

Cudgen Connection

Traffic Impact Assessment



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LIST OF ACRONYMS

ASD	Approach Sight Distance
AT	Active Transport
DA	Development Application
DOS	Degree of Saturation
GBA	Gross Building Area
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle
ITE	Institute of Transportation Engineers
LEP	Local Environmental Plan
LOS	Level of Service
PSA	PSA Consulting
PT	Public Transport
RTA	Roads and Traffic Authority
SRV	Small Rigid Vehicle
TDC	Traffic Data and Control
TfNSW	Transport for New South Wales
TIA	Traffic Impact Assessment
TRDS	Tweed Road Development Strategy
TSC	Tweed Shire Council
TVH	Tweed Valley Hospital
VPH	Vehicles per Hour



1. INTRODUCTION

PSA Consulting has been engaged by Planit Consulting to provide traffic engineering advice and prepare a Traffic Impact Assessment (TIA) to accompany the Planning Proposal to amend the Tweed Local Environmental Plan (LEP) 2014, seeking to change the zoning from Primary Production to an urban zone. The development includes the construction of 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.

The site is located in central Cudgen on Cudgen Road, as shown in Figure 1.



Figure 1: Site Locality Plan (Source: Nearmap)

1.1 PREVIOUS ASSESSMENT AND CONSULTATION

A transport assessment report has previously been prepared by Ason Group in February 2021 as part of Due Diligence investigations into the development of the site. This report was provided as part of material submitted in advance of a pre-lodgement meeting with Tweed Shire Council and Transport for NSW held on 24 March 2022. Analysis undertaken as part of this assessment has considered comments provided in the pre-lodgement meeting.

A Traffic Impact Assessment was undertaken for the site in 2023 by PSA Consulting, which was based on the previous and planned intersection upgrade at Tweed Coast Road / Cudgen Road. The land use proposal had also changed in comparison to the Ason Group analysis, namely through a stronger focus on essential worker housing and mental health provision. The intention of the additional housing delivery is to prioritise accommodation for essential workers within the health and knowledge precinct (Cudgen Connection Health Precinct, Tweed Valley Hospital and NSW TAFE site).

This updated TIA has been prepared to address the panel recommendations from Rezoning Review determined on 17 September 2024. The TIA utilises traffic volumes from the intersection upgraded in 2023 as a result of the new Tweed Valley Hospital. Table 1 outlines the panel's recommendations and the corresponding sections of the report where each has been addressed.



Table 1: Panel's Recommendation (Source: NSW Government, PSA)

PANEL'S RECOMMENDATION	SECTION
Estimated site traffic trip generation calculations utilised	4.2
Further information or discussion clarifying estimates to calculate proposed private and mental health hospitals traffic generation	4.2
Further clarification and/or justification on the use of estimated 30% development trip generation reduction	4.2.1
Modelling of the proposed new signalised intersection	5.4
Access of Tweed Coast Road and how it will tie in with Cudgen Road	5.4.4



2. EXISTING CONDITIONS

2.1 EXISTING SITE

The site covers approximately 5.7 hectares and currently contains a single freehold dwelling. The site is zoned as RU1 Primary Production as per the TSC LEP 2014, indicating that the zone is to encourage sustainable industry production by maintaining and enhancing the natural resource base. The site is bounded by Tweed Coast Road to the West, Cudgen Road to the South, vacant land to north, and the currently under construction Tweed Valley Hospital to the east.

2.2 ROAD NETWORK

The proposed development is located on the corner of Cudgen Road and Tweed Coast Road, shown in Figure 2.



Figure 2: Surrounding Road Network (Source: Nearmap, Transport for NSW)

The Tweed Coast Road / Cudgen Road intersection has been upgraded as part of the Tweed Coast Road four-lane upgrade including recommendations from the TIA for Stage 2 of the Tweed Valley Hospital (TVH) prepared by Bitzios Consulting in 2019.

A description of each of the surrounding roads is as follows in Sections 2.2.1 to 2.2.4.

2.2.1 Tweed Coast Road

Tweed Coast Road is a council-controlled single carriageway road which extends from the Pacific Motorway in the north to the town of Wooyung in the south, running adjacent to the proposed site. Tweed Coast Road provides access to the majority of towns on the Tweed Coast. In the vicinity of the site, Tweed Coast Road is an undivided, two-lane, two-way road with a posted speed limit of 60km/h. As per Transport for NSW (TfNSW) Road Network Classifications, Tweed Coast Road is listed as a regional road in the site vicinity.



2.2.2 Cudgen Road

Cudgen Road is a council-controlled single carriageway local street which runs in an east-west direction to the south of the site. The road stretches from Tweed Valley Way in the West to Quigan Street in the east, crossing Tweed Coast Road at a signalised intersection adjacent to the proposed site. In the vicinity of the site, Cudgen Road is an undivided, two lane, two-way road with a posted speed limit of 60km/h.

2.2.3 Pacific Motorway

The Pacific Motorway is a state-controlled major road, running from Brisbane to Brunswick Heads where it connects to the Pacific Highway. In the vicinity of Cudgen and Tweed Coast Road, the Pacific Motorway is a four lane, two-way median divided road, with a posted speed limit of 110km/h.

2.2.4 Turnock Street

Turnock Street is a council-controlled single carriageway local street which runs in a southwest-northeast direction to the east of the site. The road stretches from the roundabout with Cudgen Road to Marine Parade to the east. In the vicinity of the site, Turnock Street is an undivided, two-lane, two-way road with a posted speed limit of 60km/h.

2.3 EXISTING ACTIVE TRANSPORT NETWORK

There are existing shared paths for pedestrians and cyclists on the northern side of Cudgen Road in the vicinity of the site, with formal pedestrian crossing facilities at the Tweed Coast Road / Cudgen Road and Cudgen Road / Tweed Valley Hospital Access signalised intersections. The existing active transport network and facilities surrounding the development site are illustrated in Figure 3.

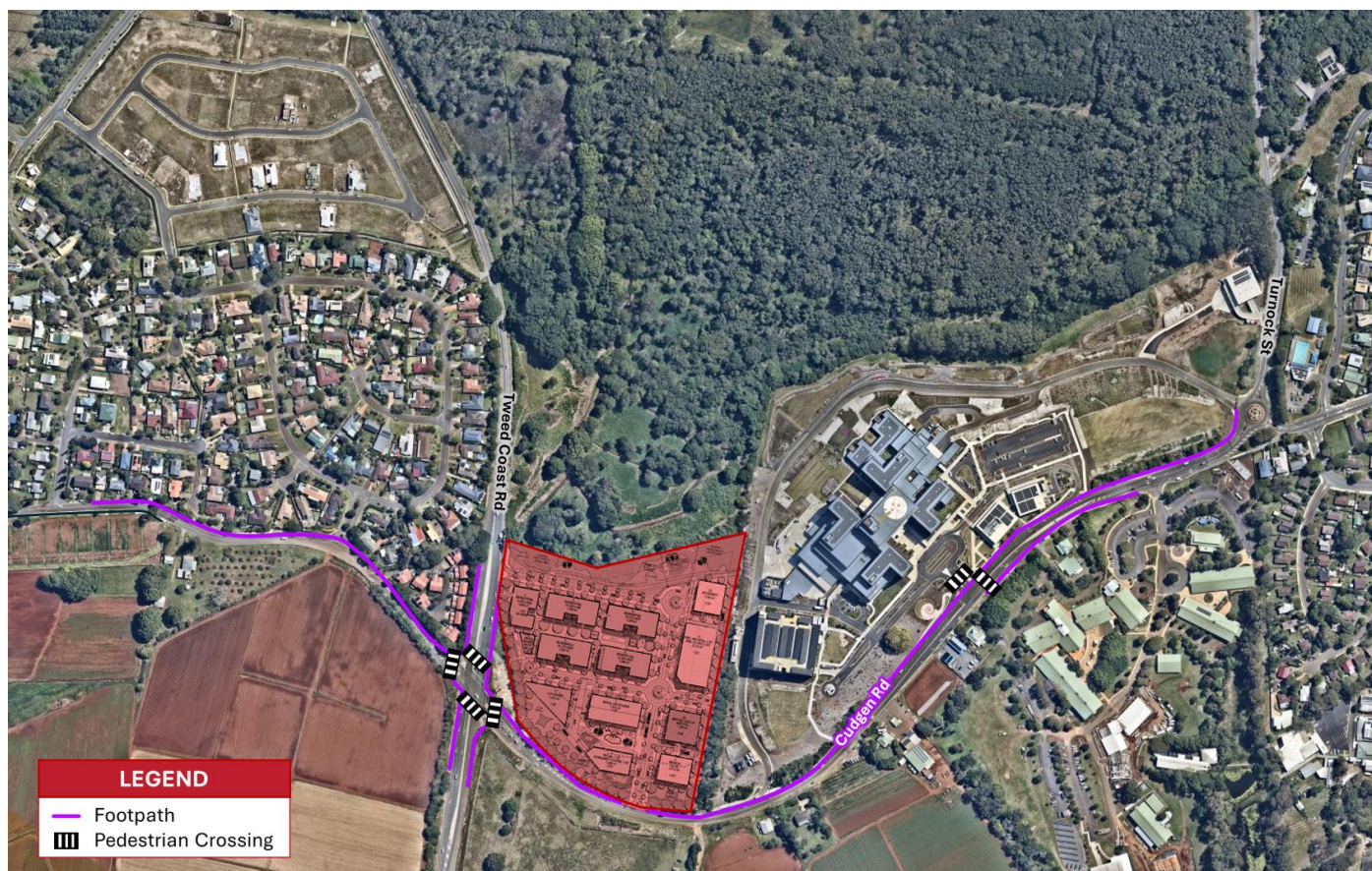


Figure 3: Surrounding Active Transport Network (Source: Nearmap)



2.4 EXISTING PUBLIC TRANSPORT NETWORK

There are a number of TfNSW bus stops in the vicinity of the development site, shown in Figure 4, with the closest stop being located approximately 300m to the west of the site within walking distance.



Figure 4: Surrounding Public Transport Network (Source: Nearmap, Transport for NSW)

Details of bus routes which service these stops are as follows:

Table 2: Existing Public Transport Schedule (Source: Transport for NSW)

ROUTE CODE	ROUTE	FREQUENCY	
		Weekday	Weekend
601	Tweed Valley Hospital to Tweed Mall via Kingscliff	30 mins	30 mins
603	Pottsville to Tweed City via Hastings Point, Cabarita Beach, Tweed Valley Hospital & Chinderah	1 hr	1 hr
609	Murwillumbah to Tweed Valley Hospital & Kingscliff TAFE	2 hrs	-

The existing public transport network, therefore, provides good connections to local destinations in Northern NSW. However, the current limited frequency of the services is not overly conducive to converting a significant number of private vehicle trips to public transport.



2.5 BACKGROUND TRAFFIC VOLUMES

Existing traffic volumes were taken from the TIA prepared for the Tweed Valley Hospital Project Stage 2 by Bitzios in 2019. These counts were conducted by Traffic Data and Control (TDC) in May 2018, and included the following major intersections in the vicinity of the proposed development:

1. Pacific Motorway / Tweed Coast Road
2. Tweed Coast Road / Cudgen Road
3. Cudgen Road / Turnock Street.

Updated traffic counts were undertaken at Tweed Coast Road / Cudgen Road intersection on Tuesday 15 October 2024 during AM and PM peak periods due to the recent upgrade as a result of the new Hospital. The summary of traffic counts is provided in Appendix 1.

The background traffic volumes of surrounding intersections for the current (2024) year have been calculated as follows:

- Background traffic growth rate on Tweed Coast Road has been applied as 0.80% per annum compounded, and 1.73% per annum compounded for the Cudgen Road / Turnock Street corridor and turning movements at the Tweed Coast Road / Cudgen Road intersection, as per the Stage 2 TIA prepared for the neighbouring Tweed Valley Hospital by Bitzios in 2019. This growth was calculated from 2018 traffic counts and 2041 Base 'no infrastructure upgrades' strategic model daily volumes (as per 2017 Tweed Road Development Strategy report).
- Projected 2024 background traffic has been calibrated based on the 2024 traffic counts at Tweed Coast Road / Cudgen Road.
- The expected development traffic from the Tweed Valley Hospital (TVH) to the east of the proposed development from the Bitzios report has been also included in the background traffic volumes. It has been assumed that the TVH is currently operating with 327 beds and is expected to increase its capacity to 430 beds by 2032.
- The trip directionality for the generated trips has been calculated based on the 2024 traffic survey.

