

29 October 2025

PLANIT Consulting
PO Box 1623
Kingscliff NSW 2487

Dear Josh,

RE: RESPONSE TO TRANSPORT FOR NSW INFORMATION REQUEST REGARDING 741 CUDGEN ROAD, CUDGEN

1. INTRODUCTION

PSA Consulting has been engaged by Planit Consulting to provide traffic engineering advice for the proposed Cudgen Connection Health Precinct, located on land at 741 Cudgen Road, Cudgen (formally described as Lot 6 DP727425). The site is located within the Tweed Shire Council (TSC) Local Government Area.

A Traffic Impact Assessment (TIA) was prepared by PSA on 19 December 2024. This technical note outlines the response to comments and information request raised by NSW Government. The documents reviews include the following:

- Transport for NSW Response (dated 22 August 2025)
- NSW Health Infrastructure Response (dated 04 September 2025)
- NSW Health Response
- Northern NSW Local Health District Response (dated 27 August 2025)

2. NSW GOVERNMENT RESPONSE

Outlined below is the response provided by the NSW Government regarding the proposed development, specifically regarding traffic, access and parking:

Transport for NSW

- *The roundabout proposed on Tweed Coast Road appears to be within 130 metres of the existing signalised intersection of Tweed Coast Road/ Cudgen Road. It is unclear what impact this arrangement will on the safety and efficiency of the Traffic Control Signals (TCS).*
- *The option for a roundabout will need to be further justified and demonstrated by updated modelling and the preparation of a strategic design. Alternatively, further options should be investigated to identify the appropriate infrastructure required to support the planning proposal.*
- *It is noted that the cycle time adopted for the TCS is incorrect, whereby the site runs 120 seconds in peaks. The revised modelling should ensure the correct value is adopted.*



NSW Health Infrastructure

- *The PP documentation includes a road to ‘Cudgen Connection’ PP site through the TVH. The PP Traffic Impact Assessment (TIA) recommends access through the TVH including for buses servicing the ‘Cudgen Connection’ PP site and that changes to the current hospital intersection be made.*
- *The provision of private vehicular access through TVH will limit and potentially sterilise future development at TVH and will impact the functionality of nearby intersections which are essential to the operations of the hospital, its public and emergency access and availability of parking for staff and visitors (refer excerpt from PP at Figure 1 below).*
- *TVH internal roads are not designed to accommodate buses, the assumed two-way movement, or volumes of traffic anticipated by the PP and as detailed in the PP TIA.*
- *DPHI’s Gateway Determination Report references a Land Use Conflict Risk Assessment (LUCRA) which was not made available to view. The Report’s commentary against the LUCRA does not indicate that the 24/7 operations of TVH were considered in this report.*

NSW Health

- *The district does not support access to TVH for traffic purposes. TVH has a known parking availability issue. TVH offers free parking at their site. If the adjacent “Cudgen Connection” development introduces paid parking, it is likely to further exacerbate this issue, placing additional pressure on already limited capacity.*
- *Further detail on this impact are enclosed in Health Infrastructure’s initial response.*

Northern NSW Local Health District

- *We do not support access to our site for traffic purposes (noting the draft drawings show this).*
- *We are concerned about parking - we already have well documented parking issues. As our parking is free, a site adjacent to ours with potentially paid parking, would exacerbate this issue.*
- *We would be concerned about additional traffic congestion in the surrounding roads; they are already relatively congested.*

3. RESPONSE TO NSW GOVERNMENT

3.1 TRAFFIC

3.1.1 SIDRA Intersection Layout

The initial SIDRA network analysis has identified that the only feasible access treatments for the site are left-in / left-out (Option 1) and all movements roundabout (Option 4) at the western access point. However, the analysis also highlights a critical conflict between the Tweed Coast Road / Cudgen Road intersection and the proposed southern site access, where vehicle queues going to the site may extend back to the intersection, adversely affecting traffic flow. To address this issue and enhance overall network performance, it is recommended that the southern access be removed, as proposed in Option 5 within the December 2024 TIA. An additional SIDRA analysis were conducted for Option 5, indicating the overall network performance would operate within intersection performance threshold. The network performance outcomes for all assessed options are illustrated in Appendix 1.

Following feedback from Transport for NSW, the SIDRA model has been updated to incorporate the following modifications:

- The left-turn pocket on the northbound approach of the Tweed Coast Road / Cudgen Road intersection has been reduced to 80 metres to avoid creating a three-lane exit configuration at the roundabout.
- The signal cycle time at the Tweed Coast Road / Cudgen Road intersection has been adjusted to 120s, replacing the previously used SIDRA-calculated practical cycle time.



- All analyses assume that no connection with Tweed Valley Hospital has been established.

The Tweed Coast Road / Cudgen Road intersection has been assessed both in isolation and as part of the broader network, including the proposed roundabout access. The proposed intersection layout is illustrated in Figure 1.

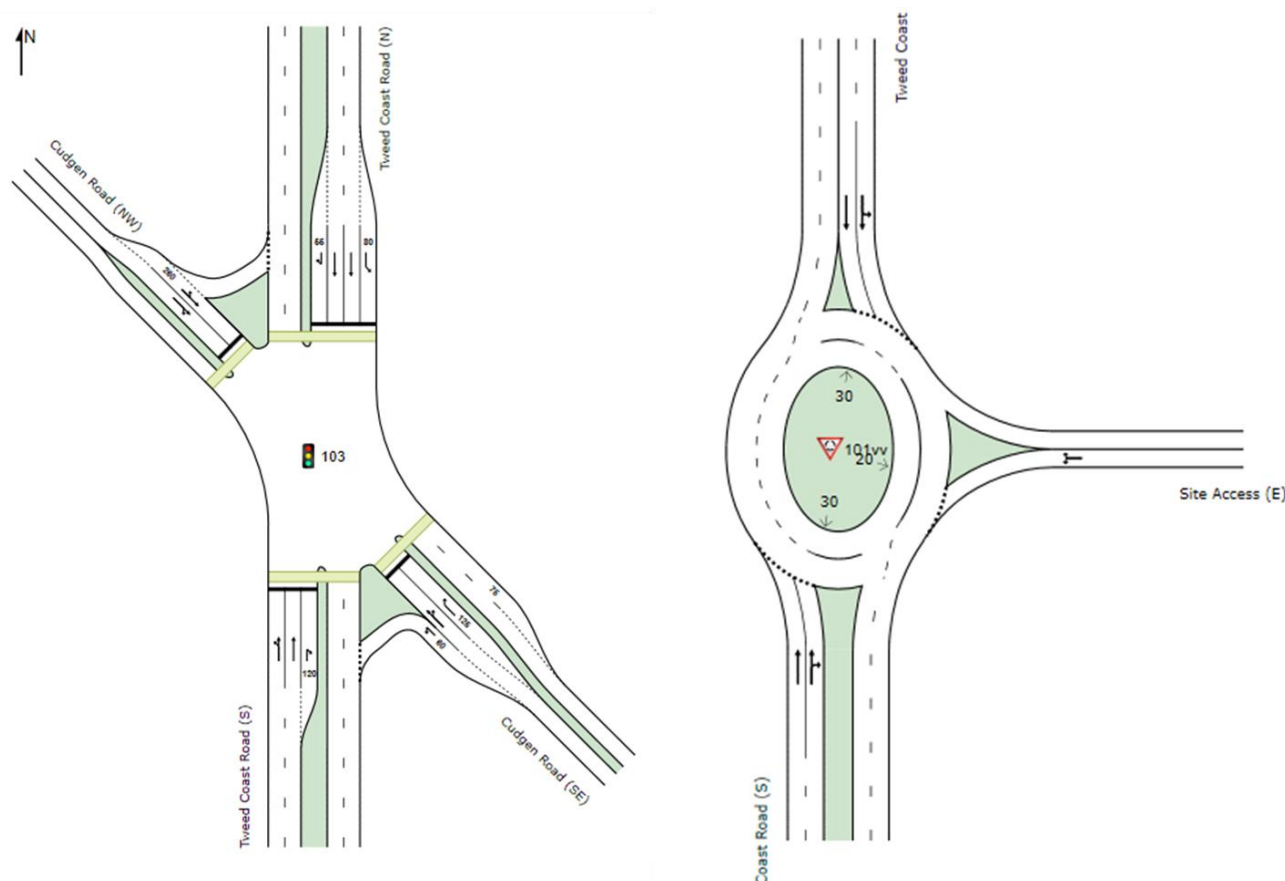


Figure 1: Proposed Tweed Coast Road / Cudgen Road Intersection and Site Access Intersection Layouts (Source: SIDRA)

3.1.2 Key Performance Parameters

Key measures of performance are generally used when assessing the operations of intersections. These include:

- Level of Service (LoS);
- Degree of Saturation (DoS) and practical capacity; and
- Queue Length for critical movements.

Allowable thresholds used for this study are defined in the following sections. These thresholds are based on standard practice adopted within New South Wales and form the basis of the determination of any deficiencies within the existing or future road network.

Level of Service

The definitions of Levels of Service and delay, as outlined in SIDRA intersection are shown in Table 1. These values are also included in Austroads' Guide to Traffic management Part 3: Transport Study and Analysis Method and acknowledge the extensive use of SIDRA method in the industry practice.



Table 1: Level of Service (Source: SIDRA)

LEVEL OF SERVICE	SIGNALISED INTERSECTION	ROUNDABOUT	UNSIGNALISED INTERSECTION
A	$d \leq 10$	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$20 < d \leq 35$	$20 < d \leq 25$
D	$35 < d \leq 55$	$35 < d \leq 50$	$25 < d \leq 35$
E	$55 < d \leq 80$	$50 < d \leq 70$	$35 < d \leq 50$
F	$80 < d$	$70 < d$	$50 < d$

Degree of Saturation

The effect of differing levels of traffic flow on the operating performance of intersections has traditionally been assessed by dividing the intersection volume with its capacity – referred to as the Degree of Saturation (DOS). As traffic volumes approach the capacity of the intersection, the DOS approaches the theoretical capacity of 1. The practical DOS thresholds used for assessment are presented in Table 2, which are industry standard across jurisdictions.

Table 2: Practical Degree of Saturation at Intersections (Source: Austroads)

INTERSECTION TYPE	PRACTICAL DOS
Sign Controlled	0.80
Roundabout	0.85
Signalised	0.90

Critical Delay

As outlined in the Guide to Traffic Impact Assessment (GTIA), for priority-controlled intersections, where average peak hour delays for any turn movement exceeds 42 seconds (the LOS C / D threshold), the intersection should be upgraded for safety reasons, where it is practical to do so. If the delay at a priority-controlled intersection is worsened, the next logical upgrade works item such as an additional turn pocket or a median for two-part turns, or then a complete intersection upgrade should be determined.

Queue Lengths

The SIDRA queue lengths reported herein are 95th percentile queues. This means that 95% of the time, queue lengths will not exceed the specified queue length. Queue lengths are deemed acceptable if queuing is contained within given storage areas. Where queuing exceeds the short lane capacity, queue lengths can also be deemed acceptable provided that queues do not impact upon major adjacent conflict points (e.g. an adjacent through lane).

3.1.3 Traffic Assessment Scenarios

The traffic analysis has been conducted under the assumption that no direct connection is available between the proposed development and the Tweed Valley Hospital. Accordingly, key intersections have been assessed across the following two scenarios:

- 2026 opening year design traffic
- 2036 10-year horizon design traffic



3.1.4 SIDRA Analysis

Isolated Analysis

A summary of the SIDRA isolated analysis of Tweed Coast Road / Cudgen Road intersection for 2026 opening year scenario and 2036 10-year horizon scenario for AM and PM peak periods is outlined in Table 3 and Table 4, respectively. Full movement summary is included in Appendix 2. It is noted that the intersection is located approximately 140m and 660m from the development access point and Tweed Valley Hospital access point, respectively.

Table 3: 2026 Tweed Coast Road / Cudgen Road Intersection Performance - Isolated (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	L1	0.299	26.8	LOS C	68.2	0.296	31.6	LOS C	63.7
	T1	0.299	21.6	LOS C	68.2	0.296	26.8	LOS C	63.8
	R3	0.649	62.3	LOS E	57.9	0.664	65.6	LOS E	49.8
SE	L3	0.057	8.7	LOS A	4.3	0.166	19.4	LOS B	20.6
	T1	0.571	41.9	LOS D	102.0	0.691	44.0	LOS D	143.6
	R1	0.571	46.1	LOS D	102.0	0.691	43.2	LOS D	162.6
N	L1	0.655	14.5	LOS B	113.7	0.560	13.2	LOS B	82.5
	T1	0.333	32.4	LOS C	66.8	0.697	49.2	LOS D	121.5
	R3	0.089	56.7	LOS E	7.2	0.216	68.8	LOS E	14.7
NW	L3	0.232	12.5	LOS B	16.2	0.268	13.4	LOS B	13.7
	T1	0.522	61.9	LOS E	34.9	0.604	55.6	LOS E	48.1
	R1	0.522	63.7	LOS E	34.9	0.604	62.3	LOS E	48.1
All vehicles		0.655	29.8	LOS C	113.7	0.697	35.4	LOS D	162.6

Table 4: 2036 Tweed Coast Road / Cudgen Road Intersection Performance - Isolated (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	L1	0.322	27.0	LOS C	74.3	0.334	33.4	LOS C	71.5
	T1	0.322	21.9	LOS C	74.3	0.334	28.6	LOS C	71.8
	R3	0.726	64.3	LOS E	66.8	0.785	70.1	LOS E	57.2
SE	L3	0.068	12.2	LOS B	4.6	0.197	21.1	LOS C	22.1
	T1	0.678	47.6	LOS D	119.8	0.805	51.5	LOS D	183.7
	R1	0.678	49.3	LOS D	124.5	0.805	47.4	LOS D	220.3
N	L1	0.718	15.5	LOS B	132.7	0.595	13.4	LOS B	89.2
	T1	0.269	32.1	LOS C	52.8	0.594	45.2	LOS D	96.9
	R3	0.094	56.7	LOS E	7.6	0.240	62.1	LOS E	15.3



MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
NW	L3	0.278	13.7	LOS B	17.3	0.318	16.0	LOS B	14.4
	T1	0.627	61.3	LOS E	42.6	0.717	56.3	LOS E	58.8
	R1	0.627	64.8	LOS E	42.6	0.717	64.3	LOS E	58.8
All vehicles		0.726	31.5	LOS C	132.7	0.805	37.0	LOS D	220.3

The SIDRA isolated analysis indicates that the overall performance of the Tweed Coast Road / Cudgen Road intersection remains within acceptable thresholds. While some movements are recorded at LOS E, this is attributed solely to intersection delays, with maximum delays not exceeding 65s. Importantly, queuing at the intersection is not expected to extend to either the development access point or the Tweed Valley Hospital access. Therefore, the intersection is considered capable of accommodating traffic generated by the proposed development, both at opening year and 10-year horizon.

