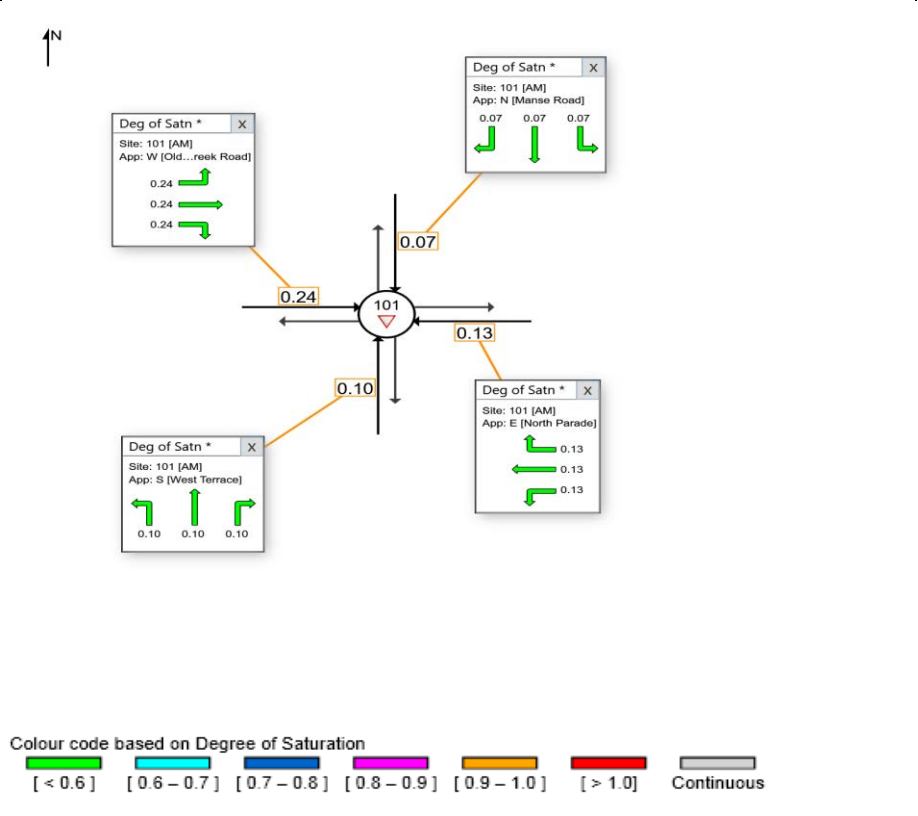
SCENARIO: EXISTING PM PEAK



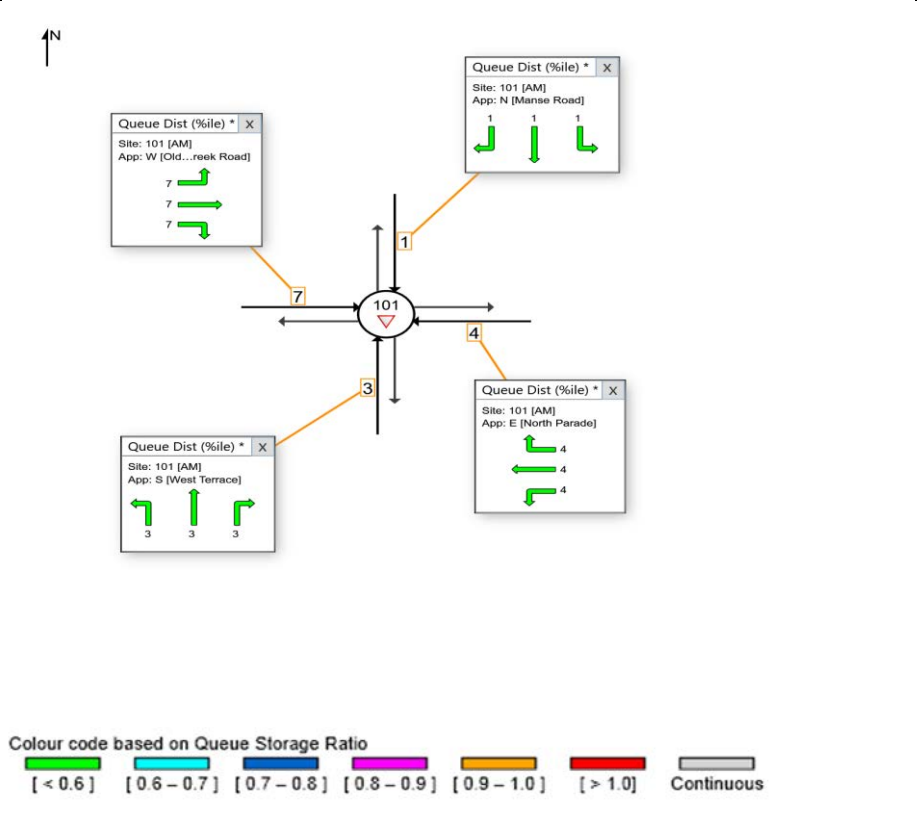