The background turning movement is provided in Appendix 2.



3. STRATEGIC ASSESSMENT OF FUTURE NETWORK

This section presents the assessment of the Cudgen Connection proposal against state and local government strategies and objectives, outlined in Table 3.

Table 3: Assessment Against Strategic Documents

STRATEGY/OBJECTIVE	REMARKS
North Coast Regional Plan 2041, Strategy 15 Strategy 15.1 Protect proposed and existing transport infrastructure and corridors to ensure network opportunities are not sterilised by incompatible land uses or land fragmentation. Collaboration Activity 4 To ensure that centres experiencing high growth have well planned and sustainable transport options, place-based Transport Plans will be developed for key cities and centres across the North Coast region. Lead Agency: Transport for NSW Collaboration Activity 5 In collaboration with Tweed Shire Council, City of Gold Coast and Department of Transport and Main Roads Queensland develop opportunities for multimodal transport connections to Coolangatta and the Tweed. Lead Agency: Transport for NSW	Future capacity of transport network has not been assessed in detail due to the various unknown timing of several factors, including the future network scenarios and infrastructure proposed through the TRDS, growth in local area, staging of the future development, staging of the TVH, Kings Forest development staging/timeframes etc. (Refer to Section 4.2 for more details). The planned infrastructure upgrades outlined in 2017 TRDS are expected to significantly ease the demand at Cudgen Road and turning movements to/from Tweed Coast Road at Tweed Coast Road / Cudgen Road intersection. An uptake in the AT/PT mode share is also expected due to planned improvements in AT/PT infrastructure/facilities through the TVH and Cudgen Connection developments, which would reduce car travel demand.



North Coast Regional Plan 2041, Strategy 16

Strategy 16.1

Encourage active and public transport use by:

- prioritising pedestrian amenity within centres for short everyday trips
- providing a legible, connected and accessible network of pedestrian and cycling facilities
- delivering accessible transit stops and increasing convenience at interchanges to serve an ageing customer
- incorporating emerging anchors and commuting catchments in bus contract renewals
- ensuring new buildings and development include end of trip facilities
- integrating the active transport network with public transport facilities
- prioritising increased infill housing in appropriate locations to support local walkability and the feasibility of public transport stops.

Strategy 16.2

Local plans should encourage the integration of land use and transport and provide for environments that are highly accessible and conducive to walking, cycling and the use of public transport and encourage active travel infrastructure around key trip generators.

Strategy 16.1

It is proposed that active and public transport will be encouraged through the following means:

- Provision of essential worker accommodation, which would prioritise short trips by walking between the proposed development and the TVH.
- Provision of a network of pedestrian and cycling facilities internal to the site and connecting to both the external networks and the adjacent TVH
- Liaison with TfNSW to investigate the opportunity to provide a passenger transport facility internal to the site. Should this not be possible, pedestrian pathways will be provided to the facilities on Cudgen Road external to the TVH.
- Provision of end of trip facilities for all uses

Strategy 16.2

- Co-location of proposed land uses with the TVH encourages accessibility and is conducive to walking and cycling.
- The proposal integrates a variety of land uses and hours of operation to support stronger dependence within the precinct and ultimately facilitate a greater proportion of multi-purpose trips. The proposal incorporates the provision of additional active and public transport infrastructure to improve accessibility, mobility and promote AT/PT travel modes. The Concept Masterplan seeks to cluster land uses with direct synergies to maximise walking and cycling within the precinct, and the increased self-reliance is expected to substantially reduce travel movements outside the precinct, such as for specialist appointments and tests, food, drink and general retailing needed by precinct users and workers. In turn, this will mitigate traffic and carparking impacts on the Kingscliff Town Centre, as well as reduce total travel time for health and education users.



Urban Growth Area Variation Principles

Urban Growth Area Variation Principles

Policy	The variation needs to be consistent with the objectives and outcomes in the <i>North Coast Regional Plan 2041</i> and should consider the intent of any applicable Section 9.1 Direction, State Environmental Planning Policy and local growth management strategy.
Infrastructure	The variation needs to consider the use of committed and planned major transport, water and sewerage infrastructure, and have no cost to government. The variation should only be permitted if adequate and cost effective infrastructure can be provided to match the expected population.

The future transport demands are expected to be accommodated through a number of planned infrastructure upgrades in the area, as per 2017 TRDS:

- Four-lane upgrade of Tweed Coast Road between the Pacific Highway and Casuarina;
- A new east-west connection associated with the northern component of the Gales Kingscliff development linking Tweed Coast Road to Kingscliff Street;
- The north-south extension of Elrond Drive associated with the northern component of Gales Kingscliff, allowing for a connection of Beach Street through to Ozone Street;
- A new east-west connection associated with the southern component of the Gales Kingscliff development extending Turnock Street to Tweed Coast Road linking Tweed Coast to Kingscliff Street;
- Reconfiguration of the Morton Street intersection from Tweed Coast Road and improvements for access for Chinderah Industrial Estate;
- Improvements to the Pacific Highway / Tweed Coast interchange in consultation with RMS.

Ministerial Direction, Focus Area 5: Transport and Infrastructure

Focus area 5: Transport and Infrastructure

5.1 Integrating Land Use and Transport

Objectives

The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives:

- improving access to housing, jobs and services by walking, cycling and public transport, and
- increasing the choice of available transport and reducing dependence on cars, and
- reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and
- supporting the efficient and viable operation of public transport services, and
- providing for the efficient movement of freight.

Application

This direction applies to all relevant planning authorities when preparing a planning proposal that will create, alter or remove a zone or a provision relating to urban land, including land zoned for residential, employment, village or tourist purposes.

The proposal supports provision of transport choice aligning with the principles of Improving Transport Choice – Guidelines for planning and development (DUAP 2001) and The Right Place for Business and Services – Planning Policy (DUAP 2001) through the following:

- Co-location of proposed land uses with the TVH encourages accessibility and is conducive to walking and cycling.
- The proposal integrates a variety of land uses and hours of operation to support stronger dependence within the precinct and ultimately facilitate a greater proportion of multi-purpose trips.
- The proposal incorporates the provision of additional active and public transport infrastructure to improve accessibility, mobility and promote AT/PT travel modes.
- The Concept Masterplan seeks to cluster land uses with direct synergies to maximise walking and cycling within the precinct, and the increased self-reliance is expected to substantially reduce travel movements outside the precinct, such as for specialist appointments and tests, food, drink and general retailing needed by precinct users and workers. In turn, this will mitigate traffic and carparking impacts



Direction 5.1

(1) A planning proposal must locate zones for urban purposes and include provisions that give effect to and are consistent with the aims, objectives and principles of:

- (a) *Improving Transport Choice – Guidelines for planning and development* (DUAP 2001), and
- (b) *The Right Place for Business and Services – Planning Policy* (DUAP 2001).

Consistency

A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Planning Secretary (or an officer of the Department nominated by the Secretary) that the provisions of the planning proposal that are inconsistent are:

- (a) justified by a strategy approved by the Planning Secretary which:
 - i. gives consideration to the objective of this direction, and
 - ii. identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), or
- (b) justified by a study prepared in support of the planning proposal which gives consideration to the objective of this direction, or
- (c) in accordance with the relevant Regional Strategy, Regional Plan or District Plan prepared by the Department of Planning and Environment which gives consideration to the objective of this direction, or
- (d) of minor significance.

Date commenced: 20 February 2023

on the Kingscliff Town Centre, as well as reduce total travel time for health and education users.

Local Environmental Plan Making Guideline, August 2023

#	Question	Considerations
Section D – Infrastructure (Local, State and Commonwealth)		
11	Is there adequate public infrastructure for the planning proposal?	- Generally, this applies where the planning proposal includes development that will, or is likely to, require the provision of, or increase the demand for, public facilities and services - Address whether existing infrastructure is adequate to serve or meet the needs of the proposal and how any predicted shortfall in infrastructure provision could be met - Undertake studies required to identify the extent of any infrastructure shortfall, potential mechanisms or strategies to address any shortfall and which agencies have been consulted as part of that process - The proponent/PPA is to identify what local and regional infrastructure may be needed

2017 TRDS recommended two east-west links between Tweed Coast Road and Turnock Street / Kingscliff Street. The introduction of these planned links is expected to significantly ease the demand on Cudgen Road and turning movements to/from Tweed Coast Road at Tweed Coast Road / Cudgen Road intersection. In addition, advancing the proposed rezoning provides additional movement corridors, and specifically

provides opportunities and priority for emergency vehicles. However, there is significant uncertainty in both the future demand and planned infrastructure including the below, which have made quantification of the assessment unfeasible at this time:

- the timeframe proposed for the planned infrastructure upgrades by Council;
- the quantum of traffic reduction at Tweed Coast Road / Cudgen Road intersection; and
- the potential change in mode share for the Hospital, this proposed development and the broader community in future as a result of increased PT services (including frequency and route coverage) and infrastructure and any changes and increases



- For planning proposals likely to place additional demands on public infrastructure, it is important to undertake consultation with the public authorities and government agencies responsible for the provision of that infrastructure. The Gateway determination will confirm whether a local contributions plan is required to be exhibited with the planning proposal and require regular feedback on the progress of finalizing an infrastructure strategy and high-level costs
- For planning proposals, a local contributions plan may be required. Liaison with the council is necessary

in congestions across the shire which would improve the contestability of PT against private vehicle trips.

There is also the potential for additional infrastructure upgrades at the site frontage including widening Cudgen Road and / or acquiring land on the north-eastern corner of the Tweed Coast Road / Cudgen Road intersection. As outlined above, due to the variety of uncertainty regarding the timing of planned infrastructure and the background traffic demand, the quantification of the benefits of these potential infrastructure improvements are as yet unable to be determined.

Notwithstanding, it is evident that additional capacity, well beyond that projected by this rezoning, will be realised within the transport network as a result of the planned infrastructure

upgrades.

Finally, in order to encourage people to use PT and Active Travel, investment into PT and AT infrastructure and services are necessary across the region, rather than relying on private vehicle trips which require unsustainable continual infrastructure upgrades at intersections and road links, in contrast to Australia's long-term emissions reduction plan.

The proponent will continue to work with key stakeholders to coordinate development and infrastructure delivery through future stages, such as the preparation and assessment of Development Applications. This is anticipated to include unlocking developer contributions to accelerate infrastructure funding, as well as pursuing localised upgrades where appropriate and necessary for capacity improvements.



4. DEVELOPMENT PROFILE

The site for this study is located on the corner of Cudgen Road and Tweed Coast Road. The site comprises a section of Lot 6 on DP727425 (741 Cudgen Road, Cudgen) as per the Tweed Local Environmental Plan 2014. The existing site currently contains a single freehold dwelling. For the purposes of this assessment, any existing traffic generated by this dwelling was considered to be negligible.

4.1 DEVELOPMENT DETAILS

At this stage of planning, the exact details of the development are still being considered and will be informed by the outcomes of various technical assessment currently being completed. The proposed development is indicatively intended to consist of the following elements:

- Five (5) essential worker accommodation buildings (286 units in total)
- Residential Recreation Space
- Mental Health Hospital
- Private Hospital and Medical Suites
- University Campus
- Medical Hotel
- Retail and Community Centre
- Childcare Centre
- Plaza

Figure 5 shows the proposed development masterplan, with the full site plan included in Appendix 3.