Network Analysis

A summary of the SIDRA network analysis of Tweed Coast Road / Cudgen Road intersection for 2026 opening year scenario and 2036 10-year horizon scenario for AM and PM peak periods is outlined in Table 5 and Table 6, respectively. Full movement summary is included in Appendix 2. It is noted that the intersection is located approximately 140m and 660m from the development access point and Tweed Valley Hospital access point, respectively.

Table 5: 2026 Tweed Coast Road / Cudgen Road Intersection Performance (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	L1	0.315	27.0	LOS C	44.4	0.312	31.8	LOS C	41.4
	T1	0.315	21.8	LOS C	44.4	0.312	26.9	LOS C	41.5
	R3	0.683	63.1	LOS E	37.8	0.699	66.4	LOS E	32.4
SE	L3	0.060	9.6	LOS A	3.0	0.177	21.2	LOS C	13.9
	T1	0.603	43.0	LOS D	66.2	0.736	46.6	LOS D	94.2
	R1	0.603	46.8	LOS D	66.3	0.736	44.7	LOS D	108.3
N	L1	0.689	15.0	LOS B	78.8	0.589	13.5	LOS B	54.7
	T1	0.350	32.6	LOS C	43.4	0.737	51.6	LOS D	80.4
	R3	0.094	56.7	LOS E	4.7	0.227	70.9	LOS E	9.5
NW	L3	0.244	12.9	LOS B	10.0	0.283	14.2	LOS B	8.4
	T1	0.550	61.1	LOS E	22.6	0.637	55.6	LOS E	31.3
	R1	0.550	63.9	LOS E	22.6	0.637	62.8	LOS E	31.3
All vehicles		0.689	30.3	LOS C	75.8	0.737	36.5	LOS D	108.3



Table 6: 2036 Tweed Coast Road / Cudgen Road Intersection Performance (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	L1	0.339	27.2	LOS C	48.4	0.360	34.4	LOS C	47.2
	T1	0.339	22.1	LOS C	48.4	0.360	29.6	LOS C	47.3
	R3	0.764	65.7	LOS E	43.8	0.826	72.2	LOS E	37.7
SE	L3	0.073	14.2	LOS B	3.2	0.209	23.2	LOS C	15.6
	T1	0.719	50.7	LOS D	78.5	0.845	56.4	LOS E	126.2
	R1	0.719	51.1	LOS D	82.7	0.845	51.5	LOS D	149.3
N	L1	0.756	16.1	LOS B	89.0	0.627	13.8	LOS B	59.4
	T1	0.283	32.3	LOS C	34.2	0.652	47.9	LOS D	64.2
	R3	0.099	56.8	LOS E	4.9	0.253	64.7	LOS E	9.9
NW	L3	0.293	13.8	LOS B	10.8	0.335	17.4	LOS B	10.0
	T1	0.661	61.3	LOS E	27.7	0.755	57.0	LOS E	38.5
	R1	0.661	65.3	LOS E	27.7	0.755	65.4	LOS E	38.5
All vehicles		0.764	32.4	LOC C	89.0	0.845	39.3	LOS D	149.3

The SIDRA network analysis indicates that the overall performance of the Tweed Coast Road / Cudgen Road intersection remains within acceptable thresholds. While some movements are recorded at LOS E, this is attributed solely to intersection delays, with maximum delays not exceeding 73s. Importantly, queuing at the intersection is not expected to extend to either the development access point or the Tweed Valley Hospital access. Therefore, the intersection is considered capable of accommodating traffic generated by the proposed development, both at opening year and 10-year horizon.

A summary of the SIDRA network analysis of Tweed Coast Road / Site Access intersection for 2026 opening year scenario and 2036 10-year horizon scenario for AM and PM peak periods is outlined in Table 7 and Table 8, respectively. Full movement summary is included in Appendix 2. It is noted that the intersection is located approximately 140m and 660m from the development access point and Tweed Valley Hospital access point, respectively.

Table 7: 2026 Tweed Coast Road / Site Access Intersection Performance (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	T1	0.548	5.0	LOS A	14.2	0.721	3.3	LOS A	23.7
	R2	0.548	9.8	LOS A	14.2	0.721	3.3	LOS B	23.7
E	L2	0.325	8.8	LOS A	4.6	0.719	2.4	LOS B	16.7
	R2	0.325	14.0	LOS B	4.6	0.719	2.4	LOS B	16.7
N	L2	0.492	5.0	LOS A	13.0	0.378	1.3	LOS A	9.0
	T1	0.492	5.6	LOS A	13.0	0.378	1.3	LOS A	9.0
All vehicles		0.548	6.2	LOS A	14.2	0.721	7.9	LOS A	23.7



Table 8: 2036 Tweed Coast Road / Site Access Intersection Performance (Source: SIDRA, PSA)

MOVEMENT		AM PEAK				PM PEAK			
		DOS	Delay	LOS	Queue	DOS	Delay	LOS	Queue
S	T1	0.432	4.1	LOS A	9.4	0.574	5.2	LOS A	14.1
	R2	0.432	9.8	LOS A	9.0	0.574	10.9	LOS B	13.4
E	L2	0.366	9.8	LOS A	5.3	0.753	15.9	LOS B	18.2
	R2	0.366	14.9	LOS B	5.3	0.753	21.1	LOS C	18.2
N	L2	0.544	5.2	LOS A	14.7	0.407	4.0	LOS A	10.2
	T1	0.544	5.7	LOS A	15.2	0.407	4.0	LOS A	10.2
All vehicles		0.544	5.9	LOS A	15.2	0.753	2.6	LOS A	18.2

The SIDRA network analysis indicates that the proposed site access is expected to operate well within acceptable performance thresholds. Notably, queuing at the intersection is projected to reach a maximum of 22m, which remains contained within the site access area. Queuing along the external road network is anticipated to be minimal, extending only up to 12m, equivalent to approximately two vehicles. As such, the proposed site access is considered adequate to accommodate development traffic and is not expected to have a significant impact on the surrounding road network.

3.2 PARKING

Parking provisions will be made at Cudgen Connection per the statutory requirements for the specific uses. The direction received from NSW Health to avoid vehicle integration between the sites is anticipated to 'silo' parking arrangements between the sites. Whilst the overall precinct is walkable, the absence of vehicle integration is anticipated to limit any magnification of parking issues experienced by the Tweed Valley Hospital and its operations.



4. SUMMARY

PSA Consulting has been engaged by Planit Consulting to provide traffic engineering advice for the proposed Cudgen Connection Health Precinct, located on land at 741 Cudgen Road, Cudgen (formally described as Lot 6 DP727425). The site is located within the Tweed Shire Council (TSC) Local Government Area. A Traffic Impact Assessment (TIA) was prepared by PSA on 19 December 2024. This technical note outlines the response to comments and information request raised by NSW Government.

A summary of the traffic engineering advice is as follows:

- Following feedback from Transport for NSW, the SIDRA model has been updated to incorporate the following modifications:
 - The left-turn pocket on the northbound approach of the Tweed Coast Road / Cudgen Road intersection has been reduced to 80 metres to avoid creating a three-lane exit configuration at the roundabout.
 - The signal cycle time at the Tweed Coast Road / Cudgen Road intersection has been adjusted to 120s, replacing the previously used SIDRA-calculated practical cycle time.
- The SIDRA isolated analysis indicates that the overall performance of the Tweed Coast Road / Cudgen Road intersection remains within acceptable thresholds. While some movements are recorded at LOS E, this is attributed solely to intersection delays, with maximum delays not exceeding 65s. Importantly, queuing at the intersection is not expected to extend to either the development access point or the Tweed Valley Hospital access. Therefore, the intersection is considered capable of accommodating traffic generated by the proposed development, both at opening year and 10-year horizon.
- The SIDRA network analysis indicates that the overall performance of the Tweed Coast Road / Cudgen Road intersection remains within acceptable thresholds. While some movements are recorded at LOS E, this is attributed solely to intersection delays, with maximum delays not exceeding 73s. Importantly, queuing at the intersection is not expected to extend to either the development access point or the Tweed Valley Hospital access. Therefore, the intersection is considered capable of accommodating traffic generated by the proposed development, both at opening year and 10-year horizon.
- The SIDRA network analysis indicates that the proposed site access is expected to operate well within acceptable performance thresholds. Notably, queuing at the intersection is projected to reach a maximum of 22m, which remains contained within the site access area. Queuing along the external road network is anticipated to be minimal, extending only up to 12m, equivalent to approximately two vehicles. As such, the proposed site access is considered adequate to accommodate development traffic and is not expected to have a significant impact on the surrounding road network.
- Parking provisions will be made at Cudgen Connection per the statutory requirements for the specific uses. The direction received from NSW Health to avoid vehicle integration between the sites is anticipated to 'silo' parking arrangements between the sites. Whilst the overall precinct is walkable, the absence of vehicle integration is anticipated limit any magnification of parking issues experienced by the Tweed Valley Hospital and its operations.



I trust the above meet your requirements. If you have any questions, please don't hesitate to contact the undersigned.

Yours sincerely,

Hannah Richardson
RPEQ 17016
Director, Traffic and Transport Engineering
PSA Consulting (Australia) Pty Ltd

Version Details:

VERSION	DATE	DETAILS	AUTHOR	AUTHORISATION
V2	29 October 2025	Final	Daina Ruth Aliboso Ali Gohari RPEQ 32123	 Hannah Richardson RPEQ 17016



APPENDIX 1 DECEMBER 2024 TIA SIDRA ANALYSIS

AP01

LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2026 OPTION 1 AM PEAK (Network Folder: 2026 SCENARIO)]

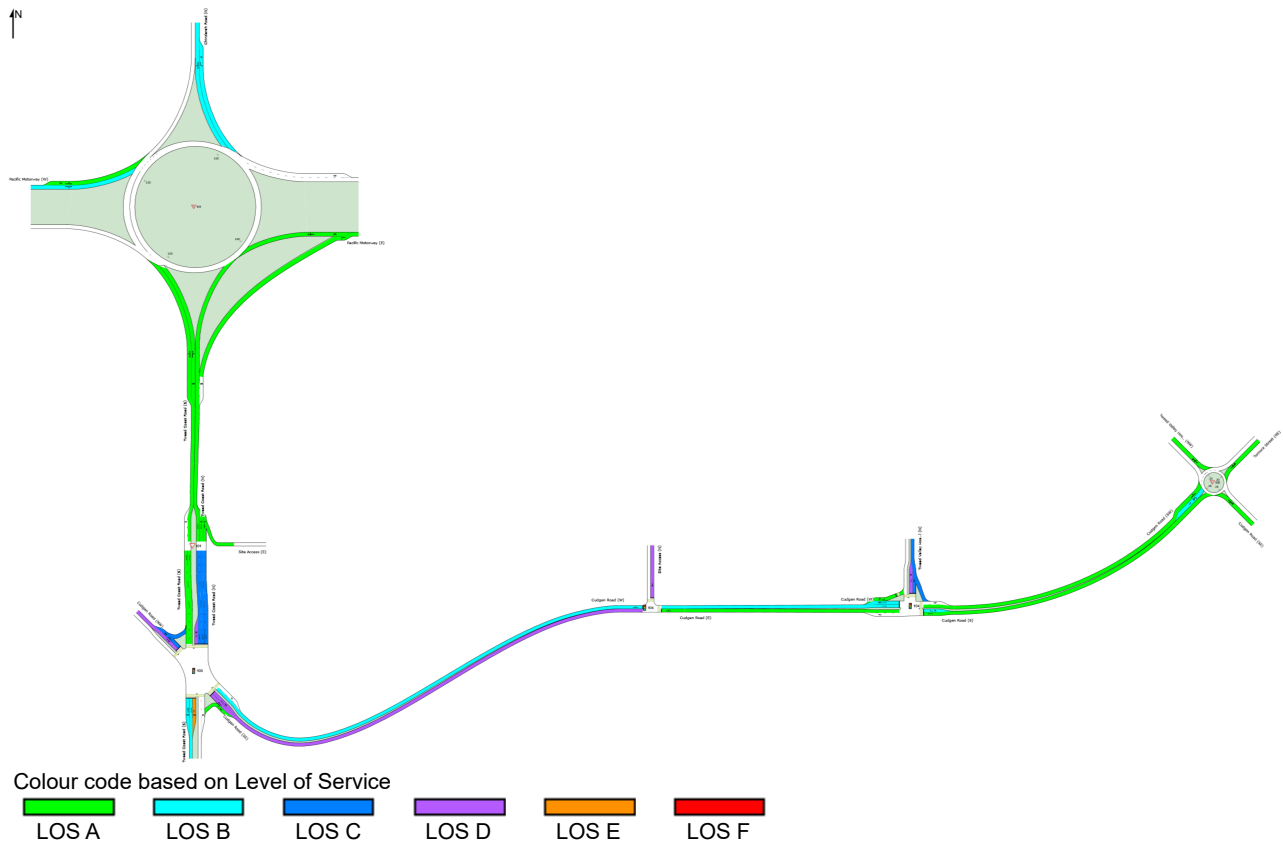
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New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



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

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LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2026 OPTION 1 PM PEAK (Network Folder: 2026 SCENARIO)]