INTERSECTION LAYOUT



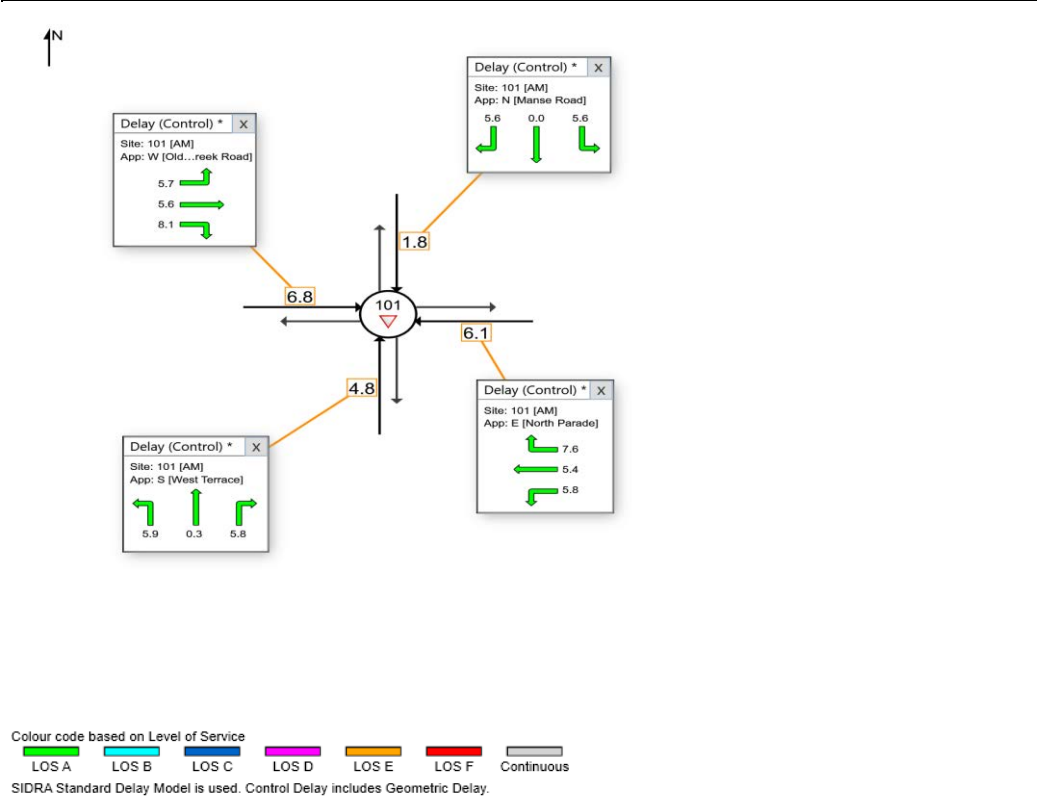
DEGREE OF SATURATION



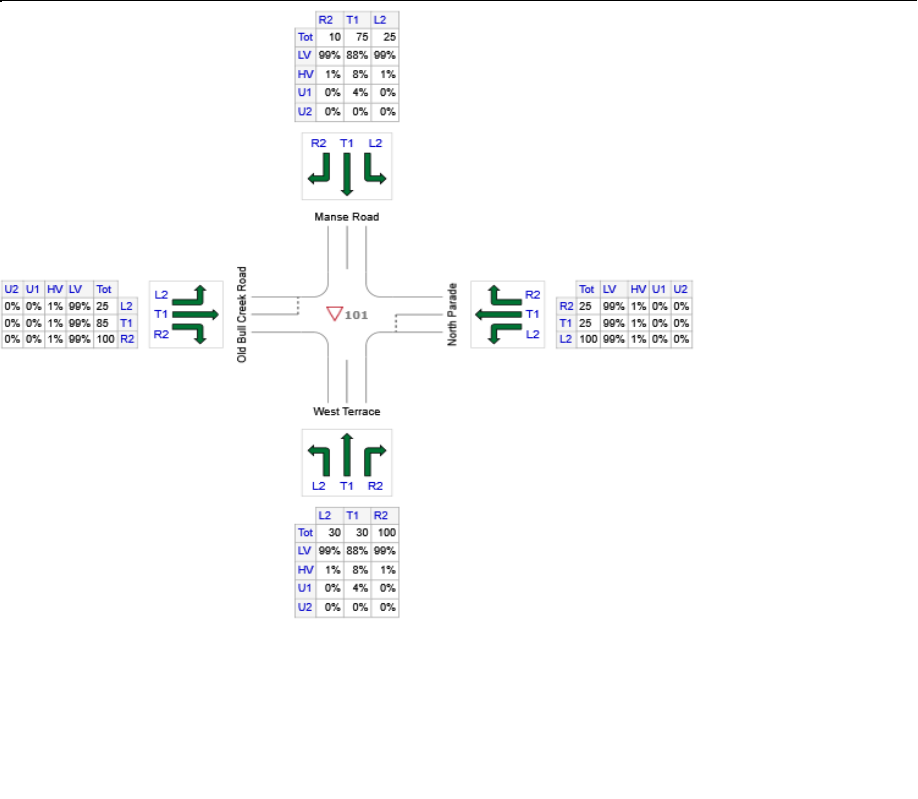
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DELAY (CONTROL) & LEVEL OF SERVICE