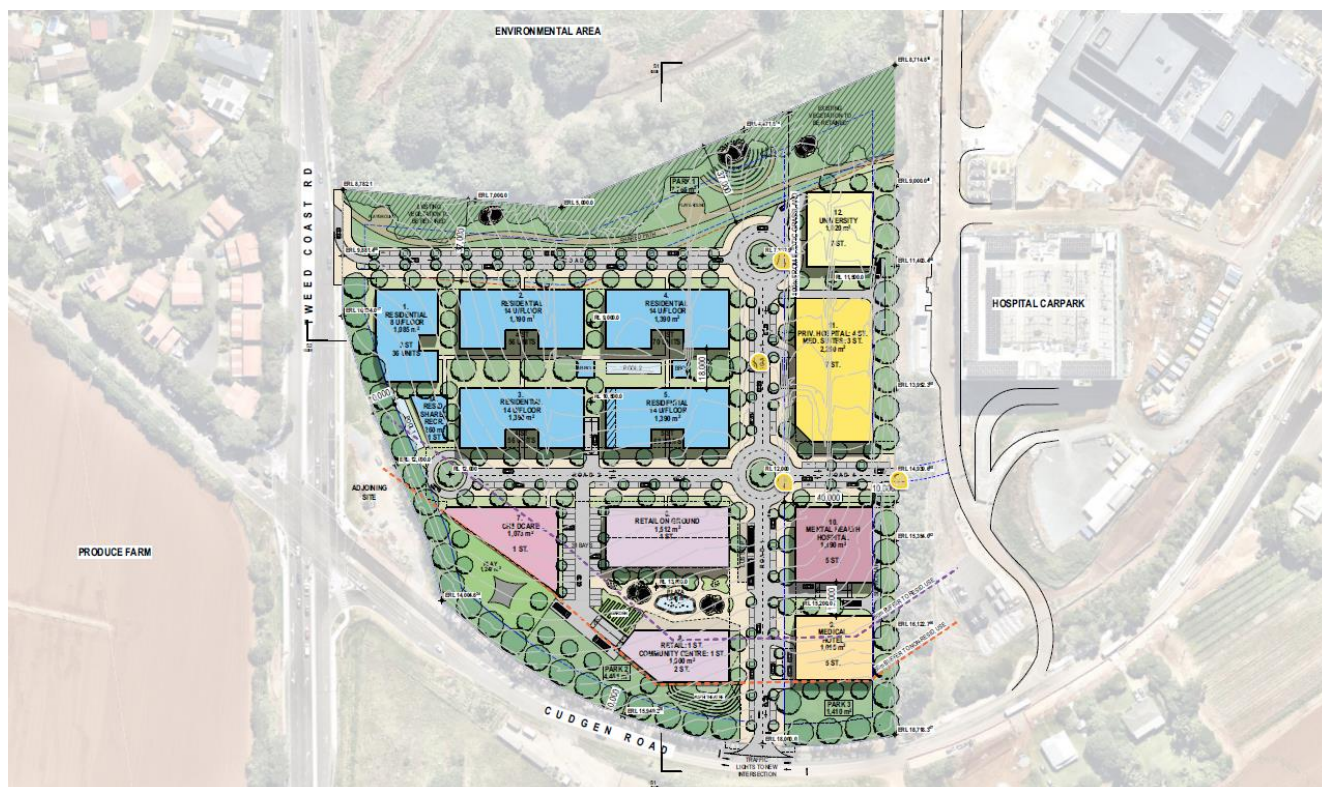


Figure 5: Proposed Development Masterplan (Source: Cottee Parker Architects)



The access arrangements for the proposed site will be evaluated in the following sections to identify the option that minimizes the impact on the Tweed Coast Road / Cudgen Road intersection. The site will be designed to ensure low on-site speed operation with narrow cross-sections and horizontal local area traffic management. Further, all internal intersections being slow-speed roundabouts should make it an unattractive rat-run. The potential future connection with TVH is subject to discussions and agreement from the Northern NSW Local Health District and proposed to be restricted to emergency vehicles and potentially buses only. However, as indicated within the previous TIA, the road network will exceed performance threshold even at base case. To allow access arrangement options to be viable, it has been assumed that traffic coming from Turnock Street and Cudgen Road from the east will utilise the Tweed Valley Hospital access at the Cudgen Road / Turnock Street roundabout to alleviate right turning movement to the access point/s.

Consideration has been given to providing sufficient active and public transport connectivity both within and to the development site. This includes a dedicated pedestrian connection between Cudgen Connection and the Tweed Valley Hospital. Pedestrian access to the site will be able to be gained at the proposed access point/s.

Based on the indicative site masterplan, the development yields of each land use for the proposed development are shown in Table 4.

Table 4: Total Area by Use (Source: Centuria Healthcare)

LAND USE	SITE YIELD (GFA)
Residential (286 units)	24,061 m ²
Health	22,750 m ²
Services	7,100 m ²
Education	7,000 m ²
Retail	1,600 m ²

The development yields for each land use type are presented in Table 5.

Table 5: Development Yields (Source: Centuria Healthcare)

LAND USE	SITE YIELD (GFA)
Worker Units	24,061 m ² (286 units)
Private Hospital	9,000 m ²
Medical Suites	6,750 m ²
Mental Health Hospital	7,000 m ²
University Campus	7,000 m ² (640 students)
Medical Hotel	5,000 m ² (100 units)
Retail	1,600 m ²
Community Centre	1,000 m ²
Childcare	1,100 m ²
Residential Recreation Space*	260 m ²
Plaza*	1,900 m ²

* It was assumed this will not generate trips on its own.

This is the overarching plan for the site, which, if necessary, will be staged to respond to any infrastructure capacity limitations throughout time. The proponent will work with key stakeholders through future investigations to support the coordination of development and delivery of network upgrades.



4.2 TRIP GENERATION

The estimated site traffic has been calculated for the proposed health precinct development. The trip generation rates for this assessment have been obtained from a variety of sources, including:

- NSW Roads and Traffic Authority (RTA) Guide to Traffic Generating Developments, 2002
- Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2020

The trip generation rates for the different land uses are shown in Table 6.

Table 6: Trip Generation Rates (Source: RTA, ITE)

LAND USE	AM PEAK HOUR RATE	PM PEAK HOUR RATE	REFERENCE
High Density Residential	0.29 per unit	0.29 per unit	RTA
Hospital	0.93 per 100 m ²	1.05 per 100 m ²	ITE
Medical Centre	10.4 per 100 m ²	8.8 per 100 m ²	RTA
Office	2 per 100 m ²	2 per 100 m ²	RTA
University/College	0.14 per student	0.15 per student	ITE
Motel	0.4 per unit	0.4 per unit	RTA
Supermarket	7.30 per 100 m ²	9.89 per 100 m ²	ITE
Recreational Community Centre	1.99 per 100 m ²	2.72 per 100 m ²	ITE
Childcare	12.63 per 100 m ²	12.72 per 100 m ²	ITE

Based on the trip generation rates for each land use, the overall estimated trip generation for the proposed development is outlined in Table 7.

Table 7: Development Trip Generation (Source: PSA)

DEVELOPMENT	LAND USE	YIELD	AM PEAK HOUR		PM PEAK HOUR	
			Peak Hour Rate	Peak Hour Trip	Peak Hour Rate	Peak Hour Trip
Worker Units	High Density Residential	286 units	0.29 per unit	83	0.29 per unit	83
Private Hospital	Hospital	9,000 m ²	0.93 per 100 m ²	83	1.05 per 100 m ²	95
Medical Suites	Medical Centre	2,000 m ²	10.4 per 100 m ²	208	8.8 per 100 m ²	176
	Office	4,750 m ²	2 per 100 m ²	95	2 per 100 m ²	95
Mental Health Hospital	Hospital	7,000 m ²	0.93 per 100 m ²	65	1.05 per 100 m ²	74
University Campus	University /College	640 students	0.14 per student	90	0.15 per student	96
Medical Hotel	Motel	100 units	0.4 per unit	40	0.4 per unit	40
Retail	Supermarket	1,600 m ²	7.30 per 100 m ²	117	9.89 per 100 m ²	158
Community Centre	Recreational Community Centre	1,000 m ²	1.99 per 100 m ²	20	2.72 per 100 m ²	27



DEVELOPMENT	LAND USE	YIELD	AM PEAK HOUR		PM PEAK HOUR	
			Peak Hour Rate	Peak Hour Trip	Peak Hour Rate	Peak Hour Trip
Childcare	Childcare	1,100 m ²	12.63 per 100 m ²	139	12.72 per 100 m ²	140
Total				856 trips		902 trips

4.2.1 Development Trip Generation Reduction

The trip generation reported in Table 7 assumes there is no trip-chaining or co-use of the various land uses of the development. In reality, it is considered that there will be a factor of reduced trip generation given the complimentary uses. A number of reduction factors could be applied to different proposed land uses, including:

- Reduction to worker units' trips based on the assumption that workers are employed at either Cudgen Connection or Tweed Valley Hospital. A reduction is only partial for this use, however, as trips could be generated by their family members, or driving children to/from school etc. The reduction assumed for this is considered conservative at approximately a 30% reduction to account for these family member trips.
- Reduction to private hospital /mental hospital / medical suites trips (assumed that workers will live on-site in the worker units). Further to this, a direct relationship between hospital staff and those working within the medical suites is present. The reduction assumed for this is considered conservative at approximately a 40% reduction to account for additional trips that may be undertaken during peak periods for staff that do not reside in the workers units and for visitors to the facilities.
- Reduction to childcare trips (assumed that the spaces at the childcare will be limited to workers employed at either Cudgen Connection or the Tweed Valley Hospital). The proponent is willing to be conditioned to include a management requirement to control this. The reduction assumed for this is considered conservative at approximately a 45% reduction. This conservative reduction is to allow for generation of the centre by external childcare facility staff (unlikely to be generating high demand during peak periods) and any families that make on-ward trips from the centre.
- Reduction to retail and community centre trips (assumed these are mostly used by those working, studying and living on-site). The reduction assumed for this is considered conservative at approximately a 50% reduction. The retail trips are likely to be generated by internal developments and those at the nearby Tweed Valley Hospital rather than being considered a destination for trips independent of the medical facilities on the site.

Similarly, reductions could be applied to TVH trips, assuming that workers will live in the worker units and use childcare and other services in the proposed precinct.

The total trip reduction for the proposed development due to the factors listed above is anticipated to be around 30%. This will be considered and demonstrated in detail at the DA stage.

Further reduction in car trips is expected due to planned improvements in Public Transport (PT) and Active Transport (AT) infrastructure / facilities for both Cudgen Connection and TVH developments. The reliable predictions for the uplift in the PT/AT mode share are not possible at this stage, partly due to the lack of finalisation of Public Transport service provision to the site. TfNSW's Regional NSW Services and Infrastructure Plan suggests the following targets: PT mode share 3-5%; walking mode share 4-8%; and cycling mode share: 2-5%. It is suggested that these targets at a minimum be applied and planned for to ensure that overall, the targets for the Kingscliff region are met. The addition of bus stops and new routes with the construction of Tweed Valley Road is expected to boost public transport usage, providing an opportunity for the region to increase its overall public transport mode share.

It is recommended that a Green Travel Plan be conditioned to be completed for future stages of assessment of the development, which will outline the proposed development's plan for reductions in single-occupancy car trips and promotion of alternative options such as walking and cycling for shorter trips and public transport or carpooling for longer trips. As per the Local Environmental Plan Making Guideline, specifically Attachment C, the preparation of a Green Travel Plan is not necessary or appropriate at this time. The timing of a Green Travel Plan with a future DA/s is confirmed as appropriate by the industry-specific Planning Secretary's Environmental Assessment Requirements for hospitals and other state significant development types.



5. INTERSECTION ASSESSMENT

5.1 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.

5.1.1 Level of Service

The definitions of Levels of Service and delay, as outlined in SIDRA intersection are shown in Table 8. 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 8: 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	$80 < d$	$70 < d$	$50 < d$

5.1.2 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 9, which are industry standard across jurisdictions.

Table 9: Practical Degree of Saturation at Intersections (Source: Austroads)

INTERSECTION TYPE	PRACTICAL DOS
Sign Controlled	0.80
Roundabout	0.85
Signalised	0.90

5.1.3 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).