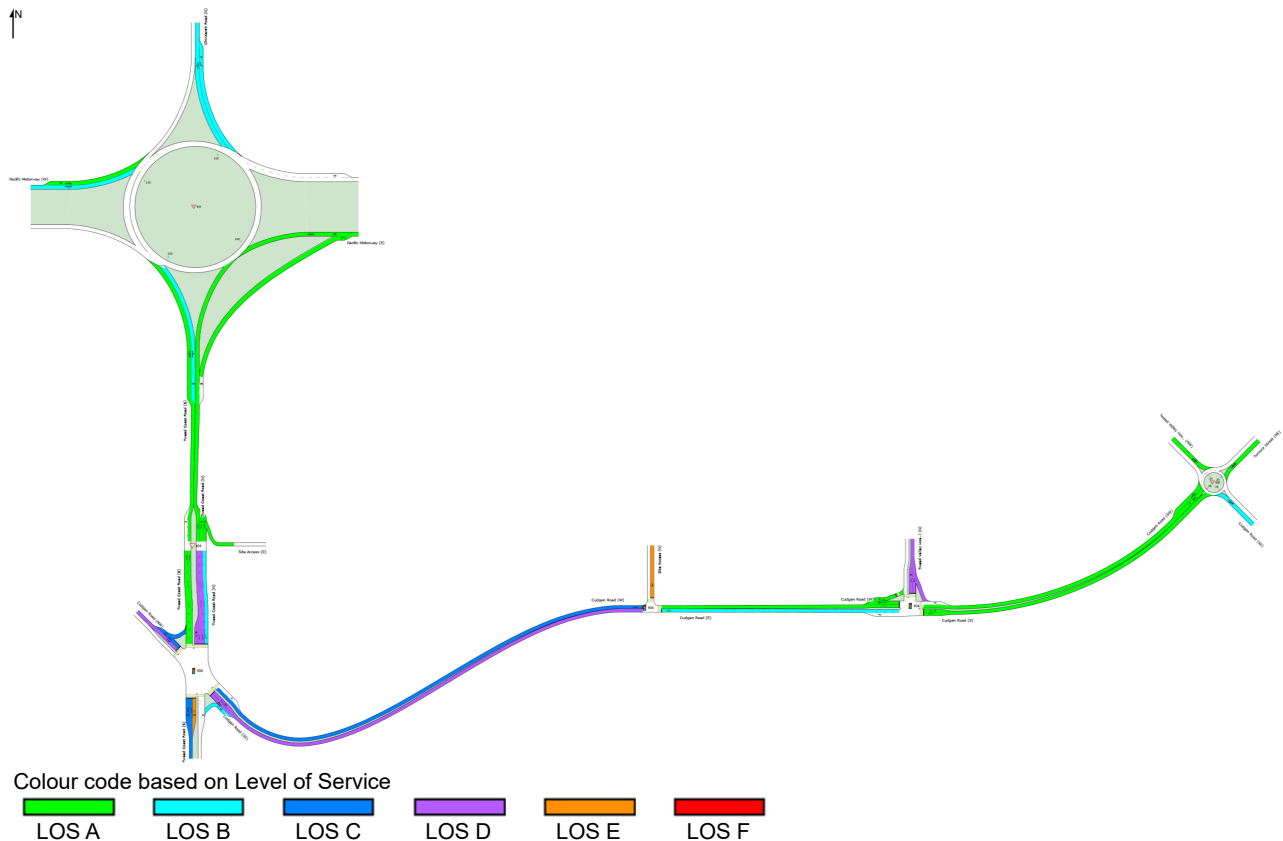
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



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

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LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 2 AM PEAK (Network Folder: 2026 SCENARIO)]

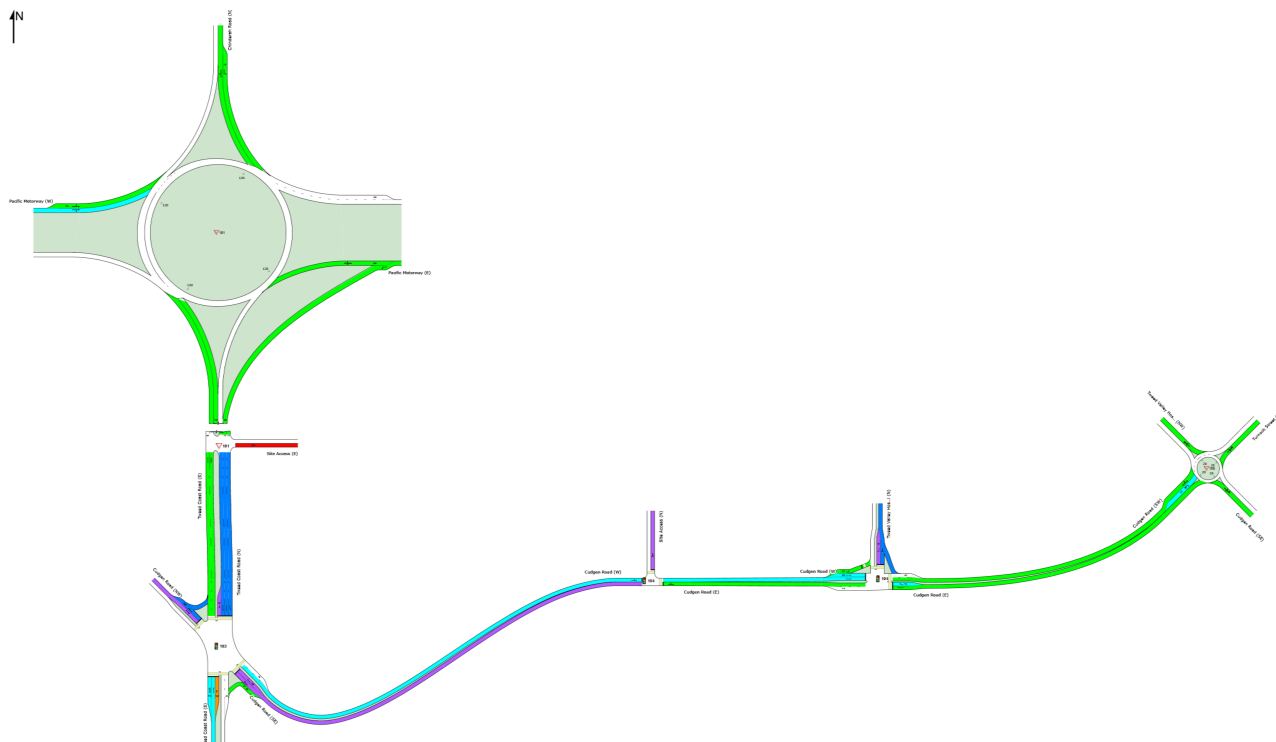
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New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2026 OPTION 2 PM PEAK (Network Folder: 2026 SCENARIO)]

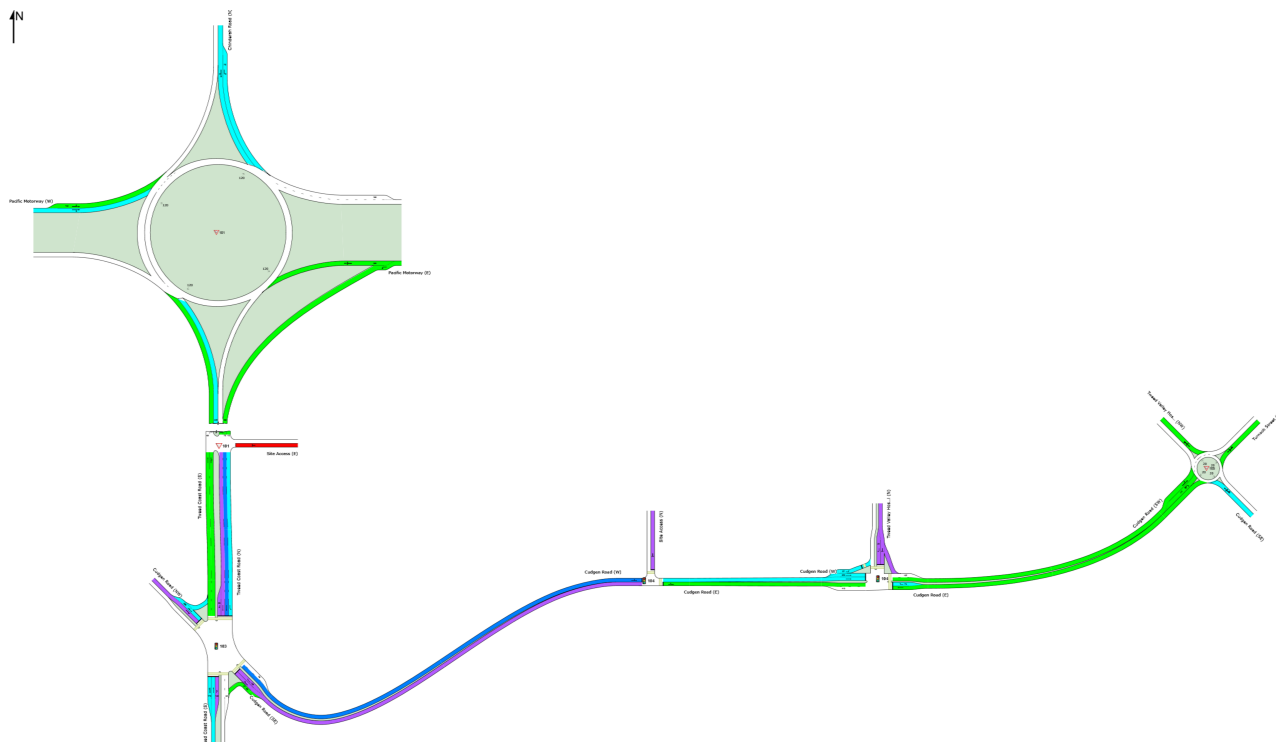
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New Network

Network Category: (None)

Network Cycle Time = 70 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 3 AM PEAK (Network Folder: 2026 SCENARIO)]

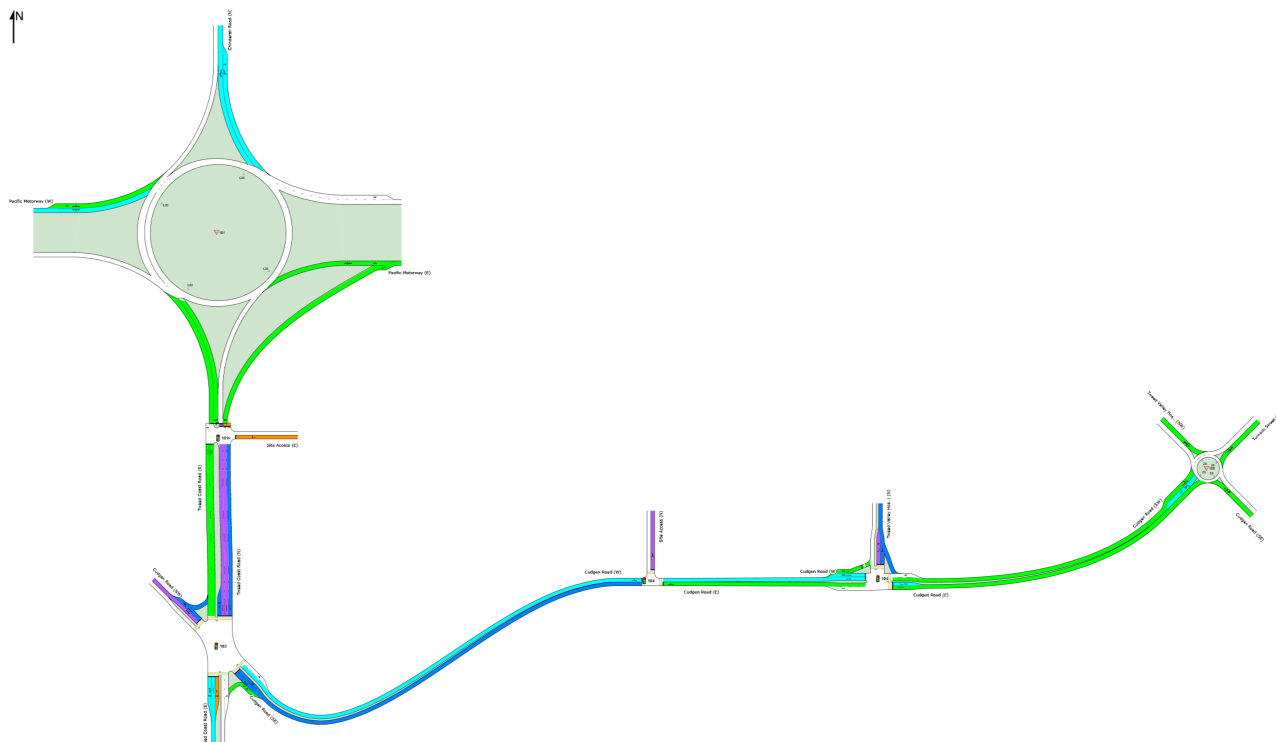
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 3 PM PEAK (Network Folder: 2026 SCENARIO)]

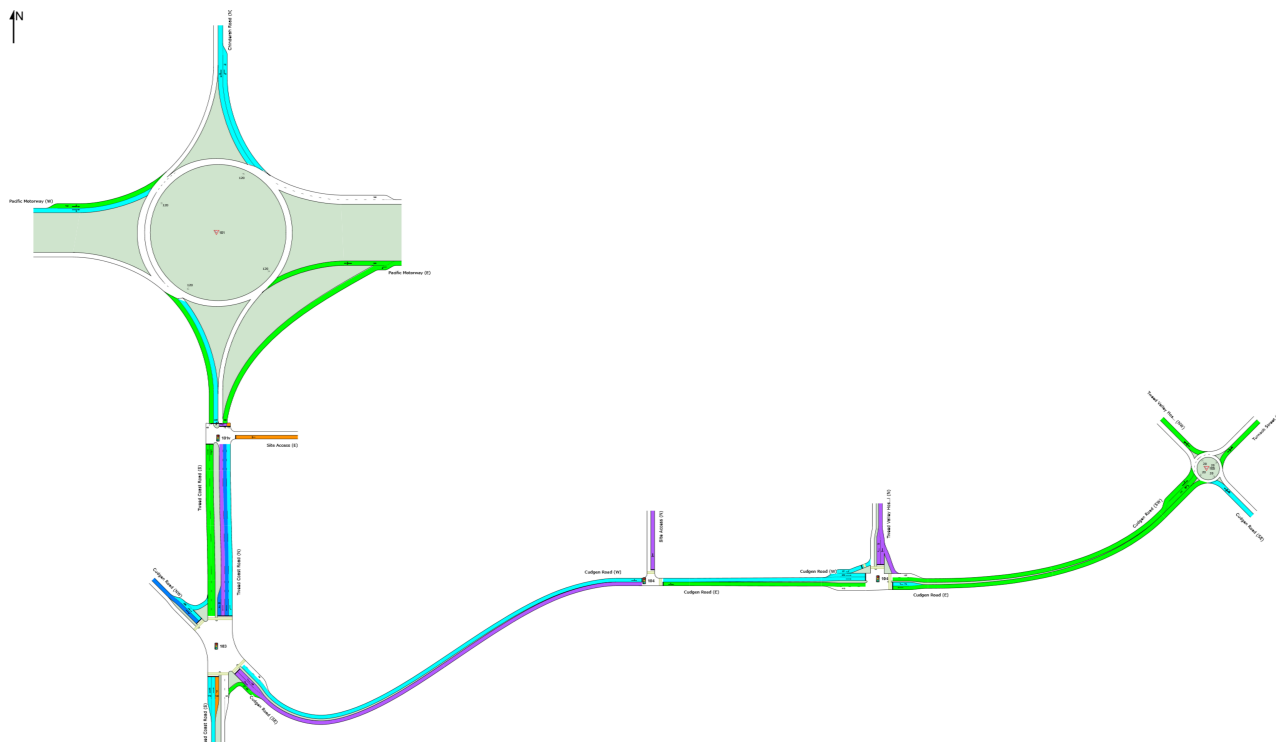
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 70 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 4 AM PEAK (Network Folder: 2026 SCENARIO)]