INPUT VOLUMES

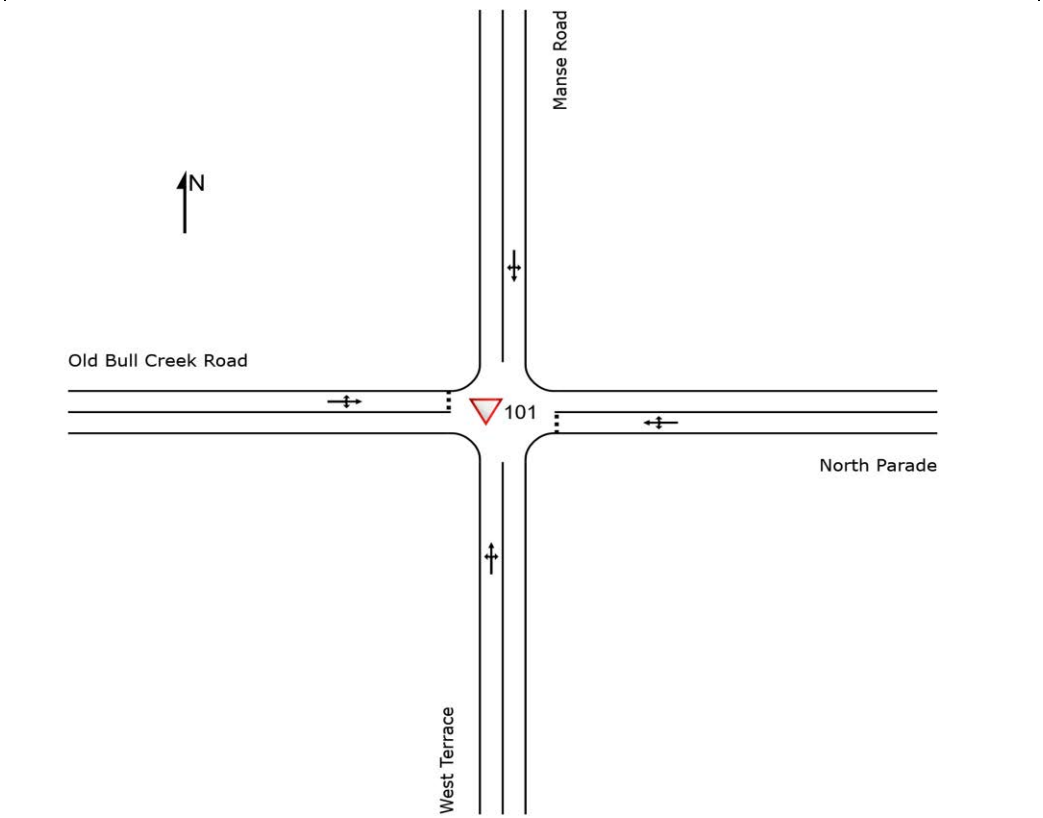


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PROJECT NAME:	OLD BULL CREEK ROAD, STRATHALBYN CODE AMMENDMENT

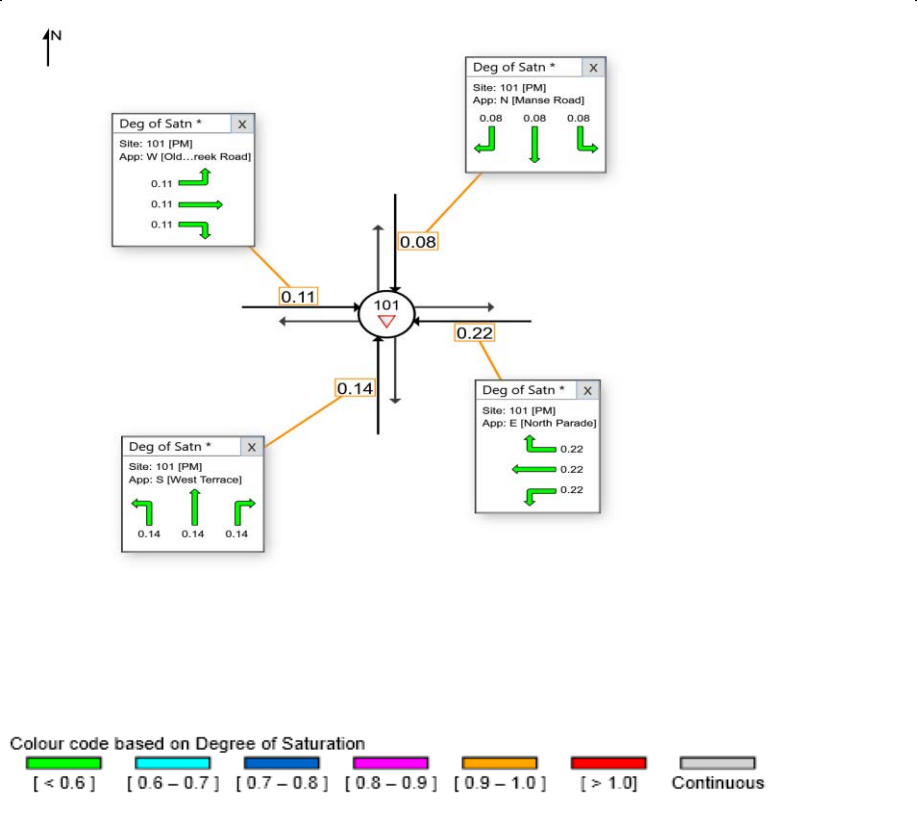
INTERSECTION:	OLD BULL CREEK ROAD/WEST TERRACE/MANSE ROAD/NORTH PARADE
SCENARIO:	DEVELOPMENT AM PEAK