Figure 7: Option 2 - Priority West Access, Signalised South Access (Source: Cottee Parker Architects, PSA)



Figure 8: Option 3 - Signalised West Access, Signalised South Access (Source: Cottee Parker Architects, PSA)



Figure 9: Option 4 - Roundabout West Access, Signalised South Access (Source: Cottee Parker Architects, PSA)

5.3 DESIGN TRAFFIC VOLUME

Design traffic volumes have been calculated by adding the development traffic to the background traffic. The design traffic turning movement diagrams for 2026 and 2036 during both AM and PM peak period is Appendix 2.

5.4 SIDRA ANALYSIS

5.4.1 2024 Base Case Scenario

A summary of the intersection performance during 2024 base case scenario for AM and PM peak periods is outlined in Table 10 and full movement summary is included in Appendix 4.

Table 10: 2024 Base Case Road Network Performance (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
			LOS	DOS	LOS	DOS
Pacific Motorway / Tweed Coast Road	S	L2	LOS A	0.067	LOS A	0.109
		T1	LOS A	0.067	LOS A	0.109
		R2	LOS A	0.409	LOS B	0.538
	E	L2	LOS A	0.268	LOS A	0.278
		T1	LOS A	0.268	LOS A	0.278
		R2	LOS A	0.268	LOS A	0.278
	N	L2	LOS A	0.047	LOS B	0.069
		T1	LOS A	0.099	LOS B	0.112



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
			LOS	DOS	LOS	DOS
	W	R2	LOS B	0.099	LOS B	0.112
		L2	LOS A	0.065	LOS A	0.087
		T1	LOS A	0.065	LOS A	0.084
		R2	LOS B	0.105	LOS B	0.084
Tweed Coast Road / Cudgen Road	S	L1	LOS C	0.307	LOS C	0.304
		T1	LOS B	0.307	LOS B	0.304
		R3	LOS D	0.897	LOS D	0.868
	SE	L3	LOS A	0.062	LOS B	0.180
		T1	LOS C	0.507	LOS C	0.798
		R1	LOS C	0.507	LOS D	0.798
	N	L1	LOS B	0.814	LOS B	0.561
		T1	LOS C	0.505	LOS C	0.839
		R3	LOS D	0.060	LOS D	0.106
	NW	L3	LOS B	0.162	LOS B	0.225
		T1	LOS C	0.366	LOS C	0.508
		R1	LOS D	0.366	LOS D	0.508
Cudgen Road / Tweed Valley Hospital	E	T1	LOS A	0.348	LOS B	0.634
		R2	LOS B	0.002	LOS C	0.002
	N	L2	LOS A	0.053	LOS D	0.278
		R2	LOS C	0.084	LOS B	0.437
	W	L2	LOS A	0.052	LOS C	0.03
		T1	LOS B	0.473	LOS D	0.369
Cudgen Road / Turnock Street	SE	L2	LOS A	0.395	LOS A	0.692
		T1	LOS A	0.395	LOS B	0.692
		R2	LOS A	0.395	LOS A	0.692
		U	LOS B	0.395	LOS D	0.692
	NE	L2	LOS A	0.256	LOS A	0.393
		T1	LOS A	0.256	LOS A	0.393
		R2	LOS B	0.256	LOS A	0.393
		U	LOS B	0.256	LOS A	0.393
	NW	L2	LOS A	0.029	LOS B	0.089
		T1	LOS A	0.029	LOS B	0.089
		R2	LOS B	0.029	LOS A	0.089
		U	LOS B	0.029	LOS A	0.089



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
			LOS	DOS	LOS	DOS
	SW	L2	LOS A	0.254	LOS B	0.238
		T1	LOS A	0.254	LOS B	0.238
		R2	LOS A	0.376	LOS A	0.254
		U	LOS B	0.376	LOS A	0.254

The SIDRA analysis indicates that the surrounding road network is operating well below the performance threshold during 2024 base case, with a maximum DOS of 0.897. The critical movement within the network is the right turn from the south approach of Tweed Coast Road / Cudgen Road intersection, which has a LOS rating of D.

5.4.2 2026 Opening Year Scenario

A summary of the LOS of the road network during 2026 opening year scenario for AM and PM peak periods is outlined in Table 11 and full movement summary is included in Appendix 4.

Table 11: 2026 Opening Year Road Network LOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Pacific Motorway / Tweed Coast Road	S	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B
	E	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
	N	L2	LOS A	LOS B	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS A	LOS B	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS C	LOS B	LOS C	LOS C
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
Tweed Coast Road / Site Access	S	T1		LOS A	LOS A	LOS A	LOS A		LOS A	LOS A	LOS A	LOS A
		R2			LOS B	LOS B	LOS A			LOS A	LOS A	LOS B
	E	L2			LOS F	LOS E	LOS A			LOS F	LOS E	LOS A
		R2			LOS F	LOS E	LOS B			LOS F	LOS E	LOS B
	N	L2		LOS A	LOS A	LOS E	LOS A		LOS A	LOS A	LOS E	LOS A
		T1		LOS A	LOS A	LOS D	LOS A		LOS A	LOS A	LOS D	LOS A



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Tweed Coast Road / Cudgen Road	S	L1	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C
		T1	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS B	LOS B
		R3	LOS D	LOS E	LOS E	LOS E	LOS E	LOS D	LOS E	LOS D	LOS E	LOS D
	SE	L3	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS A	LOS A	LOS A
		T1	LOS C	LOS D	LOS C	LOS C	LOS C	LOS C	LOS D	LOS D	LOS C	LOS D
		R1	LOS C	LOS D	LOS D	LOS C	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D
	N	L1	LOS B	LOS C	LOS C	LOS C	LOS C	LOS B	LOS B	LOS B	LOS B	LOS B
		T1	LOS C	LOS C	LOS C	LOS D	LOS C	LOS C	LOS D	LOS C	LOS D	LOS C
		R3	LOS D	LOS D	LOS D	LOS C	LOS D	LOS D	LOS D	LOS D	LOS C	LOS D
	NW	L3	LOS B	LOS B	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B
		T1	LOS C	LOS D	LOS D	LOS D	LOS D	LOS C	LOS D	LOS C	LOS C	LOS C
		R1	LOS D	LOS E	LOS E	LOS D	LOS E	LOS D	LOS E	LOS D	LOS D	LOS D
Cudgen Road / Site Access	E	T1		LOS A	LOS A	LOS A	LOS A		LOS B	LOS A	LOS A	LOS A
		R2		LOS C	LOS C	LOS C	LOS C		LOS D	LOS C	LOS C	LOS C
	N	L2		LOS D	LOS D	LOS D	LOS D		LOS E	LOS D	LOS D	LOS D
		R2		LOS D	LOS D	LOS D	LOS D		LOS E	LOS D	LOS D	LOS D
	W	L2		LOS B	LOS B	LOS B	LOS B		LOS C	LOS C	LOS B	LOS C
		T1		LOS B	LOS B	LOS B	LOS B		LOS C	LOS C	LOS B	LOS C
Cudgen Road / Tweed Valley Hospital	E	T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS A	LOS B	LOS B	LOS B
	N	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS C	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B
		T1	LOS B	LOS B	LOS B	LOS B	LOS B	LOS A	LOS A	LOS B	LOS B	LOS B
Cudgen Road / Turnock Street	SE	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B
		R2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	NE	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
	NW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	SW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS B	LOS B	LOS B	LOS B	LOS A	LOS A	LOS A	LOS A	LOS A
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B

The SIDRA analysis indicates that the site access at Tweed Coast Road will have highest LOS of F in Option 2, while the site access at Cudgen Road will have highest LOS of E in Option 1. This suggests that the priority site access arrangement at Tweed Coast Road is not a viable option. Furthermore, having only one egress point at Cudgen Road indicates that the site access will reach near capacity, requiring either an additional egress point or redirection from Cudgen Road. Furthermore, critical movements of Tweed Coast Road / Cudgen Road intersection are the right-turn movements of south and northwest approaches, reaching up to LOS E.

A summary of the DOS of the road network during 2026 opening year scenario for AM and PM peak periods is outlined in Table 12 and full movement summary is included in Appendix 4.

Table 12: 2026 Opening Year Road Network DOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Pacific Motorway / Tweed Coast Road	S	L2	0.069	0.076	0.071	0.076	0.076	0.113	0.133	0.114	0.133	0.133
		T1	0.069	0.076	0.071	0.076	0.076	0.113	0.133	0.114	0.133	0.133
		R2	0.418	0.465	0.432	0.465	0.465	0.548	0.652	0.556	0.652	0.652
	E	L2	0.273	0.322	0.321	0.322	0.322	0.282	0.309	0.309	0.309	0.309
		T1	0.273	0.322	0.321	0.322	0.322	0.282	0.309	0.309	0.309	0.309
		R2	0.273	0.322	0.321	0.322	0.322	0.282	0.309	0.309	0.309	0.309
	N	L2	0.049	0.053	0.05	0.053	0.053	0.07	0.102	0.076	0.102	0.102
		T1	0.104	0.133	0.124	0.133	0.133	0.116	0.179	0.132	0.179	0.179
		R2	0.104	0.133	0.124	0.133	0.133	0.116	0.179	0.132	0.179	0.179
	W	L2	0.069	0.077	0.073	0.077	0.077	0.09	0.123	0.101	0.123	0.123
		T1	0.069	0.077	0.073	0.077	0.077	0.086	0.123	0.101	0.123	0.123
		R2	0.108	0.144	0.137	0.144	0.144	0.086	0.123	0.102	0.123	0.123



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Tweed Coast Road / Site Access	S	T1		0.383	0.349	0.438	0.437		0.543	0.461	0.665	0.667
		R2			0.349	0.438	0.437			0.461	0.665	0.667
	E	L2			3.575	0.808	0.148			14.422	0.943	0.324
		R2			3.575	0.808	0.148			14.422	0.943	0.324
	N	L2		0.22	0.215	0.888	0.378		0.188	0.188	0.884	0.325
		T1		0.22	0.215	0.888	0.378		0.188	0.188	0.884	0.325
Tweed Coast Road / Cudgen Road	S	L1	0.311	0.314	0.314	0.306	0.314	0.308	0.357	0.308	0.308	0.308
		T1	0.311	0.314	0.314	0.306	0.314	0.308	0.357	0.308	0.308	0.308
		R3	0.91	0.944	0.893	0.874	0.892	0.883	0.872	0.85	0.966	0.852
	SE	L3	0.064	0.071	0.071	0.073	0.071	0.187	0.22	0.229	0.229	0.229
		T1	0.524	0.89	0.787	0.648	0.787	0.825	0.891	0.896	0.849	0.896
		R1	0.524	0.89	0.787	0.648	0.787	0.825	0.891	0.896	0.849	0.896
	N	L1	0.827	0.867	0.89	0.804	0.891	0.569	0.498	0.587	0.569	0.587
		T1	0.514	0.431	0.431	0.413	0.431	0.853	0.891	0.852	0.853	0.853
		R3	0.06	0.027	0.026	0.032	0.026	0.106	0.074	0.091	0.106	0.091
	NW	L3	0.167	0.368	0.367	0.32	0.367	0.234	0.362	0.251	0.247	0.251
		T1	0.377	0.83	0.827	0.722	0.826	0.526	0.815	0.565	0.557	0.566
		R1	0.377	0.83	0.827	0.722	0.826	0.526	0.815	0.565	0.557	0.566
Cudgen Road / Site Access	E	T1		0.366	0.366	0.365	0.366		0.824	0.772	0.771	0.772
		R2		0.366	0.366	0.365	0.366		0.824	0.772	0.771	0.772
	N	L2		0.74	0.134	0.134	0.134		0.91	0.391	0.391	0.391
		R2		0.74	0.134	0.134	0.134		0.91	0.391	0.391	0.391
	W	L2		0.849	0.848	0.849	0.849		0.883	0.858	0.833	0.859
		T1		0.849	0.848	0.849	0.849		0.883	0.858	0.833	0.859
Cudgen Road / Tweed Valley Hospital	E	T1	0.36	0.338	0.338	0.338	0.338	0.656	0.615	0.656	0.656	0.656
		R2	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	N	L2	0.053	0.06	0.06	0.06	0.06	0.289	0.325	0.053	0.289	0.289
		R2	0.084	0.095	0.095	0.095	0.095	0.455	0.512	0.084	0.455	0.455
	W	L2	0.054	0.049	0.049	0.049	0.049	0.031	0.028	0.03	0.03	0.03
		T1	0.491	0.421	0.42	0.421	0.421	0.382	0.328	0.382	0.382	0.382