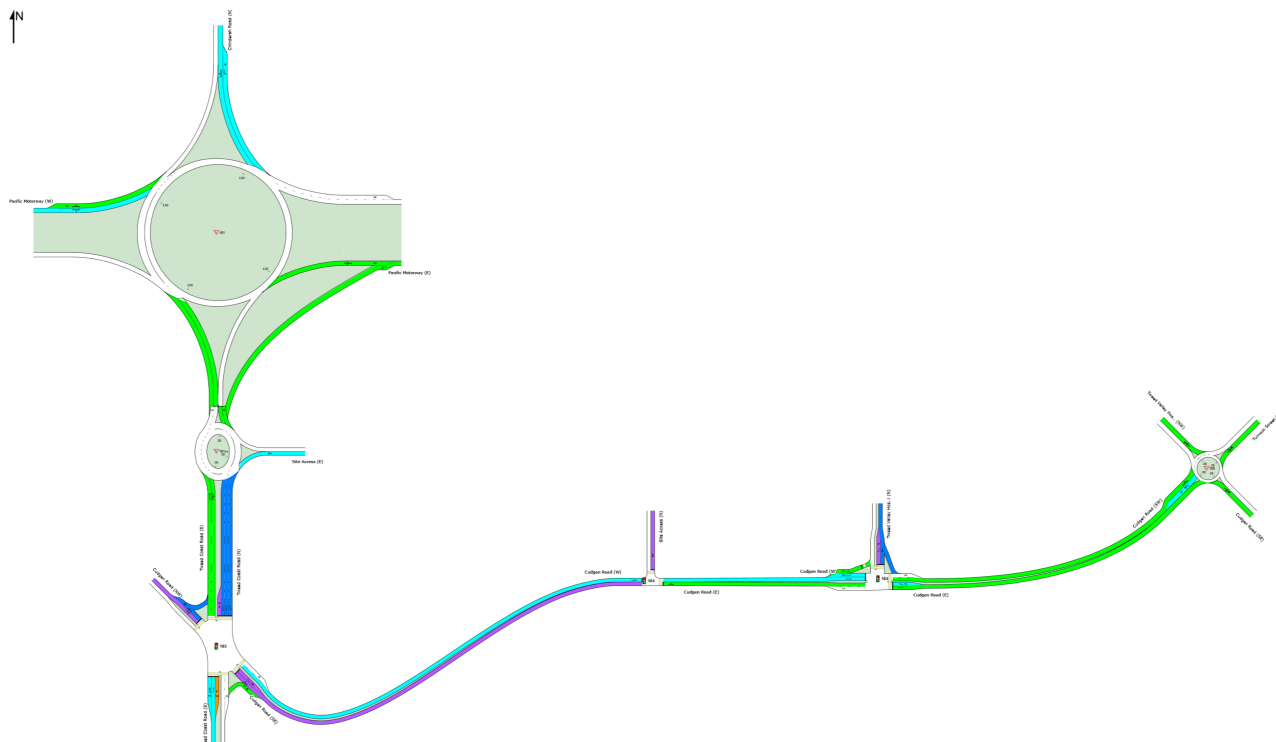
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2026 OPTION 4 PM PEAK (Network Folder: 2026 SCENARIO)]

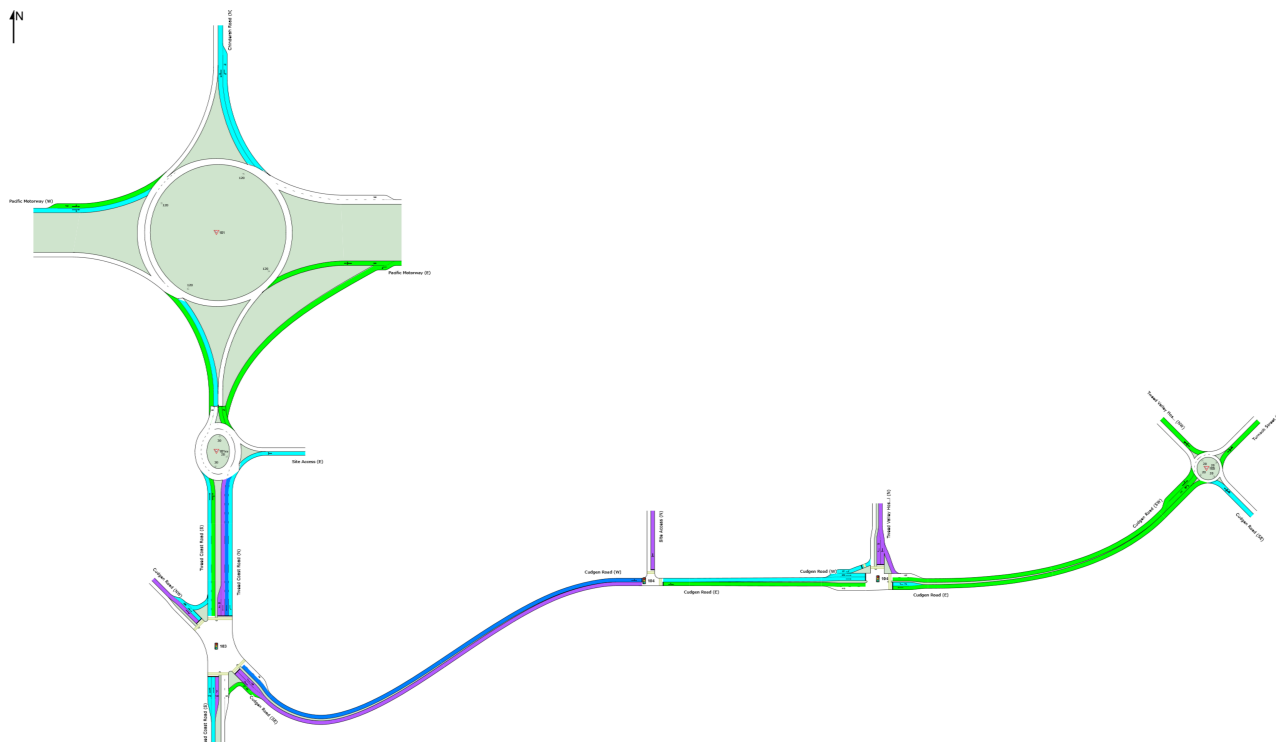
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 70 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 5 AM PEAK (Network Folder: 2026 SCENARIO)]

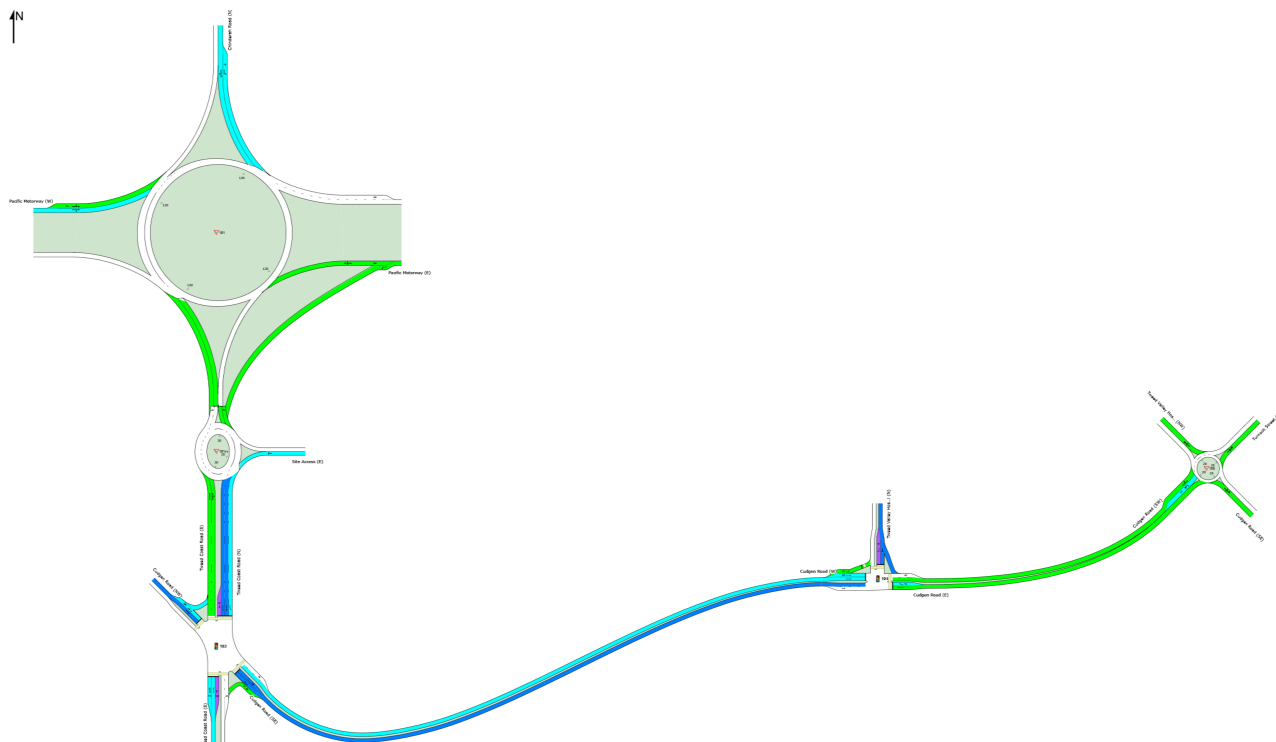
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 70 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2026 OPTION 5 PM PEAK (Network Folder: 2026 SCENARIO)]

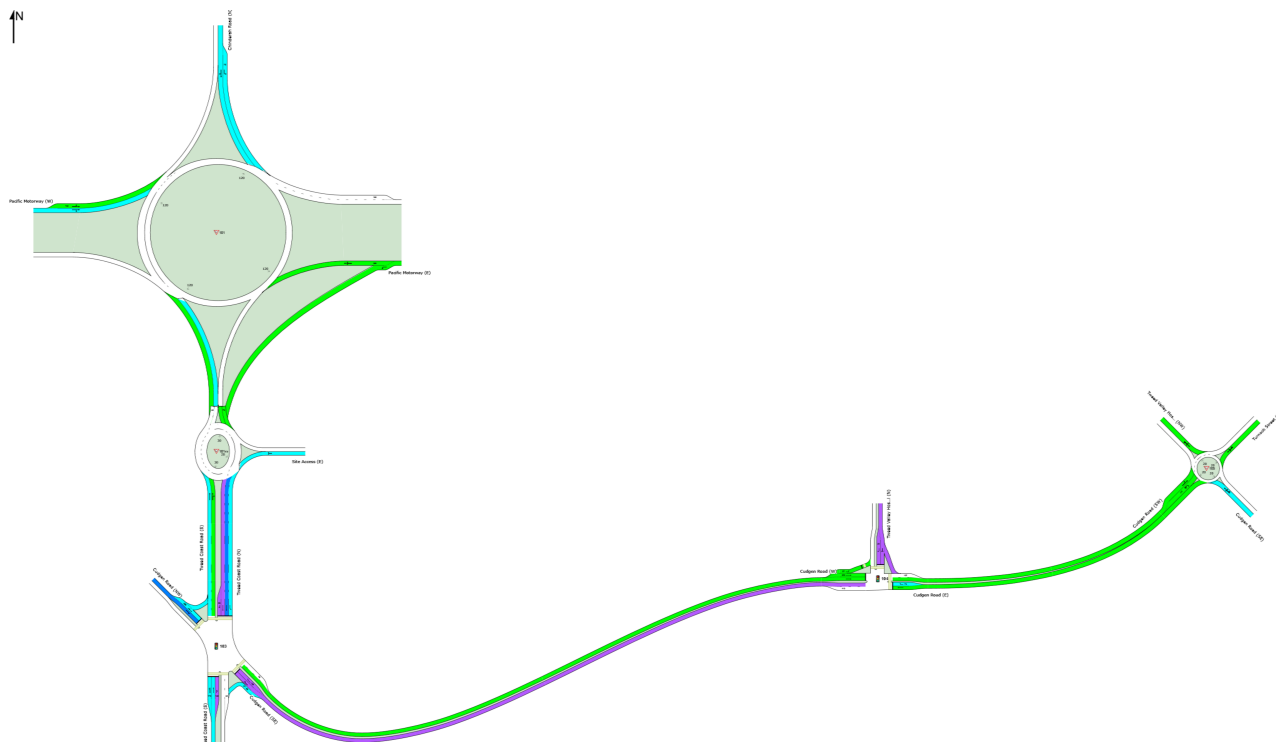
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 70 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 5 (NO TVH) AM PEAK
(Network Folder: 2026 SCENARIO)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 80 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2026 OPTION 5 (NO TVH) PM PEAK (Network Folder: 2026 SCENARIO)]