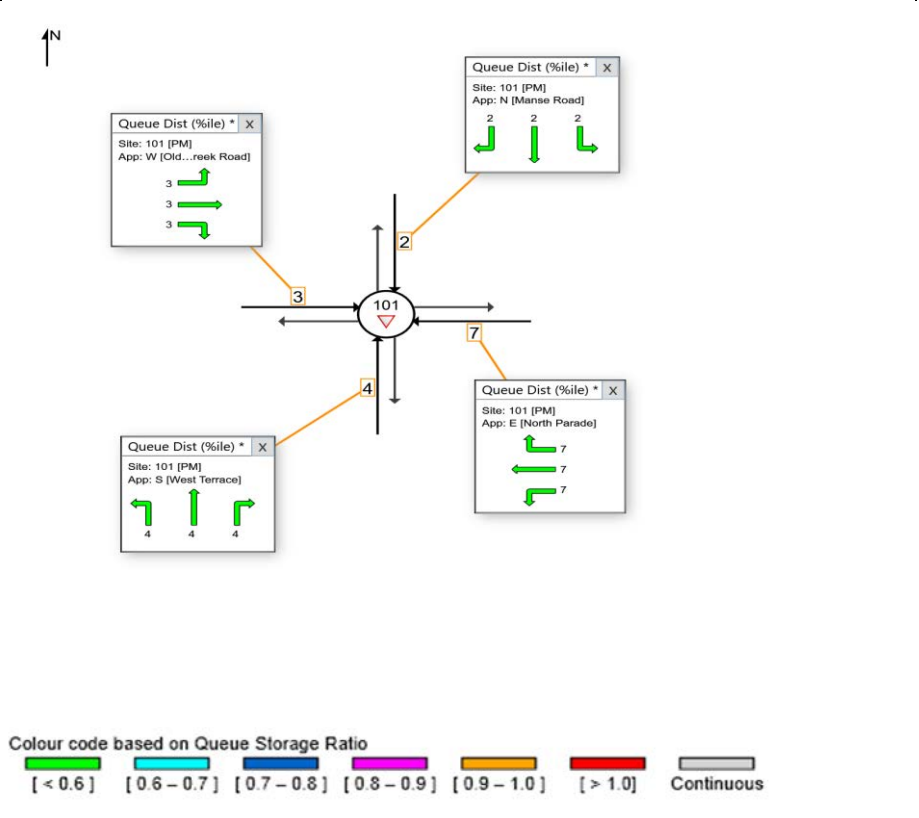
INTERSECTION LAYOUT



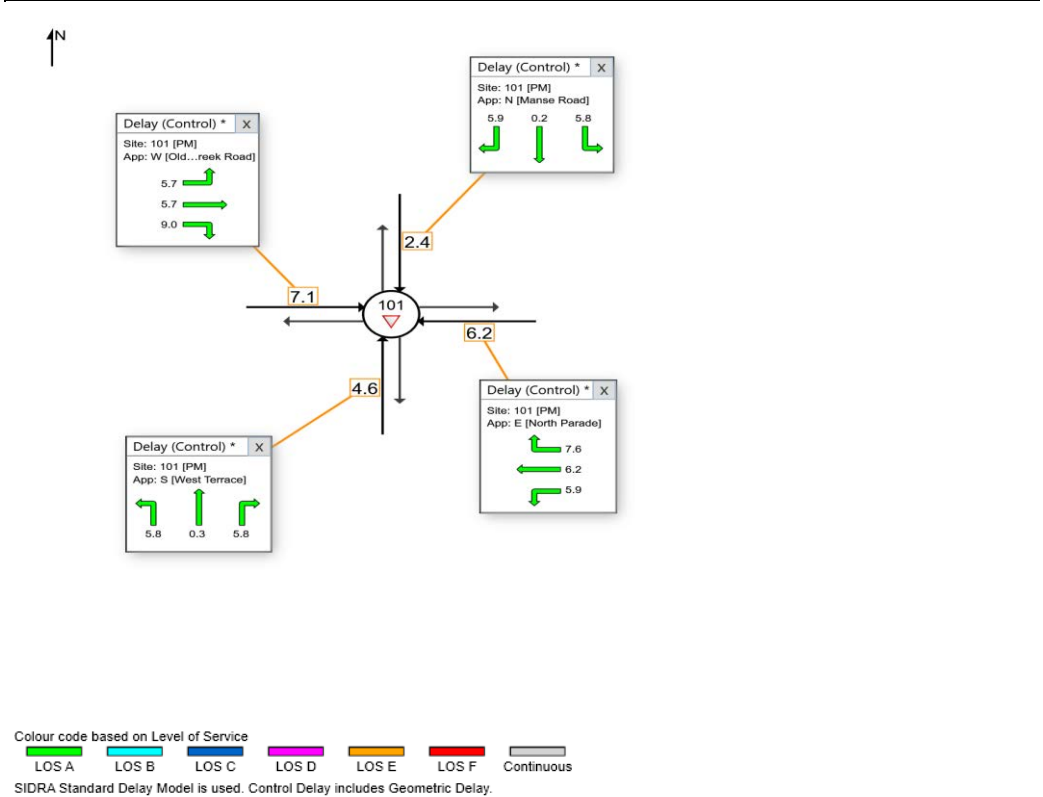
DEGREE OF SATURATION



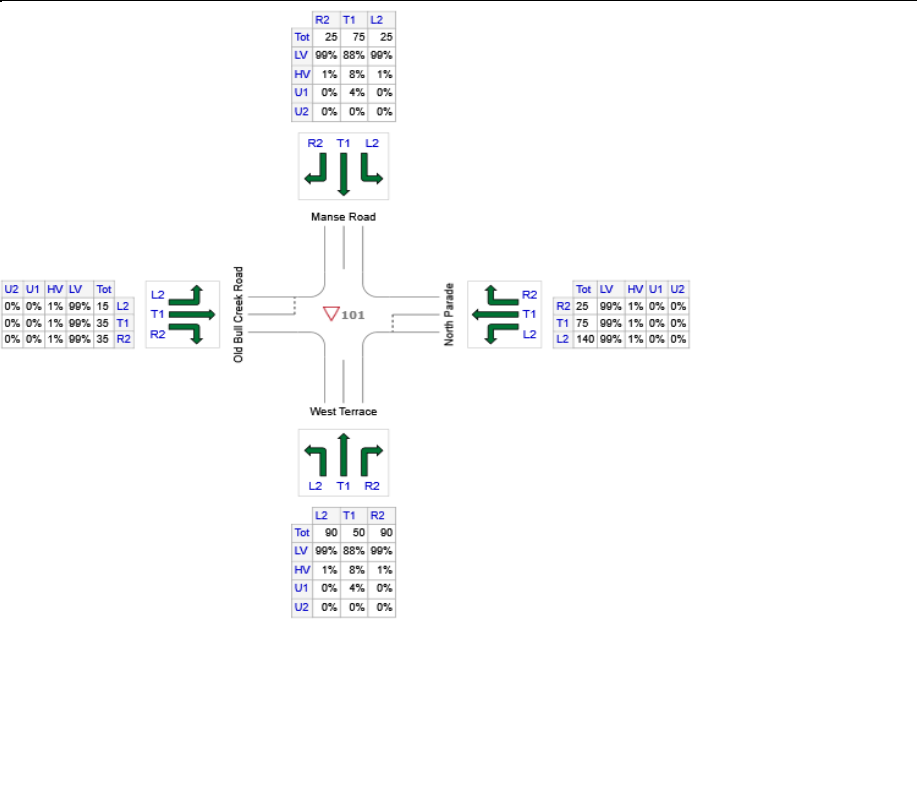
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DELAY (CONTROL) & LEVEL OF SERVICE



INPUT VOLUMES



JOB NUMBER:	23-0018
PROJECT NAME:	OLD BULL CREEK ROAD, STRATHALBYN CODE AMMENDMENT

INTERSECTION:	OLD BULL CREEK ROAD/WEST TERRACE/MANSE ROAD/NORTH PARADE
SCENARIO:	DEVELOPMENT PM PEAK