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Cudgen Road / Turnock Street	SE	L2	0.413	0.514	0.514	0.514	0.514	0.724	0.782	0.783	0.783	0.783
		T1	0.413	0.514	0.514	0.514	0.514	0.724	0.782	0.783	0.783	0.783
		R2	0.413	0.514	0.514	0.514	0.514	0.724	0.782	0.783	0.783	0.783
		U	0.413	0.514	0.514	0.514	0.514	0.724	0.782	0.783	0.783	0.783
	NE	L2	0.27	0.332	0.332	0.332	0.332	0.41	0.474	0.458	0.458	0.458
		T1	0.27	0.332	0.332	0.332	0.332	0.41	0.474	0.458	0.458	0.458
		R2	0.27	0.332	0.332	0.332	0.332	0.41	0.474	0.458	0.458	0.458
		U	0.27	0.332	0.332	0.332	0.332	0.41	0.474	0.458	0.458	0.458
	NW	L2	0.029	0.137	0.137	0.137	0.137	0.093	0.337	0.314	0.315	0.314
		T1	0.029	0.137	0.137	0.137	0.137	0.093	0.337	0.314	0.315	0.314
		R2	0.029	0.137	0.137	0.137	0.137	0.093	0.337	0.314	0.315	0.314
		U	0.029	0.137	0.137	0.137	0.137	0.093	0.337	0.314	0.315	0.314
	SW	L2	0.263	0.304	0.304	0.304	0.304	0.248	0.265	0.264	0.265	0.265
		T1	0.263	0.304	0.304	0.304	0.304	0.248	0.265	0.264	0.265	0.265
		R2	0.391	0.444	0.444	0.444	0.444	0.264	0.28	0.28	0.28	0.28
		U	0.391	0.444	0.444	0.444	0.444	0.264	0.28	0.28	0.28	0.28

The SIDRA analysis indicates that only Option 2 will exceed DOS of 1.0 at the site access at Tweed Coast Road, with highest DOS of 14.422. This suggests that the priority site access arrangement at Tweed Coast Road is not a viable option.

It should be noted that Tweed Coast Road is slated for an upgrade to a 4-lane road, which will increase capacity and improve performance of the surrounding road network.

5.4.3 2036 10-Year Horizon Scenario

During the 2036 10-year horizon scenario, it is assumed that the upgrade of Tweed Coast Road will be fully constructed. Moreover, it is assumed that Tweed Valley Hospital will be operation at full capacity.

A summary of the LOS of the road network for 2036 10-year horizon scenario for AM and PM peak periods is outlined in Table 13 and full movement summary is included in Appendix 4.



Table 13: 2036 Opening Year Road Network LOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Pacific Motorway / Tweed Coast Road	S	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	E	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
	N	L2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS B	LOS C	LOS C
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS A	LOS B	LOS C	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS B	LOS C	LOS C
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B	LOS B	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
Tweed Coast Road / Site Access	S	T1		LOS A	LOS A	LOS A	LOS A		LOS A	LOS A	LOS A	LOS A
		R2			LOS C	LOS B	LOS A			LOS B	LOS C	LOS B
	E	L2			LOS F	LOS F	LOS A			LOS F	LOS E	LOS A
		R2			LOS F	LOS F	LOS B			LOS F	LOS E	LOS B
	N	L2		LOS A	LOS A	LOS F	LOS A		LOS A	LOS A	LOS E	LOS A
		T1		LOS A	LOS A	LOS E	LOS A		LOS A	LOS A	LOS E	LOS A
Tweed Coast Road / Cudgen Road	S	L1	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS D	LOS C	LOS C	LOS C
		T1	LOS B	LOS C	LOS C	LOS C	LOS C	LOS C	LOS D	LOS C	LOS C	LOS C
		R3	LOS E	LOS F	LOS F	LOS F	LOS F	LOS E	LOS F	LOS E	LOS F	LOS E
	SE	L3	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS B	LOS B
		T1	LOS C	LOS F	LOS E	LOS E	LOS E	LOS C	LOS F	LOS C	LOS D	LOS C
		R1	LOS C	LOS E	LOS E	LOS E	LOS E	LOS C	LOS F	LOS C	LOS D	LOS C
	N	L1	LOS B	LOS C	LOS C	LOS D	LOS C	LOS B	LOS B	LOS B	LOS C	LOS B
		T1	LOS C	LOS D	LOS D	LOS D	LOS D	LOS D	LOS E	LOS D	LOS D	LOS D
		R3	LOS D	LOS D	LOS D	LOS C	LOS D	LOS D	LOS E	LOS D	LOS C	LOS D
	NW	L3	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS B	LOS B
		T1	LOS D	LOS F	LOS F	LOS E	LOS F	LOS D	LOS E	LOS D	LOS E	LOS D
		R1	LOS D	LOS F	LOS F	LOS F	LOS F	LOS D	LOS F	LOS E	LOS F	LOS E



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Cudgen Road / Site Access	E	T1		LOS A	LOS A	LOS A	LOS A		LOS F	LOS D	LOS B	LOS D
		R2		LOS C	LOS D	LOS C	LOS D		LOS F	LOS F	LOS D	LOS F
	N	L2		LOS F	LOS E	LOS E	LOS E		LOS F	LOS D	LOS D	LOS D
		R2		LOS F	LOS E	LOS E	LOS E		LOS F	LOS D	LOS D	LOS D
	W	L2		LOS A	LOS A	LOS A	LOS A		LOS E	LOS B	LOS A	LOS B
		T1		LOS A	LOS B	LOS A	LOS B		LOS E	LOS C	LOS A	LOS C
Cudgen Road / Tweed Valley Hospital	E	T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	N	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS C	LOS A	LOS A	LOS A
		R2	LOS D	LOS E	LOS D	LOS D	LOS D	LOS D	LOS F	LOS D	LOS D	LOS D
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS B	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
Cudgen Road / Turnock Street	SE	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS C	LOS D	LOS D	LOS D	LOS D
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS C	LOS D	LOS D	LOS D	LOS D
		R2	LOS A	LOS B	LOS B	LOS B	LOS B	LOS C	LOS D	LOS D	LOS D	LOS D
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS D	LOS D	LOS D	LOS D
	NE	L2	LOS A	LOS B	LOS B	LOS B	LOS B	LOS A	LOS B	LOS B	LOS B	LOS B
		T1	LOS A	LOS B	LOS B	LOS B	LOS B	LOS A	LOS B	LOS B	LOS B	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	NW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	SW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS B	LOS B	LOS B	LOS B	LOS A	LOS A	LOS A	LOS A	LOS A
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B

The SIDRA analysis indicates that site access at Tweed Coast will operate below performance threshold in Options 1 and 4. Despite some options operating below performance threshold, Option 1 indicates that having only an egress at Cudgen Road will result in a site access performance of LOS F. Therefore, a full movement access arrangement at Tweed Coast Road is recommended.

A summary of the DOS of the road network during 2036 10-year horizon scenario for AM and PM peak periods is outlined in Table 14 and full movement summary is included in Appendix 4.



Table 14: 2036 10-Year Horizon Road Network DOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Pacific Motorway / Tweed Coast Road	S	L2	0.075	0.084	0.078	0.084	0.084	0.124	0.117	0.126	0.146	0.146
		T1	0.075	0.084	0.078	0.084	0.084	0.124	0.117	0.126	0.146	0.146
		R2	0.462	0.51	0.475	0.51	0.51	0.611	0.576	0.619	0.717	0.717
	E	L2	0.302	0.35	0.35	0.35	0.35	0.31	0.337	0.337	0.337	0.337
		T1	0.302	0.35	0.35	0.35	0.35	0.31	0.337	0.337	0.337	0.337
		R2	0.302	0.35	0.35	0.35	0.35	0.31	0.337	0.337	0.337	0.337
	N	L2	0.058	0.064	0.06	0.064	0.064	0.09	0.087	0.098	0.139	0.142
		T1	0.125	0.161	0.148	0.161	0.161	0.148	0.149	0.171	0.248	0.252
		R2	0.125	0.161	0.148	0.161	0.161	0.148	0.149	0.171	0.248	0.252
	W	L2	0.08	0.089	0.084	0.089	0.089	0.109	0.113	0.124	0.152	0.155
		T1	0.08	0.089	0.084	0.089	0.089	0.103	0.113	0.124	0.152	0.155
		R2	0.126	0.167	0.158	0.167	0.167	0.103	0.114	0.124	0.152	0.155
Tweed Coast Road / Site Access	S	T1		0.278	0.256	0.304	0.352		0.318	0.34	0.465	0.535
		R2			0.256	0.304	0.352			0.34	0.465	0.535
	E	L2			4.195	0.933	0.164			15.876	0.91	0.335
		R2			4.195	0.933	0.164			15.876	0.91	0.335
	N	L2		0.248	0.256	0.898	0.486		0.219	0.204	0.909	0.352
		T1		0.248	0.256	0.898	0.486		0.219	0.204	0.909	0.352
Tweed Coast Road / Cudgen Road	S	L1	0.329	0.324	0.322	0.322	0.322	0.382	0.358	0.387	0.375	0.387
		T1	0.329	0.324	0.322	0.322	0.322	0.382	0.358	0.387	0.375	0.387
		R3	0.905	1.142	1.115	1.072	1.115	0.944	0.904	0.904	0.994	0.904
	SE	L3	0.075	0.08	0.081	0.082	0.081	0.215	0.177	0.25	0.254	0.25
		T1	0.609	0.913	0.902	0.902	0.902	0.805	0.909	0.804	0.897	0.804
		R1	0.609	0.913	0.902	0.902	0.902	0.805	0.909	0.804	0.897	0.804
	N	L1	0.831	0.823	0.9	0.9	0.9	0.562	0.561	0.528	0.551	0.529
		T1	0.358	0.306	0.315	0.316	0.316	0.791	0.669	0.722	0.68	0.723
		R3	0.059	0.029	0.027	0.027	0.027	0.111	0.049	0.097	0.079	0.097
	NW	L3	0.23	0.467	0.444	0.434	0.444	0.317	0.402	0.376	0.437	0.376
		T1	0.519	1.052	1.000	0.979	1.000	0.714	0.907	0.847	0.985	0.847
		R1	0.519	1.052	1.000	0.979	1.000	0.714	0.907	0.847	0.985	0.847