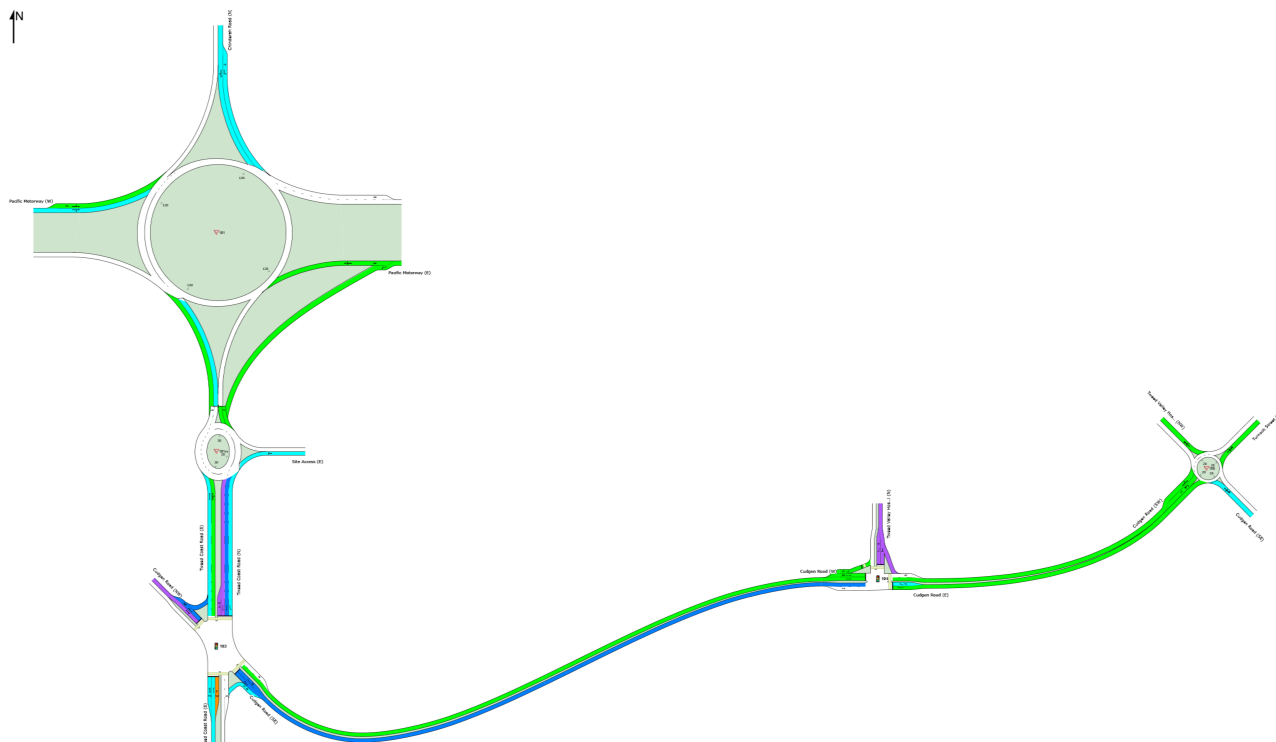
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 80 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2036 OPTION 1 AM PEAK (Network Folder: 2036 SCENARIO)]

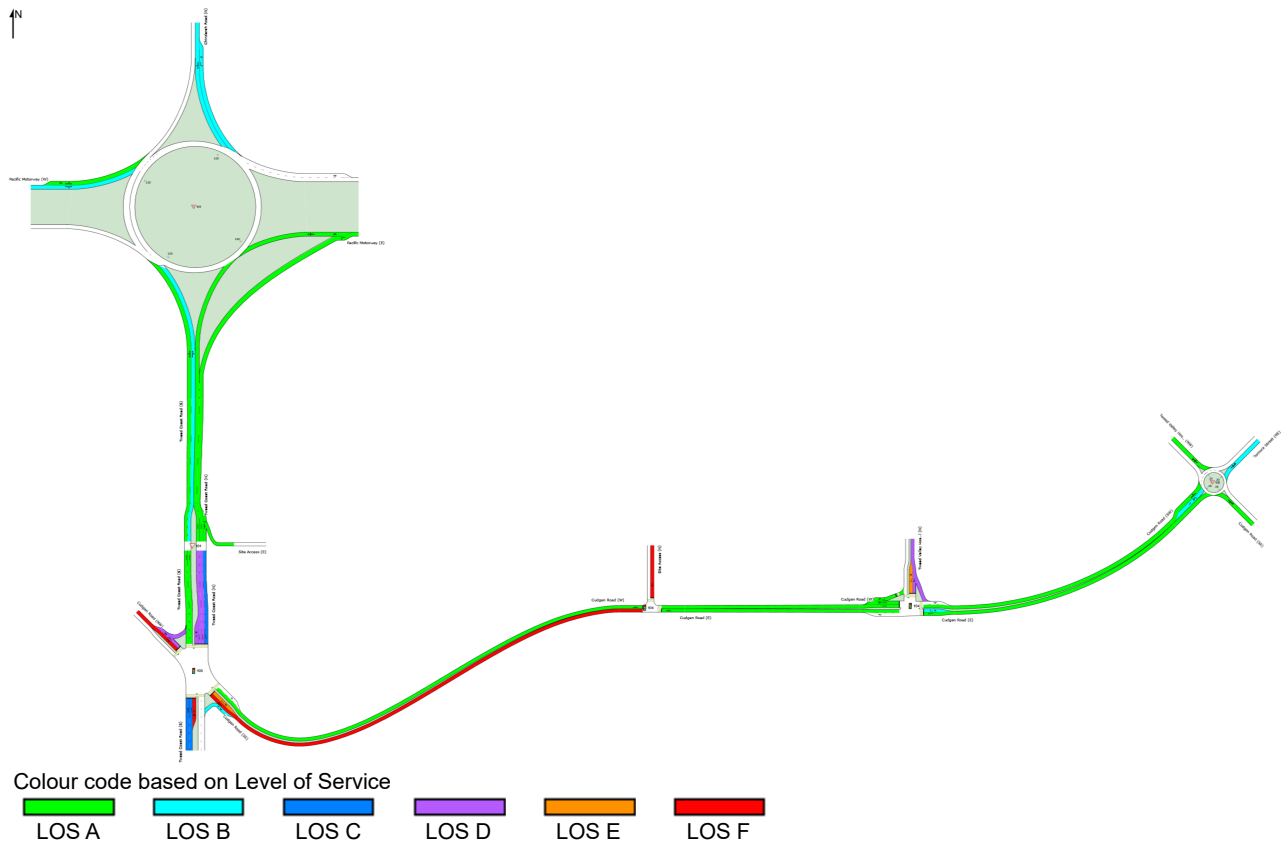
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 130 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ Network: N101 [2036 OPTION 1 PM PEAK (Network Folder: 2036 SCENARIO)]

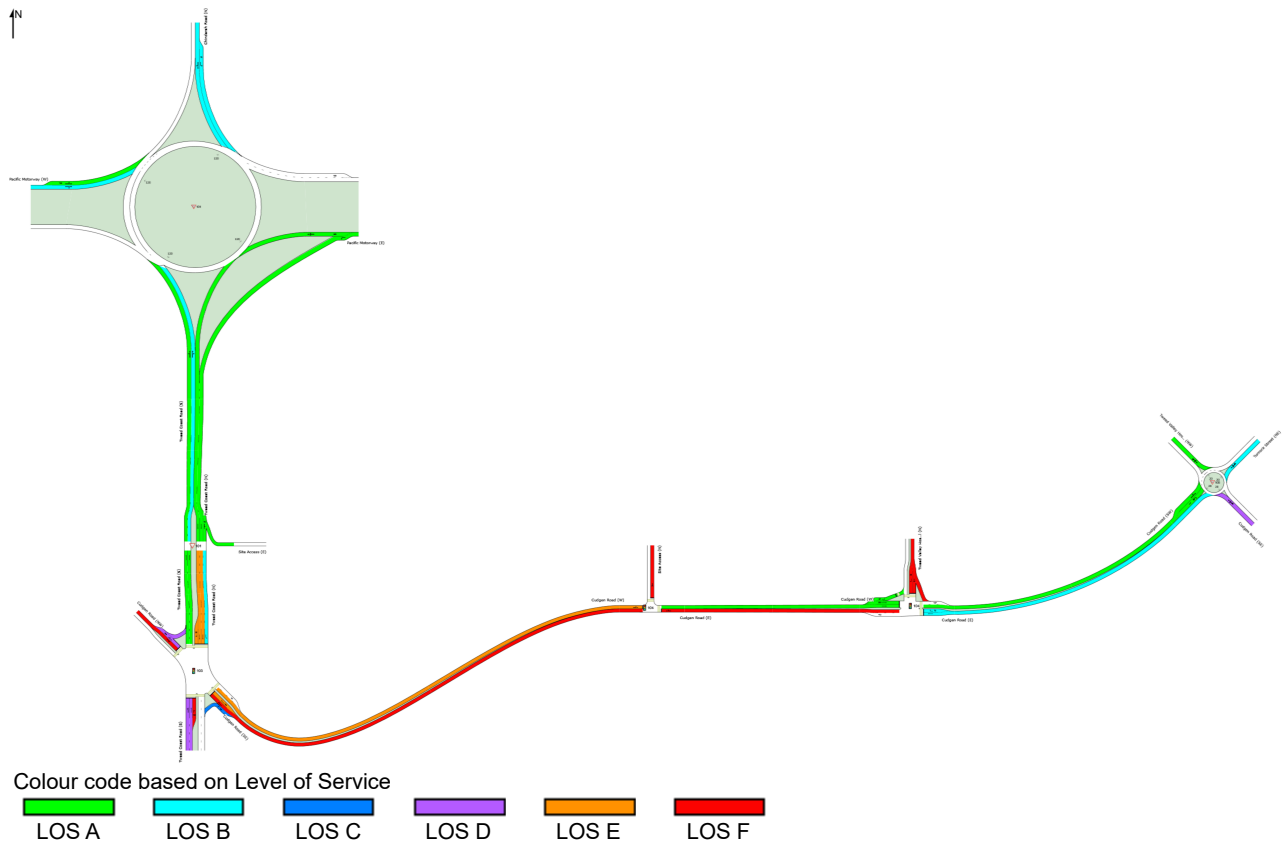
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 150 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 2 AM PEAK (Network Folder: 2036 SCENARIO)]

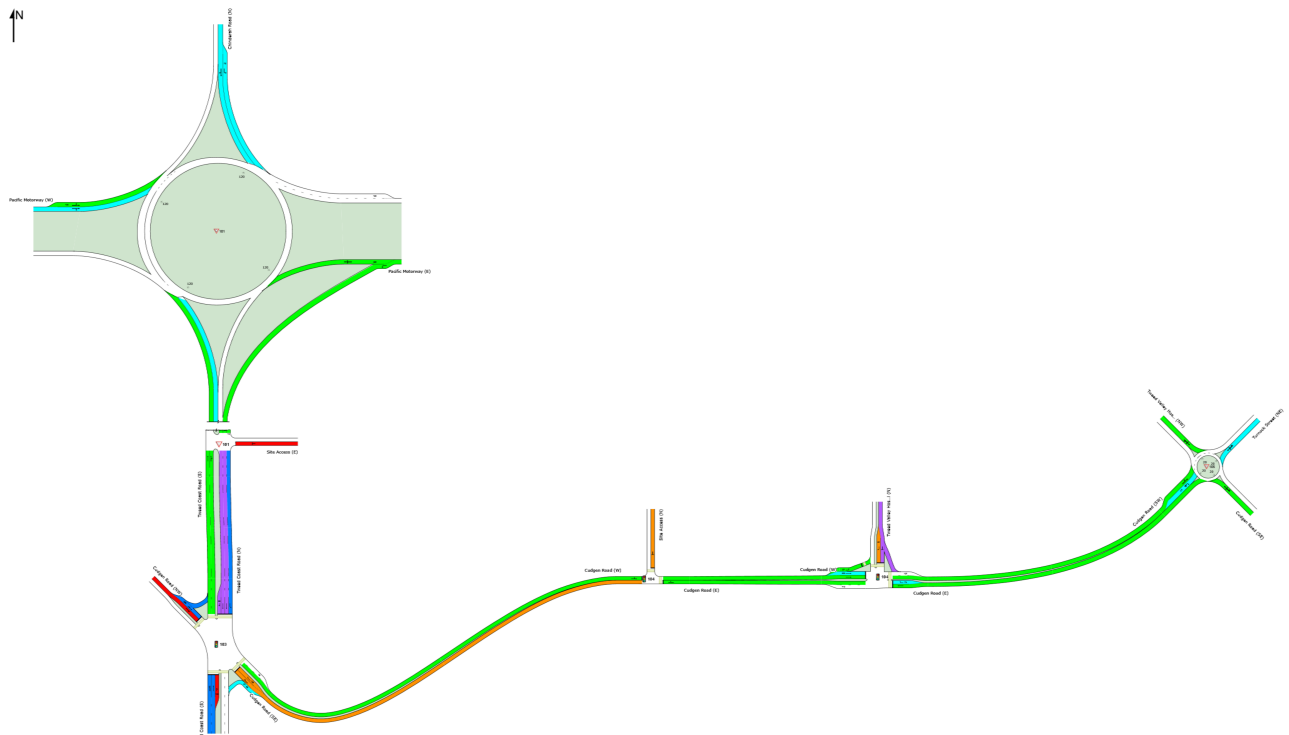
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 2 PM PEAK (Network Folder: 2036 SCENARIO)]

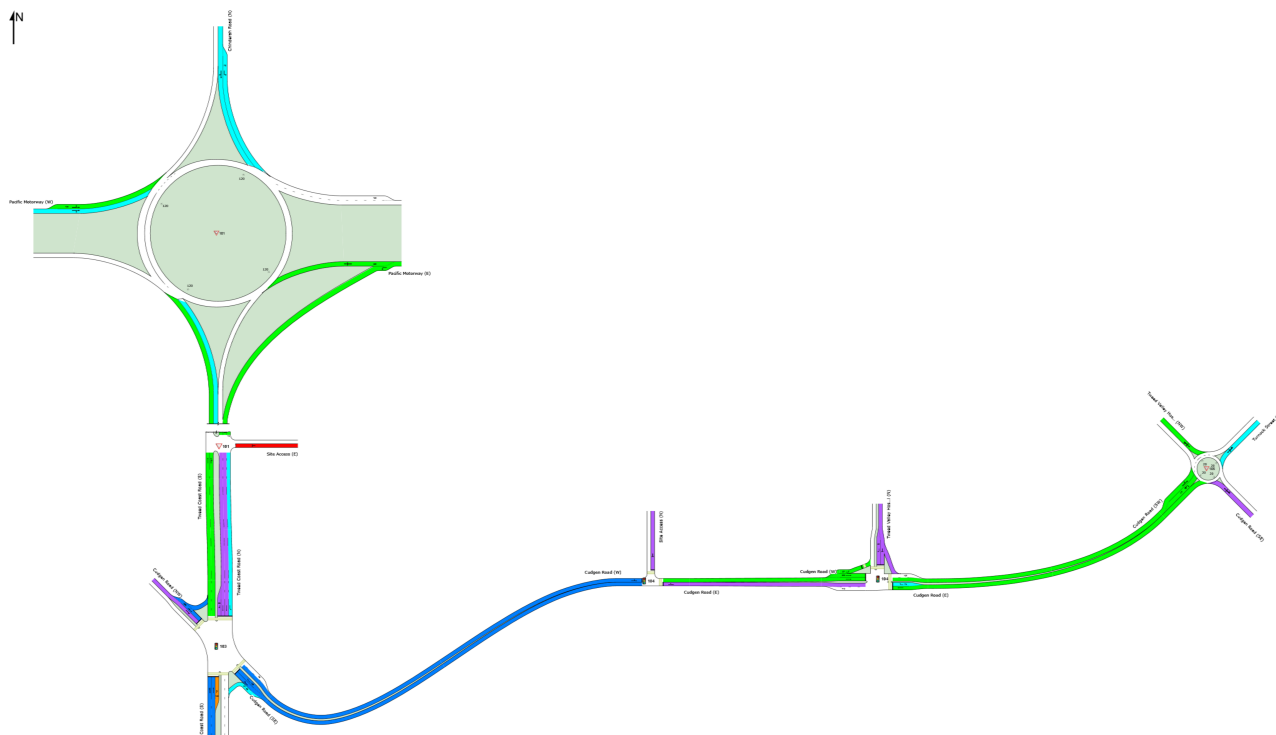
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 3 AM PEAK (Network Folder: 2036 SCENARIO)]