INTERSECTION	APPROACH	MOVEMENT	AM PEAK HOUR					PM PEAK HOUR				
			BKG	OPT 1	OPT 2	OPT 3	OPT 4	BKG	OPT 1	OPT 2	OPT 3	OPT 4
Cudgen Road / Site Access	E	T1		0.407	0.41	0.41	0.41		1.164	0.972	0.893	0.972
		R2		0.407	0.41	0.41	0.41		1.164	0.972	0.893	0.972
	N	L2		0.95	0.179	0.179	0.179		3.938	0.49	0.451	0.49
		R2		0.95	0.179	0.179	0.179		3.938	0.49	0.451	0.49
	W	L2		0.851	0.872	0.878	0.872		0.965	0.845	0.783	0.845
		T1		0.851	0.872	0.878	0.872		0.965	0.845	0.783	0.845
Cudgen Road / Tweed Valley Hospital	E	T1	0.416	0.386	0.39	0.39	0.39	0.757	0.754	0.73	0.73	0.73
		R2	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
	N	L2	0.084	0.085	0.085	0.085	0.085	0.401	0.467	0.452	0.452	0.452
		R2	0.133	0.134	0.133	0.133	0.133	0.632	0.734	0.711	0.711	0.711
	W	L2	0.074	0.064	0.066	0.066	0.066	0.043	0.037	0.041	0.041	0.041
		T1	0.54	0.442	0.455	0.458	0.455	0.42	0.37	0.39	0.39	0.39
Cudgen Road / Turnock Street	SE	L2	0.512	0.619	0.619	0.619	0.619	0.924	0.992	0.996	0.996	0.996
		T1	0.512	0.619	0.619	0.619	0.619	0.924	0.992	0.996	0.996	0.996
		R2	0.512	0.619	0.619	0.619	0.619	0.924	0.992	0.996	0.996	0.996
		U	0.512	0.619	0.619	0.619	0.619	0.924	0.992	0.996	0.996	0.996
	NE	L2	0.369	0.449	0.449	0.453	0.45	0.527	0.61	0.6	0.601	0.6
		T1	0.369	0.449	0.449	0.453	0.45	0.527	0.61	0.6	0.601	0.6
		R2	0.369	0.449	0.449	0.453	0.45	0.527	0.61	0.6	0.601	0.6
		U	0.369	0.449	0.449	0.453	0.45	0.527	0.61	0.6	0.601	0.6
	NW	L2	0.048	0.174	0.174	0.175	0.174	0.142	0.413	0.4	0.401	0.4
		T1	0.048	0.174	0.174	0.175	0.174	0.142	0.413	0.4	0.401	0.4
		R2	0.048	0.174	0.174	0.175	0.174	0.142	0.413	0.4	0.401	0.4
		U	0.048	0.174	0.174	0.175	0.174	0.142	0.413	0.4	0.401	0.4
	SW	L2	0.325	0.366	0.369	0.371	0.369	0.304	0.323	0.324	0.324	0.324
		T1	0.325	0.366	0.369	0.371	0.369	0.304	0.323	0.324	0.324	0.324
		R2	0.481	0.532	0.536	0.54	0.536	0.322	0.341	0.341	0.342	0.342
		U	0.481	0.532	0.536	0.54	0.536	0.322	0.341	0.341	0.342	0.342

The SIDRA analysis indicates that only Option 2 will exceed DOS of 1.0 at the site access at Tweed Coast Road, with highest DOS of 15.876. Meanwhile, only Option 1 will exceed DOS of 1.0 at the site access at Cudgen Road, with highest DOS of 3.938. This suggests that Options 1 and 2 are not a viable option.



5.4.4 Recommended Access Arrangement

Based on the SIDRA analysis, a left-in (Option 1) and roundabout (Option 4) access arrangement at Tweed Coast Road allow the site access to operate below performance thresholds. However, SIDRA results indicates that Option 1 cannot accommodate all egress traffic at Cudgen Road and therefore an all-movement access arrangement at Tweed Coast Road is required. SIDRA results indicate that Option 4 will have an LOS F at the site access at Cudgen Road. To mitigate this, an access arrangement of roundabout access at Tweed Coast Road only has been assessed. Figure 10 illustrates the recommended access arrangement.



Figure 10: Option 5 - Roundabout West Access (Source: Cottee Parker Architects, PSA)

This access arrangement has been further tested in these two scenarios:

- Connection with Tweed Valley Hospital has been established
- Connection with Tweed Valley Hospital has not been established

A summary of the LOS of the road network for Option 5 during both with and without connection with Tweed Valley Hospital scenario is outlined in Table 15 and full movement summary is included in Appendix 4.



Table 15: Option 5 Road Network LOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	OPTION 5 (WITH TVH CONNECTION)				OPTION 5 (WITHOUT TVH CONNECTION)			
			2026		2036		2026		2036	
			AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Pacific Motorway / Tweed Coast Road	S	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS B	LOS B	LOS B	LOS A	LOS B	LOS B	LOS B
	E	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
	N	L2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS C
		T1	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B
		R2	LOS B	LOS C	LOS B	LOS C	LOS B	LOS C	LOS B	LOS C
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS A	LOS B
		T1	LOS A	LOS B	LOS A	LOS B	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
Tweed Coast Road / Site Access	S	T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B
	E	L2	LOS A	LOS A	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C
	N	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
Tweed Coast Road / Cudgen Road	S	L1	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C	LOS C
		T1	LOS B	LOS B	LOS B	LOS B	LOS B	LOS C	LOS B	LOS C
		R3	LOS D	LOS D	LOS E	LOS E	LOS E	LOS E	LOS E	LOS E
	SE	L3	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B	LOS A	LOS B
		T1	LOS C	LOS D	LOS C	LOS C	LOS C	LOS D	LOS C	LOS D
		R1	LOS C	LOS D	LOS C	LOS C	LOS C	LOS D	LOS C	LOS D
	N	L1	LOS B	LOS B	LOS C	LOS B	LOS B	LOS B	LOS B	LOS B
		T1	LOS C	LOS C	LOS C	LOS D	LOS C	LOS D	LOS C	LOS D
		R3	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D
	NW	L3	LOS A	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		T1	LOS C	LOS C	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D
		R1	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS E



INTERSECTION	APPROACH	MOVEMENT	OPTION 5 (WITH TVH CONNECTION)				OPTION 5 (WITHOUT TVH CONNECTION)			
			2026		2036		2026		2036	
			AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Cudgen Road / Tweed Valley Hospital	E	T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	N	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS B	LOS B
		R2	LOS C	LOS D	LOS D	LOS D	LOS D	LOS D	LOS D	LOS E
	W	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS B	LOS A	LOS B	LOS A	LOS A	LOS A	LOS A	LOS A
Cudgen Road / Turnock Street	SE	L2	LOS A	LOS B	LOS A	LOS B	LOS A	LOS D	LOS A	LOS D
		T1	LOS A	LOS B	LOS A	LOS B	LOS A	LOS D	LOS A	LOS D
		R2	LOS A	LOS B	LOS B	LOS B	LOS A	LOS D	LOS B	LOS D
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS D	LOS B	LOS E
	NE	L2	LOS A	LOS A	LOS B	LOS A	LOS A	LOS B	LOS B	LOS B
		T1	LOS A	LOS A	LOS B	LOS A	LOS A	LOS B	LOS B	LOS B
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	NW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B
	SW	L2	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		T1	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A	LOS A
		R2	LOS B	LOS A	LOS B	LOS A	LOS A	LOS A	LOS A	LOS A
		U	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B	LOS B

SIDRA analysis indicates that the recommended site access arrangement will have a highest LOS of E. The critical movements at the Tweed Coast Road / Cudgen Road intersection are the right-turn movements from the south and northwest approaches. It should be noted that the right-turn movement of the south approach is already performing at LOS E in the background scenario and therefore will not trigger a mitigation measure that was not needed in the background scenario. The LOS E for the northwest approach only occurs when no connection with Tweed Valley Hospital has been established. As traffic impact is further refined and analysed with future development application/s, review of the signal phasing is encouraged to ensure traffic network efficiency.

It has been observed that the LOS of Cudgen Road / Tweed Valley Hospital and Cudgen Road / Turnock Street intersections will reach up to LOS E. Due to an increase in through movement on Cudgen Road, the Tweed Valley Hospital access will experience increased delays, resulting in a worse LOS.

To support access and movement integration throughout the broader precinct, it is recommended that vehicle connections with Tweed Valley Hospital are pursued. Securing this outcome will ensure smoother traffic flow, and increase network efficiency at both Cudgen Road / Tweed Valley Hospital and Cudgen Road / Turnock Street intersections. Nonetheless, desktop analysis has identified sufficient width within the existing road reserve to accommodate improvement in Cudgen Road / Turnock Street intersection.



A summary of the DOS of the road network for Option 5 during both with and without connection with Tweed Valley Hospital scenario is outlined in Table 16 and full movement summary is included in Appendix 4.

Table 16: Option 5 Road Network DOS (Source: SIDRA)

INTERSECTION	APPROACH	MOVEMENT	OPTION 5 (WITH TVH CONNECTION)				OPTION 5 (WITHOUT TVH CONNECTION)			
			2026		2036		2026		2036	
			AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Pacific Motorway / Tweed Coast Road	S	L2	0.076	0.133	0.084	0.146	0.076	0.133	0.084	0.146
		T1	0.076	0.133	0.084	0.146	0.076	0.133	0.084	0.146
		R2	0.465	0.652	0.51	0.717	0.465	0.652	0.51	0.717
	E	L2	0.322	0.309	0.35	0.337	0.322	0.309	0.35	0.337
		T1	0.322	0.309	0.35	0.337	0.322	0.309	0.35	0.337
		R2	0.322	0.309	0.35	0.337	0.322	0.309	0.35	0.337
	N	L2	0.053	0.102	0.064	0.142	0.053	0.102	0.064	0.142
		T1	0.133	0.179	0.161	0.252	0.133	0.179	0.161	0.252
		R2	0.133	0.179	0.161	0.252	0.133	0.179	0.161	0.252
	W	L2	0.077	0.123	0.089	0.155	0.077	0.123	0.089	0.155
		T1	0.077	0.123	0.089	0.155	0.077	0.123	0.089	0.155
		R2	0.144	0.123	0.167	0.155	0.144	0.123	0.167	0.155
Tweed Coast Road / Site Access	S	T1	0.483	0.68	0.383	0.545	0.548	0.721	0.432	0.574
		R2	0.483	0.68	0.383	0.545	0.548	0.721	0.432	0.574
	E	L2	0.193	0.437	0.203	0.454	0.325	0.719	0.349	0.753
		R2	0.193	0.437	0.203	0.454	0.325	0.719	0.349	0.753
	N	L2	0.43	0.344	0.464	0.372	0.493	0.378	0.531	0.408
		T1	0.43	0.344	0.464	0.372	0.493	0.378	0.531	0.408
Tweed Coast Road / Cudgen Road	S	L1	0.349	0.305	0.366	0.377	0.34	0.315	0.359	0.357
		T1	0.349	0.305	0.366	0.377	0.34	0.315	0.359	0.357
		R3	0.91	0.883	0.905	0.944	0.91	0.865	0.916	0.918
	SE	L3	0.064	0.191	0.075	0.218	0.063	0.186	0.074	0.213
		T1	0.524	0.87	0.609	0.837	0.621	0.804	0.705	0.859
		R1	0.524	0.87	0.609	0.837	0.621	0.804	0.705	0.859
	N	L1	0.827	0.569	0.831	0.562	0.804	0.68	0.827	0.648
		T1	0.531	0.871	0.368	0.804	0.455	0.82	0.332	0.639
		R3	0.125	0.287	0.117	0.289	0.125	0.281	0.118	0.281
	NW	L3	0.172	0.236	0.236	0.32	0.197	0.27	0.266	0.361



INTERSECTION	APPROACH	MOVEMENT	OPTION 5 (WITH TVH CONNECTION)				OPTION 5 (WITHOUT TVH CONNECTION)			
			2026		2036		2026		2036	
			AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK	AM PEAK	PM PEAK
Cudgen Road / Tweed Valley Hospital		T1	0.389	0.533	0.532	0.722	0.443	0.609	0.599	0.813
		R1	0.389	0.533	0.532	0.722	0.443	0.609	0.599	0.813
	E	T1	0.36	0.656	0.416	0.757	0.443	0.677	0.491	0.747
		R2	0.002	0.002	0.003	0.002	0.002	0.002	0.003	0.003
	N	L2	0.053	0.289	0.084	0.401	0.053	0.289	0.095	0.591
		R2	0.084	0.455	0.133	0.632	0.084	0.455	0.149	0.931
Cudgen Road / Turnock Street	W	L2	0.054	0.031	0.074	0.043	0.051	0.029	0.072	0.04
		T1	0.491	0.382	0.54	0.42	0.488	0.438	0.548	0.444
	SE	L2	0.514	0.782	0.619	0.996	0.513	0.782	0.619	0.999
		T1	0.514	0.782	0.619	0.996	0.513	0.782	0.619	0.999
		R2	0.514	0.782	0.619	0.996	0.513	0.782	0.619	0.999
		U	0.514	0.782	0.619	0.996	0.513	0.782	0.619	0.999
	NE	L2	0.331	0.465	0.449	0.598	0.324	0.468	0.442	0.601
		T1	0.331	0.465	0.449	0.598	0.324	0.468	0.442	0.601
		R2	0.331	0.465	0.449	0.598	0.324	0.468	0.442	0.601
		U	0.331	0.465	0.449	0.598	0.324	0.468	0.442	0.601
	NW	L2	0.136	0.325	0.171	0.397	0.031	0.102	0.052	0.155
		T1	0.136	0.325	0.171	0.397	0.031	0.102	0.052	0.155
		R2	0.136	0.325	0.171	0.397	0.031	0.102	0.052	0.155
		U	0.136	0.325	0.171	0.397	0.031	0.102	0.052	0.155
	SW	L2	0.304	0.265	0.376	0.324	0.284	0.307	0.348	0.366
		T1	0.304	0.265	0.376	0.324	0.284	0.307	0.348	0.366
		R2	0.444	0.28	0.546	0.342	0.421	0.326	0.513	0.387
		U	0.444	0.28	0.546	0.342	0.421	0.326	0.513	0.387

SIDRA analysis indicates that no movement within the surrounding road network will exceed a DOS of 1.0.

Ultimately, Access Arrangement Option 5 is the access arrangement that will result in minimal impact to the surrounding network. To prevent increase delay in Tweed Valley Hospital access, it is recommended to establish connection with the proposed development.

To reaffirm, the abovementioned scenarios have been analysed without the planned 'east-west' connection road north of the site being delivered. Delivery of this planned infrastructure (see TRDS 2019) is anticipated to notably reduce southeast bound AM movements, and northwest bound PM movements within the Tweed Coast Road/Cudgen Road intersection. Notwithstanding, as previously detailed, the impact of these roads on trip distribution has not been modelled within the



TRDS 2019 or like document available in the public domain. Accordingly, integration of these future roads through modelling into this TIA is inappropriate to pursue at this time.

The current road reserve along Tweed Coast Road, where the site access is located, is 30 m. Table 17 outlines the required minimum central island and circulating width for a two-lane roundabout outlined in Austroads Guide to Road Design Part 4B: Roundabouts. Section 2.2.1 indicates that Tweed Coast Road has a speed limit of 60 km/h. However, it should be noted that due to the close proximity of the Coast Tweed Road / Cudgen Road intersection, vehicles are expected to travel at speeds below 60 km/h.

Table 17: Roundabout Design Requirement (Source: Austroads)

FASTEST LEG SPEED	MINIMUM CENTRAL ISLAND RADIUS (2-LANE)	CIRCULATING WIDTH (DUAL TURN)	TOTAL ROUNDABOUT DIAMETER
50 km/h	8 m	9.7 m	35.4 m
60 km/h	14 m	8.8 m	45.6 m

Table 17 indicates that the required roundabout diameter for site access is 45.6 m. However, due to the close proximity to the Tweed Coast Road / Cudgen Road intersection, vehicles are expected to travel at speeds below 60 km/h. Therefore, a 35.4 m roundabout is deemed suitable for its purpose. As the road reserve is only 30 m, it is recommended that the proposed development dedicate land for the roundabout rather than encroaching on the opposite private land. Doing so will result in a minor realignment of Tweed Coast Road towards the site, however no capacity, safety, sight line or like concerns are identified in doing so. Figure 11 illustrates Darlington Drive / Leisure Drive roundabout which has a similar configuration with the proposed access arrangement.



Figure 11: Darlington Drive / Leisure Drive Roundabout (Source: Nearmap)



5.5 OTHER TRANSPORT CONSIDERATIONS

5.5.1 Public Transport Network

The desired inclusion of an on-site bus interchange is also indicated on the masterplan which would improve public transport accessibility for both Cudgen Connection and the Tweed Valley Hospital. The final inclusion of a bus interchange is subject to further design and consultation with TfNSW and local bus operators and will be pursued further post the rezoning process. The indicative/proposed bus routes are shown in Figure 12, with red being southbound buses and blue being northbound buses.



Figure 12: Indicative Bus Route (Source: Centuria Healthcare, PSA)

5.5.2 On-Site Parking and Servicing Requirements

The car parking and servicing requirements as specified by the TSC Development Control Plan Section A2 – Site Access and Parking Code are summarised below in Table 18.

Table 18: Parking and Servicing Requirements (Source: TSC)

LAND USE	CAR PARKING RATE	BICYCLE PARKING RATE	SERVICE VEHICLE
Worker Units	1 space per 1 bedroom unit 1.5 spaces per 2 bedroom unit 2 spaces for 3 or more bedroom units 1 space per 4 units for visitors	1 per unit for residents 1 per 8 units for visitors	-
Private Hospital / Mental Health Hospital	0.8 spaces per bed for staff, plus 0.8 spaces per bed for visitors, plus	1 per 15 beds for employees, plus 1 per 30 beds for visitors	-



LAND USE	CAR PARKING RATE	BICYCLE PARKING RATE	SERVICE VEHICLE
	1 space per 30 beds for delivery/service vehicle parking		
University Campus	0.5 spaces per staff members, plus 1 per 6 students, plus 1 space for HRV service vehicle	1 per 100 part time students, plus 1 per 200 full time students	HRV
Medical Hotel	1 space per staff member, plus 1 space per room/unit for visitors, plus 1 space for HRV service vehicle	1 per 4 staff members, plus 1 per 10 units for visitors	HRV
Medical Suites (Medical Centre)	1.6 spaces per consulting room for staff, plus 3.2 spaces per consulting room (GP), plus 1.6 spaces per consulting room (specialists), plus 1 space per 10 consulting room for HRV service vehicle	1 per 8 practitioners for employees, plus 1 per 4 practitioners for visitors	HRV
Childcare Centre	1 space per staff member, plus 1 space per 7.5 children, plus 1 space for SRV service vehicle	1 per 4 staff members	SRV
Shops	1 space per 100m² for staff, plus 3.5 spaces per 100m² for customers, plus 1 per 1500m², min 1, and min 2 for supermarkets for HRV service vehicle	2 per 100m² up to 100m², and thereafter 1 per 200m²	HRV
Community facilities	Assess on merit		-

As shown in Table 18, the largest service vehicle that is required for the development would be a Heavy Rigid Vehicle (HRV). Parking requirements for the land uses are dependent on a mixture of floor area and full-time staff member numbers. As the project moves through the various design phases, parking should be provided at the appropriate rate and provision made for a HRV to access the site in an efficient manner.

5.5.3 Bushfire Risk Assessment

A desktop analysis of the local road network has been pursued to ensure any evacuation from the site can be appropriately facilitated within the existing road network. Egress from the site is limited to the proposed intersection with Cudgen Road, as such all egress is away from the primary bushfire hazard on the site (which is located along the northern boundary). Additional egress from the site through the TVH site may be facilitated by way of active and/or public transport connection, however this has been discounted for the purpose of these assessment.



Access to the east and west is facilitated from the proposed intersection. In addition, opportunities for north-south movements are via Tweed Coast Road (220m west of the Cudgen Road access intersection), or north via Turnock Street (approximately 800m east of the Cudgen Road access intersection). No issues of concern, such as lane or shoulder width, have been identified for these immediate, urban-grade roads within this TIA. Further, as per Section 4.3, SIDRA analysis has been carried out, identifying satisfactory traffic capacity within the immediate network, though limitations within peak times at the Tweed Coast Road/Cudgen Road intersection may be present until planned road networks are completed.

Whilst bushfire mapping overlays many of the roads within the site's immediate vicinity, established urban roads provide suitable access away from the site in every direction. Likewise, access outside bushfire mapping is available to the east, along Cudgen Road and McPhail Road to the Kingscliff Town Centre. From the Town Centre, access north and south is available outside of mapped bushfire areas.

Accordingly, the potential for the proposed development to be isolated in the event of a bushfire is low, as access to Cudgen Road moves away from the primary bushfire risk. From Cudgen Road, multiple access/egress routes are available, enabling movement north, south, east and west along urban standard roads. No deficiencies in road specifications have been identified. Finally, a route outside of current bushfire mapping to the Kingscliff Town Centre has been identified if required.



6. CONCLUSION

PSA Consulting has been engaged by Planit Consulting to prepare a TIA to accompany the Planning Proposal to amend the Tweed Local Environmental Plan 2014 relating to the development site, seeking to change the zoning from Primary Production to an urban zone. The development includes the construction of the proposed Cudgen Connection Health Precinct.

A summary of findings of the TIA are as follows:

- The development indicatively includes the construction of:
 - Five essential worker accommodation buildings (286 units in total)
 - Residential Recreation Space
 - Mental Health Hospital
 - Private Hospital and Medical Suites
 - University Campus
 - Medical Hotel (100 rooms)
 - Retail and Community Centre
 - Childcare Centre
 - Plaza
- The proposed development is expected to generate approximately 856 trips in the AM peak hour and 902 trips in the PM peak hour. This assumes there are no trip-chaining or co-use of the various land uses of the development. In reality, it is considered that there will be shared trip generation, which is expected to reduce the overall trip generation by approximately 30%.
- Further reduction in car trips is expected due to planned improvements in public and active transport infrastructure / facilities for both Cudgen Connection and Tweed Valley Hospital (TVH) developments.
- The development can be staged to respond to the infrastructure capacity limitations throughout time. The developer is open to entering a Planning Agreement with Tweed Shire Council (TSC) to limit the commencement of development to traffic network thresholds/capacity, as well as the highest permissible use within the proposed Land Use Zone.
- To ensure reductions in trip generation from the standard rates, a Green Travel Plan is proposed to be conditioned as a part of the future stages of assessment of the development.
- The SIDRA analysis indicates that the surrounding road network is operating well below the performance threshold during 2024 base case, with a maximum DOS of 0.897. The critical movement within the network is the right turn from the south and northwest approaches of Tweed Coast Road / Cudgen Road intersection, which has a LOS rating of D.
- The SIDRA analysis indicates that the site access at Tweed Coast Road will have highest LOS of F in Option 2, while the site access at Cudgen Road will have highest LOS of E in Option 1. This suggests that the priority site access arrangement at Tweed Coast Road is not a viable option. Furthermore, having only one egress point at Cudgen Road indicates that the site access will reach near capacity, requiring either an additional egress point or redirection from Cudgen Road. Furthermore, critical movements of Tweed Coast Road / Cudgen Road intersection are the right-turn movements of south and northwest approaches, reaching up to LOS E.
- The SIDRA analysis indicates that only Option 2 will exceed DOS of 1.0 at the site access at Tweed Coast Road, with highest DOS of 14.422. This suggests that the priority site access arrangement at Tweed Coast Road is not a viable option.
- The SIDRA analysis indicates that site access at Tweed Coast will operate below performance threshold in Options 1 and 4. Despite some options operating below performance threshold, Option 1 indicates that having only an egress at Cudgen Road will result in a site access performance of LOS F. Therefore, a full movement access arrangement at Tweed Coast Road is recommended.