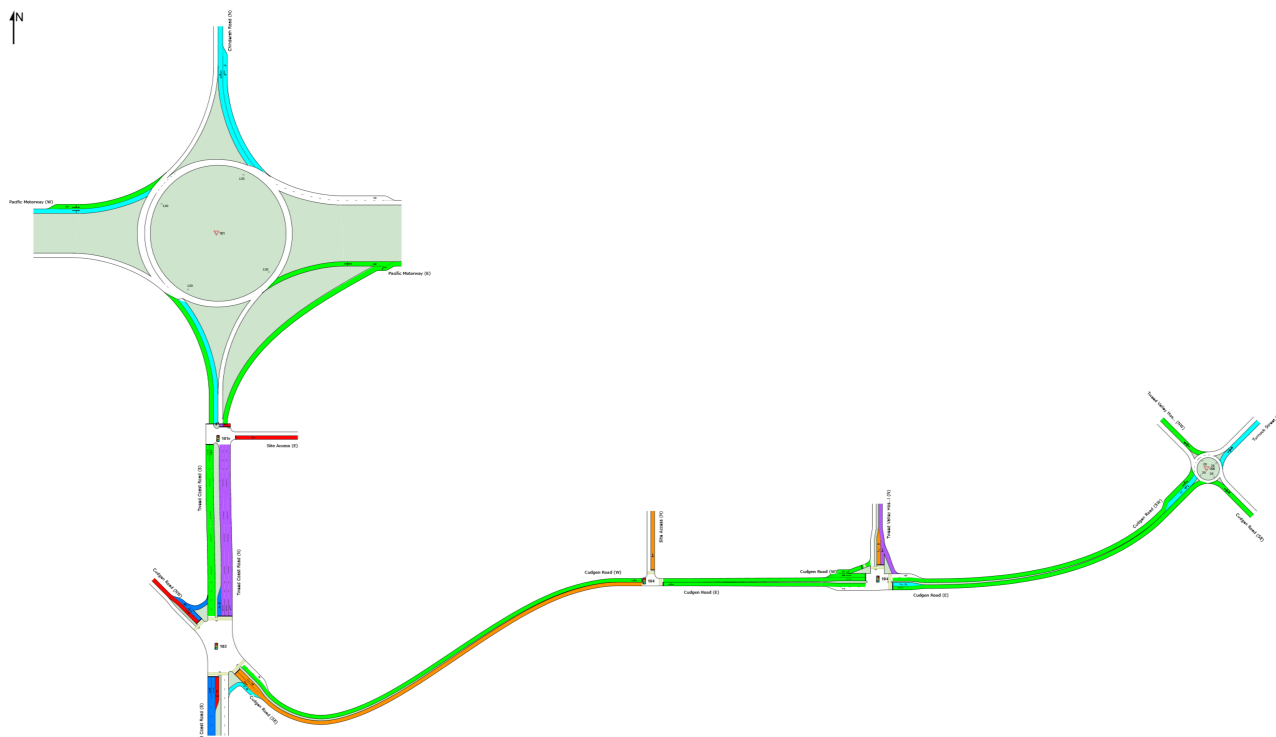
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service

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

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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 3 PM PEAK (Network Folder: 2036 SCENARIO)]

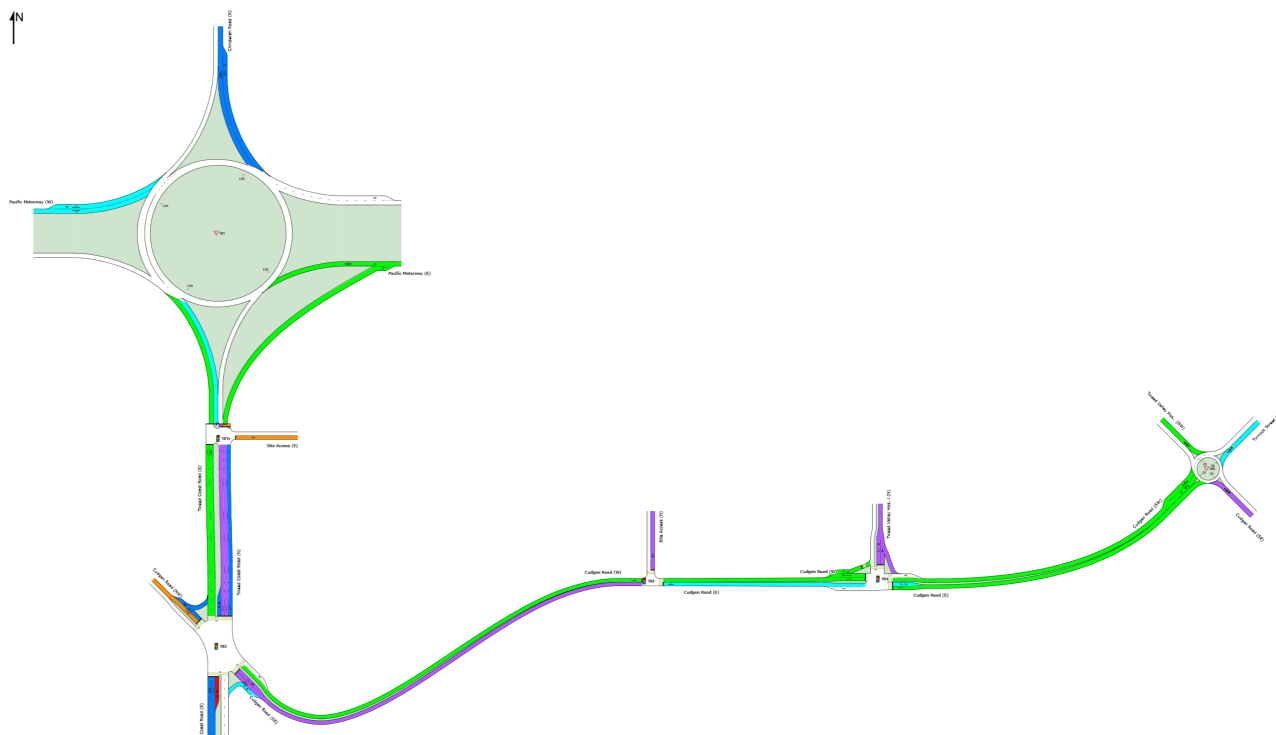
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 4 AM PEAK (Network Folder: 2036 SCENARIO)]

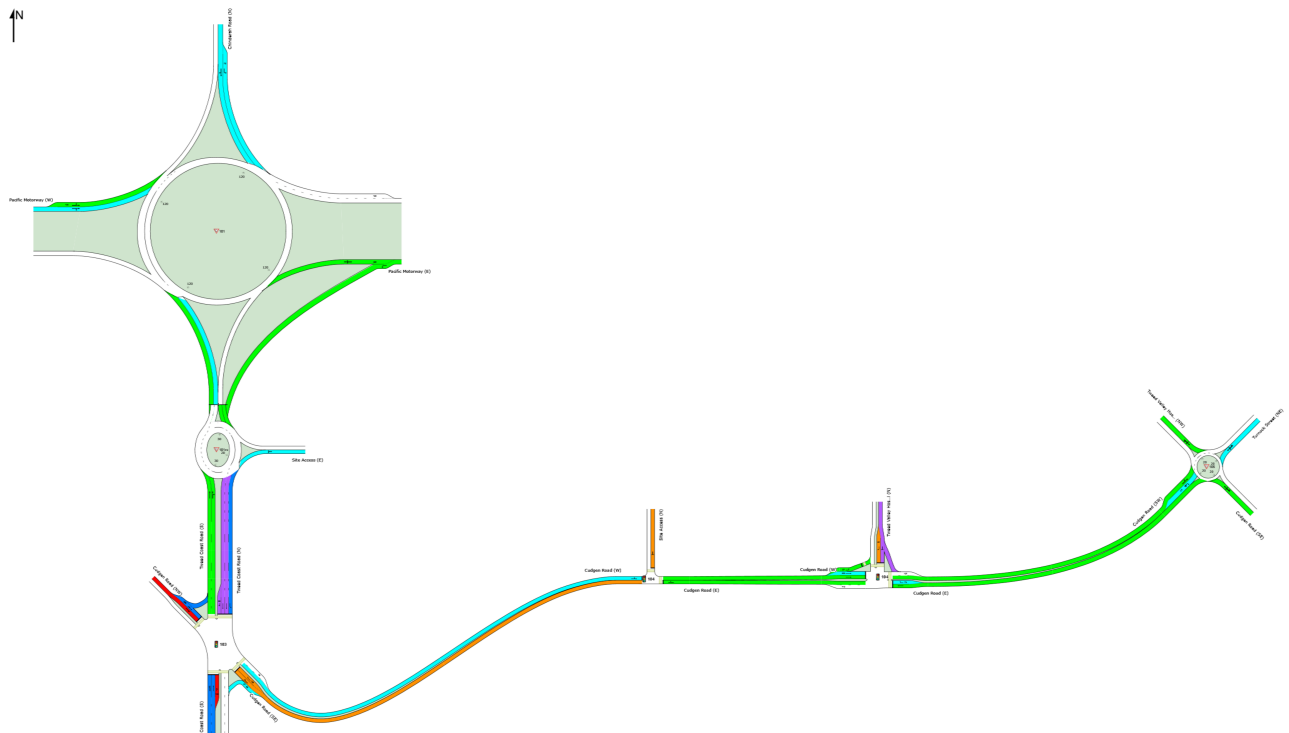
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 120 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 4 PM PEAK (Network Folder: 2036 SCENARIO)]

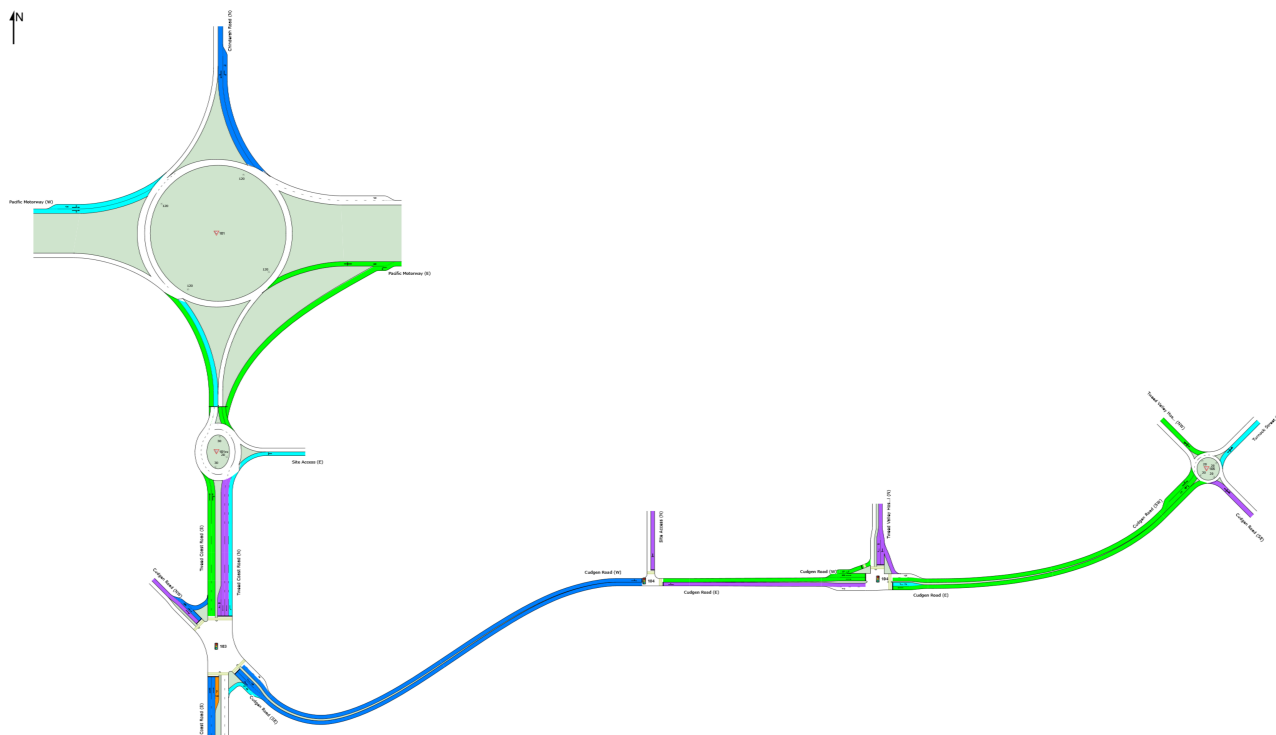
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 104 [Cudgen Road/Site Access]



Colour code based on Level of Service

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

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

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Project: C:\Volumes\elevate\psa-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 5 AM PEAK (Network Folder: 2036 SCENARIO)]

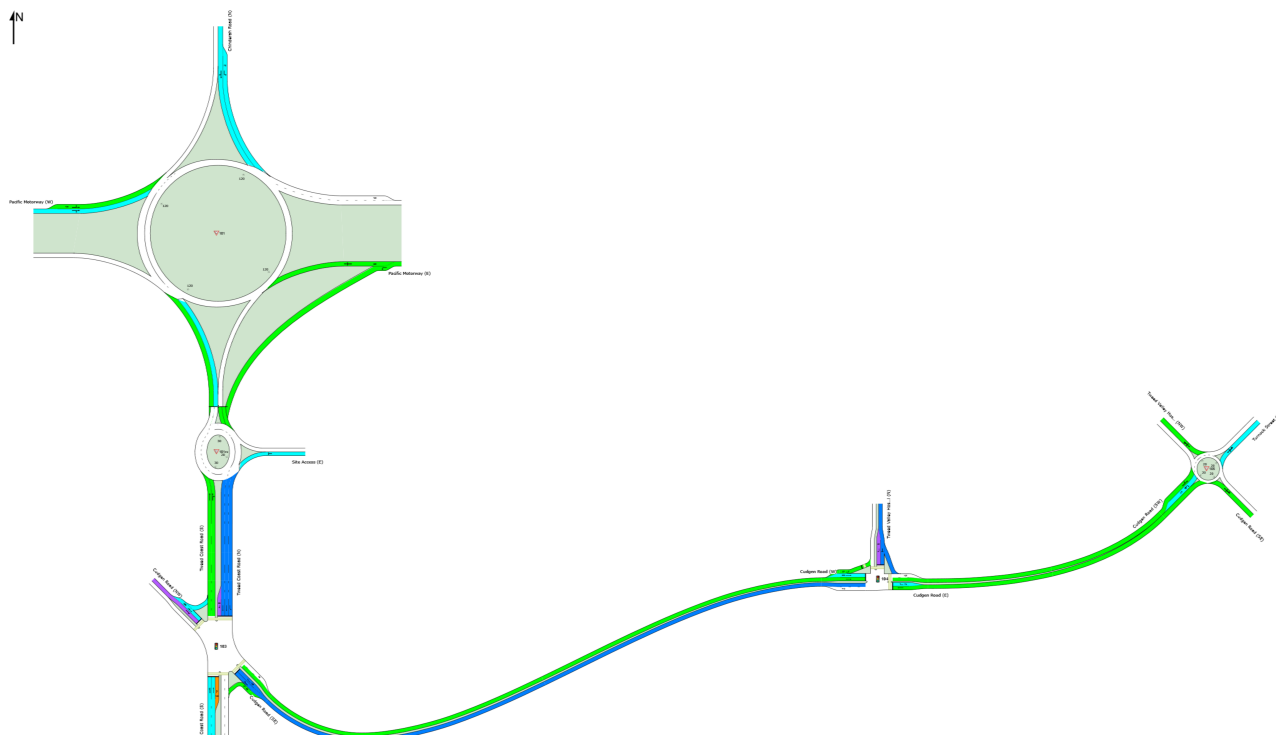
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 80 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 5 PM PEAK (Network Folder: 2036 SCENARIO)]

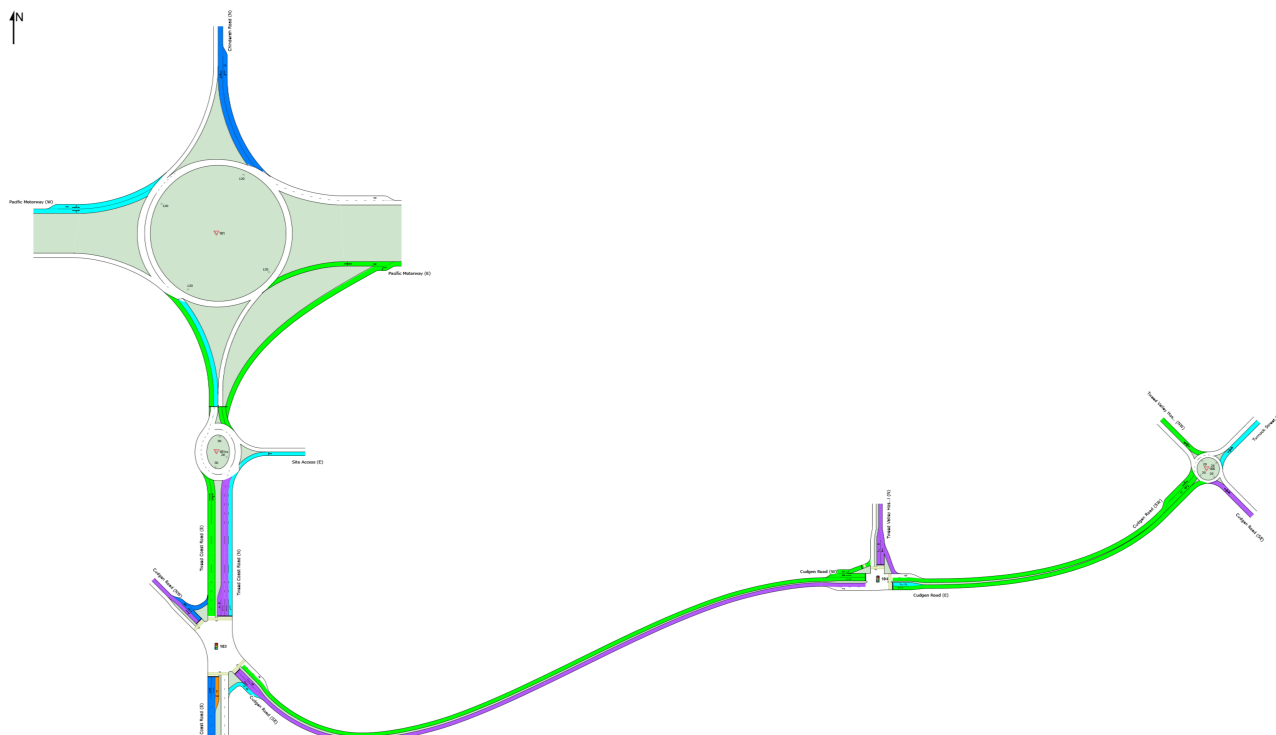
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 80 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



Colour code based on Level of Service



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

LEVEL OF SERVICE

Lane Level of Service

■ ■ Network: N101 [2036 OPTION 5 (NO TVH) AM PEAK
(Network Folder: 2036 SCENARIO)]

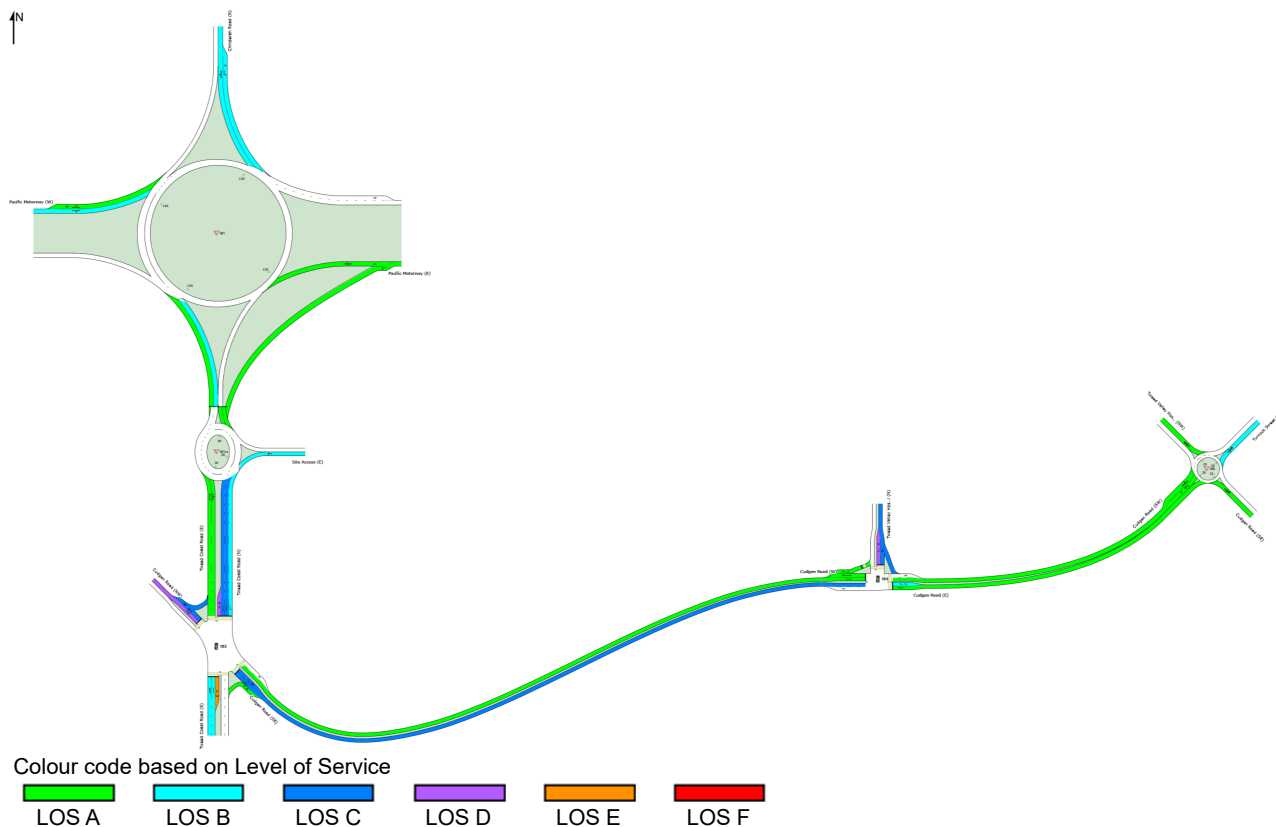
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Network

Network Category: (None)

Network Cycle Time = 90 seconds (Network Practical Cycle Time)

Critical Site / Common Control Group that determines the Network Cycle Time (for Coordinated Sites): 103 [Tweed Coast Road/Cudgen Road]



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

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\3_Sidra\Superseded\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

Project: C:\Volumes\elevate\psa-data\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
13 Sidra\Superseded\1831 Cudgen Connection_Updated TIA_241212_V3.sip9



APPENDIX 2 OPTION 5 SIDRA ANALYSIS

AP02

MOVEMENT SUMMARY

Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Tweed Coast Road (S)															
1a	L1	All MCs	7	28.6	7	28.6	0.299	26.8	LOS C	9.5	68.2	0.67	0.58	0.67	42.1
2	T1	All MCs	518	2.5	518	2.5	0.299	21.6	LOS C	9.5	68.2	0.67	0.57	0.67	38.7
3b	R3	All MCs	136	5.1	136	5.1	* 0.649	62.3	LOS E	7.9	57.9	1.00	0.82	1.04	31.3
Approach			661	3.3	661	3.3	0.649	30.1	LOS C	9.5	68.2	0.74	0.63	0.75	36.0
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	68	13.2	68	13.2	0.057	8.7	LOS A	0.6	4.3	0.20	0.63	0.20	52.0
22	T1	All MCs	72	4.2	72	4.2	0.571	41.9	LOS D	14.3	102.0	0.92	0.81	0.92	36.7
23a	R1	All MCs	485	1.9	485	1.9	0.571	46.1	LOS D	14.3	102.0	0.92	0.81	0.92	30.6
Approach			625	3.4	625	3.4	0.571	41.5	LOS D	14.3	102.0	0.85	0.79	0.85	33.4
North: Tweed Coast Road (N)															
7a	L1	All MCs	721	1.8	721	1.8	* 0.655	14.5	LOS B	16.0	113.7	0.73	0.80	0.73	45.1
8	T1	All MCs	291	13.4	291	13.4	0.333	32.4	LOS C	8.6	66.8	0.79	0.65	0.79	33.0
9b	R3	All MCs	18	11.1	18	11.1	0.089	56.7	LOS E	0.9	7.2	0.91	0.71	0.91	23.9
Approach			1030	5.2	1030	5.2	0.655	20.3	LOS C	16.0	113.7	0.75	0.75	0.75	40.9
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	51	0.0	51	0.0	0.232	12.5	LOS B	2.3	16.2	0.84	0.73	0.84	34.1
28	T1	All MCs	90	0.0	90	0.0	* 0.522	61.9	LOS E	4.9	34.9	0.97	0.76	0.97	34.2
29a	R1	All MCs	12	16.7	12	16.7	0.522	63.7	LOS E	4.9	34.9	1.00	0.77	1.00	29.8
Approach			153	1.3	153	1.3	0.522	45.6	LOS D	4.9	34.9	0.93	0.75	0.93	33.8
All Vehicles			2469	4.0	2469	4.0	0.655	29.8	LOS C	16.0	113.7	0.78	0.73	0.78	36.8

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

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)												
P1	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
SouthEast: Cudgen Road (SE)												

P5 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)											
P3 Full	5	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)											
P7 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	8	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)												
P1	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
SouthEast: Cudgen Road (SE)												

P5 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)											
P3 Full	5	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)											
P7 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	8	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)												
P1	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
SouthEast: Cudgen Road (SE)												

P5	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)												
P3	Full	5	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)												
P7	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All	Pedestrians	8	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)												
P1	Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
SouthEast: Cudgen Road (SE)												

P5 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)											
P3 Full	5	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)											
P7 Full	1	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians	8	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 5 (NO TVH) AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [2026 Option 5 AM Peak (Network Folder: NO TVH)]**

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV] veh/h	%	[Total HV] veh/h	%	v/c	sec	[Veh. veh	Dist] m				km/h	
South: Tweed Coast Road (S)															
2	T1	All MCs	877	4.4	877	4.4	0.548	5.0	LOS A	2.0	14.2	0.30	0.45	0.30	51.1
3	R2	All MCs	226	0.0	226	0.0	0.548	9.8	LOS A	2.0	14.2	0.31	0.48	0.31	43.6
Approach			1103	3.5	1103	3.5	0.548	6.0	LOS A	2.0	14.2	0.30	0.46	0.30	50.0
East: Site Access (E)															
4	L2	All MCs	89	0.0	89	0.0	0.325	8.8	LOS A	0.7	4.6	0.76	0.84	0.77	33.5
6	R2	All MCs	99	0.0	99	0.0	0.325	14.0	LOS B	0.7	4.6	0.76	0.84	0.77	45.9
Approach			188	0.0	188	0.0	0.325	11.5	LOS B	0.7	4.6	0.76	0.84	0.77	42.3
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.492	5.0	LOS A	1.8	13.0	0.56	0.48	0.56	50.5
8	T1	All MCs	996	5.7	996	5.7	0.492	5.6	LOS A	1.8	13.0	0.57	0.48	0.57	49.0
Approach			1211	4.7	1211	4.7	0.492	5.5	LOS A	1.8	13.0	0.56	0.48	0.56	49.3
All Vehicles			2502	3.8	2502	3.8	0.548	6.2	LOS A	2.0	14.2	0.46	0.50	0.46	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2026 Option 5 AM Peak (Network Folder: NO TVH)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Tweed Coast Road (S)														
1a	L1	All MCs	7	28.6	7	28.6	0.315	27.0	LOS C	6.2	44.4	0.68	0.68	42.0
2	T1	All MCs	545	2.5	545	2.5	0.315	21.8	LOS C	6.2	44.4	0.68	0.68	35.1
3b	R3	All MCs	143	5.1	143	5.1	* 0.683	63.1	LOS E	5.2	37.8	1.00	1.07	31.1
Approach			696	3.3	696	3.3	0.683	30.4	LOS C	6.2	44.4	0.74	0.63	33.6
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	72	13.2	72	13.2	0.060	9.6	LOS A	0.4	3.0	0.21	0.21	51.9
22	T1	All MCs	76	4.2	76	4.2	0.603	43.0	LOS D	9.3	66.2	0.93	0.93	36.6
23a	R1	All MCs	511	1.9	511	1.9	0.603	46.8	LOS D	9.3	66.3	0.93	0.93	28.2
Approach			658	3.4	658	3.4	0.603	42.3	LOS D	9.3	66.3	0.86	0.80	31.7
North: Tweed Coast Road (N)														
7a	L1	All MCs	759	1.8	759	1.8	* 0.689	15.0	LOS B	10.7	75.8	0.75	0.81	44.9
8	T1	All MCs	306	13.4	306	13.4	0.350	32.6	LOS C	5.6	43.4	0.79	0.65	32.9
9b	R3	All MCs	19	11.1	19	11.1	0.094	56.7	LOS E	0.6	4.7	0.91	0.91	23.9
Approach			1084	5.2	1084	5.2	0.689	20.7	LOS C	10.7	75.8	0.76	0.76	40.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	54	0.0	54	0.0	0.244	12.9	LOS B	1.4	10.0	0.84	0.73	32.4
28	T1	All MCs	95	0.0	95	0.0	* 0.550	61.1	LOS E	3.2	22.6	0.97	0.77	34.2
29a	R1	All MCs	13	16.7	13	16.7	0.550	63.9	LOS E	3.2	22.6	1.00	0.78	29.7
Approach			161	1.3	161	1.3	0.550	45.3	LOS D	3.2	22.6	0.93	0.75	33.5
All Vehicles			2599	4.0	2599	4.0	0.689	30.3	LOS C	10.7	75.8	0.79	0.74	35.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance										
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m/sec
South: Tweed Coast Road (S)										
P1	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	0.96

SouthEast: Cudgen Road (SE)											
P5	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)											
P7	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 5 (NO TVH) PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N102 [2026 Option 5 PM Peak (Network Folder: NO TVH)]**

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h	%	veh/h	%	v/c	sec							km/h
South: Tweed Coast Road (S)															
2	T1	All MCs	1169	3.5	1169	3.5	0.721	7.5	LOS A	3.3	23.7	0.50	0.55	0.51	50.3
3	R2	All MCs	81	0.0	81	0.0	0.721	11.3	LOS B	3.3	23.7	0.53	0.56	0.55	42.7
Approach			1251	3.3	1251	3.3	0.721	7.7	LOS A	3.3	23.7	0.50	0.55	0.52	49.9
East: Site Access (E)															
4	L2	All MCs	241	0.0	241	0.0	0.719	14.2	LOS B	2.4	16.7	0.86	1.06	1.35	27.7
6	R2	All MCs	224	0.0	224	0.0	0.719	19.4	LOS B	2.4	16.7	0.86	1.06	1.35	42.1
Approach			465	0.0	465	0.0	0.719	16.7	LOS B	2.4	16.7	0.86	1.06	1.35	37.1
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.378	4.0	LOS A	1.3	9.0	0.31	0.39	0.31	51.9
8	T1	All MCs	952	4.0	952	4.0	0.378	4.4	LOS A	1.3	9.0	0.31	0.38	0.31	50.9
Approach			1071	3.5	1071	3.5	0.378	4.3	LOS A	1.3	9.0	0.31	0.38	0.31	51.1
All Vehicles			2786	2.8	2786	2.8	0.721	7.9	LOS A	3.3	23.7	0.49	0.57	0.58	48.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 5 (NO TVH) PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N102 [2026 Option 5 PM Peak (Network Folder: NO TVH)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Tweed Coast Road (S)															
1a	L1	All MCs	22	0.0	22	0.0	0.312	31.8	LOS C	5.7	41.4	0.74	0.64	0.74	40.2
2	T1	All MCs	439	5.3	439	5.3	0.312	26.9	LOS C	5.7	41.5	0.74	0.63	0.74	31.9
3b	R3	All MCs	117	8.1	117	8.1	* 0.699	66.4	LOS E	4.3	32.4	1.00	0.85	1.10	30.3
Approach			578	5.6	578	5.6	0.699	35.1	LOS D	5.7	41.5	0.79	0.67	0.81	31.7
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	200	5.8	200	5.8	0.177	21.2	LOS C	1.9	13.9	0.34	0.67	0.34	50.6
22	T1	All MCs	115	5.5	115	5.5	* 0.736	46.6	LOS D	13.2	94.2	0.94	0.85	0.95	38.3
23a	R1	All MCs	788	1.6	788	1.6	0.736	44.7	LOS D	15.3	108.3	0.94	0.85	0.94	30.1
Approach			1103	2.8	1103	2.8	0.736	40.6	LOS D	15.3	108.3	0.83	0.82	0.83	32.9
North: Tweed Coast Road (N)															
7a	L1	All MCs	651	3.6	651	3.6	0.589	13.5	LOS B	7.6	54.7	0.67	0.78	0.67	45.7
8	T1	All MCs	501	2.7	501	2.7	* 0.737	51.6	LOS D	11.2	80.4	0.95	0.82	0.97	28.1
9b	R3	All MCs	40	0.0	40	0.0	0.227	70.9	LOS E	1.4	9.5	0.95	0.74	0.95	23.0
Approach			1192	3.1	1192	3.1	0.737	31.4	LOS C	11.2	80.4	0.80	0.79	0.81	34.7
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	36	0.0	36	0.0	0.283	14.2	LOS B	1.2	8.4	0.91	0.73	0.91	31.4
28	T1	All MCs	116	0.0	116	0.0	* 0.637	55.6	LOS E	4.4	31.3	0.98	0.80	1.01	34.6
29a	R1	All MCs	36	5.9	36	5.9	0.637	62.8	LOS E	4.4	31.3	1.00	0.82	1.04	29.9
Approach			187	1.1	187	1.1	0.637	49.1	LOS D	4.4	31.3	0.97	0.79	0.99	33.3
All Vehicles			3060	3.3	3060	3.3	0.737	36.5	LOS D	15.3	108.3	0.82	0.78	0.83	33.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance										
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m/sec
South: Tweed Coast Road (S)										
P1	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	0.96

SouthEast: Cudgen Road (SE)											
P5 Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
North: Tweed Coast Road (N)											
P3 Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
NorthWest: Cudgen Road (NW)											
P7 Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
All Pedestrians	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
 Pedestrian movement LOS values are based on average delay per pedestrian movement.
 Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

■ Network: N101 [2036 Option 5 AM Peak (Network Folder: NO TVH)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back	Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				
South: Tweed Coast Road (S)															
2	T1	All MCs	958	4.5	958	4.5	0.432	4.1	LOS A	1.3	9.4	0.28	0.43	0.28	51.4
3	R2	All MCs	226	0.0	226	0.0	0.432	9.8	LOS A	1.3	9.0	0.29	0.51	0.29	43.1
Approach			1184	3.6	1184	3.6	0.432	5.2	LOS A	1.3	9.4	0.28	0.45	0.28	50.2
East: Site Access (E)															
4	L2	All MCs	89	0.0	89	0.0	0.366	9.8	LOS A	0.8	5.3	0.79	0.88	0.87	32.2
6	R2	All MCs	99	0.0	99	0.0	0.366	14.9	LOS B	0.8	5.3	0.79	0.88	0.87	45.1
Approach			188	0.0	188	0.0	0.366	12.5	LOS B	0.8	5.3	0.79	0.88	0.87	41.4
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.544	5.2	LOS A	2.0	14.7	0.60	0.48	0.60	50.3
8	T1	All MCs	1095	5.6	1095	5.6	0.544	5.7	LOS A	2.1	15.2	0.60	0.48	0.60	48.7
Approach			1309	4.7	1309	4.7	0.544	5.6	LOS A	2.1	15.2	0.60	0.48	0.60	49.0
All Vehicles			2682	3.9	2682	3.9	0.544	5.9	LOS A	2.1	15.2	0.47	0.49	0.48	49.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Volumes\elevate\psa-data1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis

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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 Option 5 AM Peak (Network Folder: NO TVH)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Tweed Coast Road (S)														
1a	L1	All MCs	8	25.0	8	25.0	0.339	27.2	LOS C	6.7	48.4	0.68	0.59	41.9
2	T1	All MCs	586	2.5	586	2.5	0.339	22.1	LOS C	6.8	48.4	0.68	0.59	34.9
3b	R3	All MCs	160	5.3	160	5.3	* 0.764	65.7	LOS E	6.0	43.8	1.00	0.89	30.5
Approach			755	3.3	755	3.3	0.764	31.4	LOS C	6.8	48.4	0.75	0.66	33.2
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	86	13.4	86	13.4	0.073	14.2	LOS B	0.4	3.2	0.20	0.63	52.0
22	T1	All MCs	92	4.6	92	4.6	0.719	50.7	LOS D	11.0	78.5	0.97	0.85	35.9
23a	R1	All MCs	588	2.0	588	2.0	0.719	51.1	LOS D	11.6	82.7	0.97	0.86	27.5
Approach			766	3.6	766	3.6	0.719	46.9	LOS D	11.6	82.7	0.88	0.83	30.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	833	1.8	833	1.8	* 0.756	16.1	LOS B	12.5	89.0	0.80	0.83	44.4
8	T1	All MCs	331	13.4	331	13.4	0.283	32.3	LOS C	4.4	34.2	0.79	0.65	33.0
9b	R3	All MCs	20	10.5	20	10.5	0.099	56.8	LOS E	0.6	4.9	0.91	0.71	23.9
Approach			1183	5.2	1183	5.2	0.756	21.3	LOS C	12.5	89.0	0.80	0.78	40.5
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	58	0.0	58	0.0	0.293	13.8	LOS B	1.5	10.8	0.87	0.74	32.1
28	T1	All MCs	115	0.0	115	0.0	* 0.661	61.3	LOS E	3.9	27.7	0.97	0.81	33.9
29a	R1	All MCs	15	14.3	15	14.3	0.661	65.3	LOS E	3.9	27.7	1.00	0.83	29.4
Approach			187	1.1	187	1.1	0.661	46.9	LOS D	3.9	27.7	0.94	0.79	33.2
All Vehicles			2892	4.0	2892	4.0	0.764	32.4	LOS C	12.5	89.0	0.82	0.76	34.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance										
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m/sec
South: Tweed Coast Road (S)										
P1	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	0.96

SouthEast: Cudgen Road (SE)											
P5	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Coast Road (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
NorthWest: Cudgen Road (NW)											
P7	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 5 (NO TVH) PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2036 Option 5 PM Peak (Network Folder: NO TVH)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec	[Veh. veh	Dist] m				km/h	
South: Tweed Coast Road (S)															
2	T1	All MCs	1287	3.4	1287	3.4	0.574	5.2	LOS A	2.0	14.1	0.45	0.52	0.45	50.6
3	R2	All MCs	81	0.0	81	0.0	0.574	10.9	LOS B	1.9	13.4	0.46	0.54	0.46	43.2
Approach			1368	3.2	1368	3.2	0.574	5.5	LOS A	2.0	14.1	0.45	0.52	0.45	50.3
East: Site Access (E)															
4	L2	All MCs	241	0.0	241	0.0	0.753	15.9	LOS B	2.6	18.2	0.88	1.11	1.48	26.3
6	R2	All MCs	224	0.0	224	0.0	0.753	21.1	LOS C	2.6	18.2	0.88	1.11	1.48	41.0
Approach			465	0.0	465	0.0	0.753	18.4	LOS B	2.6	18.2	0.88	1.11	1.48	35.8
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.407	4.0	LOS A	1.4	10.2	0.31	0.39	0.31	51.8
8	T1	All MCs	1041	3.9	1041	3.9	0.407	4.4	LOS A	1.4	10.2	0.32	0.38	0.32	50.9
Approach			1160	3.5	1160	3.5	0.407	4.3	LOS A	1.4	10.2	0.32	0.38	0.32	51.0
All Vehicles			2994	2.8	2994	2.8	0.753	7.1	LOS A	2.6	18.2	0.47	0.56	0.56	48.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road] (Site Folder: 2036 OPTION 5 (NO TVH) PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 Option 5 PM Peak (Network Folder: NO TVH)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	Aver. Back Of Queue	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Tweed Coast Road (S)														
1a	L1	All MCs	24	0.0	24	0.0	0.360	34.4	LOS C	6.5	47.2	0.78	0.67	39.0
2	T1	All MCs	474	5.3	474	5.3	0.360	29.6	LOS C	6.5	47.3	0.78	0.66	30.5
3b	R3	All MCs	127	8.3	127	8.3	* 0.826	72.2	LOS E	5.0	37.7	1.00	0.94	29.1
Approach			625	5.7	625	5.7	0.826	38.5	LOS D	6.5	47.3	0.82	0.72	30.4
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	243	6.1	243	6.1	0.209	23.2	LOS C	2.1	15.6	0.32	0.67	51.0
22	T1	All MCs	139	5.3	139	5.3	* 0.845	56.4	LOS E	17.6	126.2	0.98	0.95	36.3
23a	R1	All MCs	947	1.7	947	1.7	0.845	51.5	LOS D	21.0	149.3	0.98	0.94	28.3
Approach			1329	2.9	1329	2.9	0.845	46.9	LOS D	21.0	149.3	0.86	0.89	30.7
North: Tweed Coast Road (N)														
7a	L1	All MCs	701	3.6	701	3.6	* 0.627	13.8	LOS B	8.2	59.4	0.69	0.79	45.7
8	T1	All MCs	539	2.7	539	2.7	0.652	47.9	LOS D	9.0	64.2	0.97	0.82	27.4
9b	R3	All MCs	41	0.0	41	0.0	0.253	64.7	LOS E	1.4	9.9	0.96	0.74	22.8
Approach			1281	3.1	1281	3.1	0.652	29.8	LOS C	9.0	64.2	0.82	0.80	35.5
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	41	0.0	41	0.0	0.335	17.4	LOS B	1.4	10.0	0.93	0.75	31.0
28	T1	All MCs	138	0.0	138	0.0	* 0.755	57.0	LOS E	5.4	38.5	0.98	0.85	34.0
29a	R1	All MCs	42	5.0	42	5.0	0.755	65.4	LOS E	5.4	38.5	1.00	0.89	29.3
Approach			221	1.0	221	1.0	0.755	51.2	LOS D	5.4	38.5	0.97	0.84	32.7
All Vehicles			3457	3.3	3457	3.3	0.845	39.3	LOS D	21.0	149.3	0.84	0.82	32.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Override Site Data tab).

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

Intersection and Approach LOS values are based on average delay for all vehicle movements.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96

SouthEast: Cudgen Road (SE)											
P5 Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
North: Tweed Coast Road (N)											
P3 Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
NorthWest: Cudgen Road (NW)											
P7 Full	1	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	
All Pedestrians	8	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
 Pedestrian movement LOS values are based on average delay per pedestrian movement.
 Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.