- The SIDRA analysis indicates that only Option 2 will exceed DOS of 1.0 at the site access at Tweed Coast Road, with highest DOS of 15.876. Meanwhile, only Option 1 will exceed DOS of 1.0 at the site access at Cudgen Road, with highest DOS of 3.938. This suggests that Options 1 and 2 are not a viable option.
- Based on the SIDRA analysis, a left-in (Option 1) and roundabout (Option 4) access arrangement at Tweed Coast Road allow the site access to operate below performance threshold. However, SIDRA results indicates that Option 1 cannot accommodate all egress traffic at Cudgen Road and therefore an all-movement access arrangement at Tweed Coast Road is required. SIDRA results indicates that Option 4 will have an LOS F at the site access at Cudgen Road. To mitigate this, an access arrangement of roundabout access at Tweed Coast Road only has been assessed.
- This access arrangement has been further tested in these two scenarios:
 - Connection with Tweed Valley Hospital has been established
 - Connection with Tweed Valley Hospital has not been established
- SIDRA analysis indicates that the recommended site access arrangement will have a highest LOS of E. The critical movements at the Tweed Coast Road / Cudgen Road intersection are the right-turn movements from the south and northwest approaches. It should be noted that the right-turn movement of the south approach is already performing at LOS E in the background scenario and therefore will not trigger a mitigation measure that was not needed in the background scenario. The LOS E for the northwest approach only occurs when no connection with Tweed Valley Hospital has been established. As traffic impact is further refined and analysed with future development application/s, review of the signal phasing is encouraged to ensure traffic network efficiency.
- It has been observed that the LOS of Cudgen Road / Tweed Valley Hospital and Cudgen Road / Turnock Street intersections will reach up to LOS E. Due to an increase in through movement on Cudgen Road, the Tweed Valley Hospital access will experience increased delays, resulting in a worse LOS.
- To support access and movement integration throughout the broader precinct, it is recommended that vehicle connections with Tweed Valley Hospital are pursued. Securing this outcome will ensure smoother traffic flow, and increase network efficiency at both Cudgen Road / Tweed Valley Hospital and Cudgen Road / Turnock Street intersections. Nonetheless, desktop analysis has identified sufficient width within the existing road reserve to accommodate improvement in Cudgen Road / Turnock Street intersection.
- SIDRA analysis indicates that no movement within the surrounding road network will exceed a DOS of 1.0.
- Ultimately, Access Arrangement Option 5 is the access arrangement that will result in minimal impact to the surrounding network. To prevent increase delay in Tweed Valley Hospital access, it is recommended to establish connection with the proposed development.
- To reaffirm, the abovementioned scenarios have been analysed without the planned 'east-west' connection road north of the site being delivered. Delivery of this planned infrastructure (see TRDS 2019) is anticipated to notably reduce southeast bound AM movements, and northwest bound PM movements within the Tweed Coast Road/Cudgen Road intersection. Notwithstanding, as previously detailed, the impact of these roads on trip distribution has not been modelled within the TRDS 2019 or like document available in the public domain. Accordingly, integration of these future roads through modelling into this TIA is inappropriate to pursue at this time.
- The required roundabout diameter for site access is 45.6 m. However, due to the close proximity to the Tweed Coast Road / Cudgen Road intersection, vehicles are expected to travel at speeds below 60 km/h. Therefore, a 35.4 m roundabout is deemed suitable for its purpose. As the road reserve is only 30 m, it is recommended that the proposed development dedicate land for the roundabout rather than encroaching on the opposite private land. Doing so will result in a minor realignment of Tweed Coast Road towards the site, however no capacity, safety, sight line or like concerns are identified in doing so.
- The desired inclusion of an on-site bus interchange is also indicated on the masterplan which would improve public transport accessibility for both Cudgen Connection and the Tweed Valley Hospital. The final inclusion of a bus interchange is subject to further design and consultation with TfNSW and local bus operators and will be pursued further post the rezoning process.



- The TSC Site Access and Parking Code require the site to provide for both HRV and SRV vehicles for the various land uses.
- Sufficient land area is identified that will allow for parking to be provided at an appropriate rate as outlined in the TSC Development Control Plan Section A2 – Site Access and Parking Code.

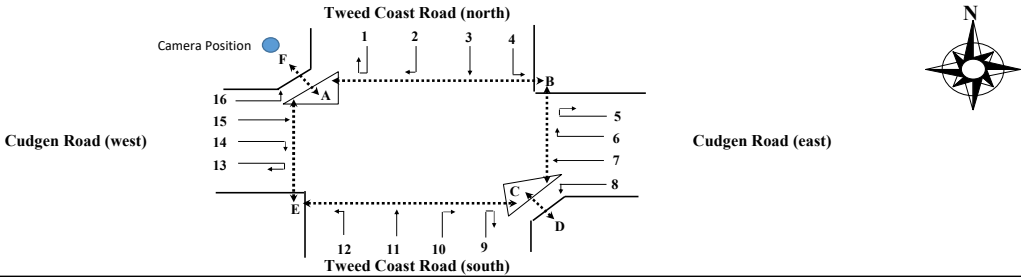


APPENDIX 1 AUSTRAFFIC TRAFFIC COUNTS

AP01

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 Weather: Intermittent shower
Location: Tweed Coast Road/Cudgen Road, Cudgen
Day/Date: Tuesday, 15 October 2024
AM Peak: Hour ending - 9:00 AM
PM Peak: Hour ending - 5:00 PM



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
6:15 AM	0	0	0	0	0	0	0	0	11	0	11	0	11	1	12	0	0	0	0	0	5	0	5	0	1	0	1	0	1	0	1	0
6:30 AM	0	0	0	0	0	0	0	0	18	3	21	0	18	0	18	0	0	0	0	0	11	0	11	0	1	0	1	0	0	0	0	0
6:45 AM	0	0	0	0	3	1	4	0	6	0	6	0	34	0	34	0	0	0	0	0	28	4	32	0	4	1	5	0	5	0	5	0
7:00 AM	0	0	0	0	1	0	1	0	21	3	24	0	33	0	33	0	0	0	0	0	29	3	32	0	0	0	0	0	16	0	16	0
7:15 AM	0	0	0	0	1	0	1	0	15	4	19	0	40	1	41	0	0	0	0	0	33	0	33	0	2	0	2	0	5	1	6	0
7:30 AM	0	0	0	0	1	0	1	0	72	4	76	0	79	1	80	0	0	0	0	0	37	1	38	0	7	1	8	0	11	0	11	0
7:45 AM	0	0	0	0	0	0	0	0	41	6	47	0	105	2	107	0	0	0	0	0	41	0	41	0	13	0	13	0	7	2	9	0
8:00 AM	0	0	0	0	5	0	5	0	74	7	81	0	202	4	206	0	0	0	0	0	47	1	48	0	11	2	13	0	12	0	12	0
8:15 AM	0	0	0	0	0	0	0	0	39	15	54	0	106	2	108	0	0	0	0	0	64	2	66	0	11	0	11	0	14	0	14	0
8:30 AM	1	0	1	0	1	0	1	0	60	9	69	0	162	3	165	0	0	0	0	0	71	2	73	0	22	0	22	0	11	3	14	0
8:45 AM	0	0	0	0	2	1	3	0	65	10	75	0	156	4	160	0	0	0	0	0	102	0	102	0	13	1	14	0	20	2	22	0
9:00 AM	0	0	0	0	3	1	4	0	74	4	78	0	209	4	213	0	0	0	0	0	98	5	103	0	21	2	23	0	12	4	16	0
3 hr Total	1	0	1	0	17	3	20	0	496	65	561	0	1155	22	1177	0	0	0	0	0	566	18	584	0	106	7	113	0	114	12	126	0
AM Peak	1	0	1	0	6	2	8	0	238	38	276	0	633	13	646	0	0	0	0	0	335	9	344	0	67	3	70	0	57	9	66	0

TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists	Light Vehicles	Heavy Vehicles	Total	Cyclists
3:15 PM	0	0	0	0	5	1	6	0	84	2	86	0	84	5	89	0	0	0	0	0	82	1	83	0	14	0	14	0	22	0	22	0
3:30 PM	0	0	0	0	3	0	3	0	82	7	89	0	85	8	93	0	0	0	0	0	104	2	106	0	27	1	28	0	27	5	32	0
3:45 PM	0	0	0	0	2	0	2	0	75	6	81	0	92	3	95	0	0	0	0	0	135	2	137	0	41	0	41	0	33	0	33	0
4:00 PM	0	0	0	0	4	0	4	0	97	5	102	0	111	4	115	0	0	0	0	0	95	3	98	0	19	1	20	0	28	1	29	0
4:15 PM	0	0	0	0	4	0	4	0	95	4	99	0	102	4	106	0	0	0	0	0	166	4	170	0	25	1	26	0	30	1	31	0
4:30 PM	0	0	0	0	0	0	0	0	122	5	127	0	117	2	119	0	0	0	0	0	142	1	143	0	25	2	27	0	55	3	58	0
4:45 PM	0	0	0	0	6	0	6	0	85	2	87	0	106	10	116	0	0	0	0	0	206	5	211	0	25	2	27	0	52	3	55	0
5:00 PM	0	0	0	0	4	0	4	0	110	2	112	0	103	6	109	0	0	0	0	0	145	2	147	0	25	1	26	0	36	4	40	0
5:15 PM	0	0	0	0	2	0	2	0	93	1	94	0	90	0	90	0	0	0	0	0	166	3	169	0	29	2	31	0	33	3	36	0
5:30 PM	0	0	0	0	3	0	3	0	129	1	130	0	99	0	99	0	0	0	0	0	121	2	123	0	12	0	12	0	36	0	36	0
5:45 PM	0	0	0	0	3	0	3	0	122	1	123	0	88	1	89	0	0	0	0	0	113	2	115	0	16	0	16	0	26	0	26	0
6:00 PM	0	0	0	0	2	0	2	0	137	1	138	0	85	1	86	0	0	0	0	0	106	0	106	0	22	1	23	0	36	0	36	0
3 hr Total	0	0	0	0	38	1	39	0	1231	37	1268	0	1162	44	1206	0	0	0	0	0	1581	27	1608	0	280	11	291	0	414	20	434	0
PM Peak	0	0	0	0	14	0	14	0	412	13	425	0	428	22	450	0	0	0	0	0	659	12	671	0	100	6	106	0	173	11	184	0



APPENDIX 2 TURNING MOVEMENTS

AP02

2024 BACKGROUND - AM PEAK

LV	HV
51	2
0	0
112	5



51	61	41	LV
2	3	2	HV



	↖	↑	↗
LV	67	26	689
HV	3	1	32

↑	62	3
←	128	6
↙	718	33
	LV	HV

LV	HV
6	0
11	0
0	0
0	0



0	8	104	83	LV
0	0	5	4	HV



LV	878	
HV	53	



	↑
LV	783
HV	37

LV	HV
21	0
87	0
10	2
0	0



1	6	238	633	LV
0	2	38	13	HV



		LV
		HV



24	0	LV
0	0	HV



	↶	↑	↷	↵
LV	5	441	127	0
HV	2	13	7	0

↘	0	0
↑	335	9
↙	67	3
↘	57	9
	LV	HV

		↑
LV	831	36
HV		



↑		
←	459	21
	LV	HV

55	0
768	36
LV	HV



↑	0	0
←	435	21
	LV	HV

PROPOSED
DEVELOPMENT

TWEED VALLEY
HOSPITAL

2024 BACKGROUND - PM PEAK

LV	HV
57	2
0	0
75	3



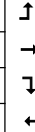
47	54	45	LV
2	2	2	HV



←	↑	→	
LV	122	30	903
HV	4	1	33

↑	100	4
←	133	5
↓	728	28
	LV	HV

LV	HV
28	0
34	0
0	0
0	0



2	7	271	66	LV
0	0	11	3	HV



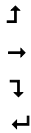
LV	854	
HV	35	



LV	1055
HV	39



LV	HV
24	0
106	0
31	2
0	0



0	14	412	428	LV
0	0	13	22	HV



		LV
		HV



126	0	LV
0	0	HV



2	0
89	4
14	0
531	21
LV	HV



PROPOSED
DEVELOPMENT

TWEED VALLEY
HOSPITAL

←	↑	→	↓	
LV	0	271	333	2
HV	0	11	13	0

←	↑	→	↓	
LV	21	377	100	0
HV	0	22	9	0

↑	0	0
←	659	12
→	100	6
↓	173	11
	LV	HV

641	24	
LV	HV	



↑		
←	929	32
	LV	HV

31	0
606	24
LV	HV



↑	0	0
←	803	32
	LV	HV

2026 BACKGROUND - AM PEAK

LV	HV
52	3
0	0
114	5

52	62	42	LV
3	3	2	HV

LV	68	27	701
HV	3	1	33

63	3
131	6
729	33
LV	HV

LV	HV
6	0
11	0
0	0
0	0

0	8	108	86	LV
0	0	5	4	HV

LV	892	
HV	54	

LV	796
HV	37

LV	HV
22	0
90	0
10	2
0	0

1	6	242	643	LV
0	2	39	13	HV

		LV
		HV

24	0	LV
0	0	HV

LV	5	448	129	0
HV	2	13	7	0

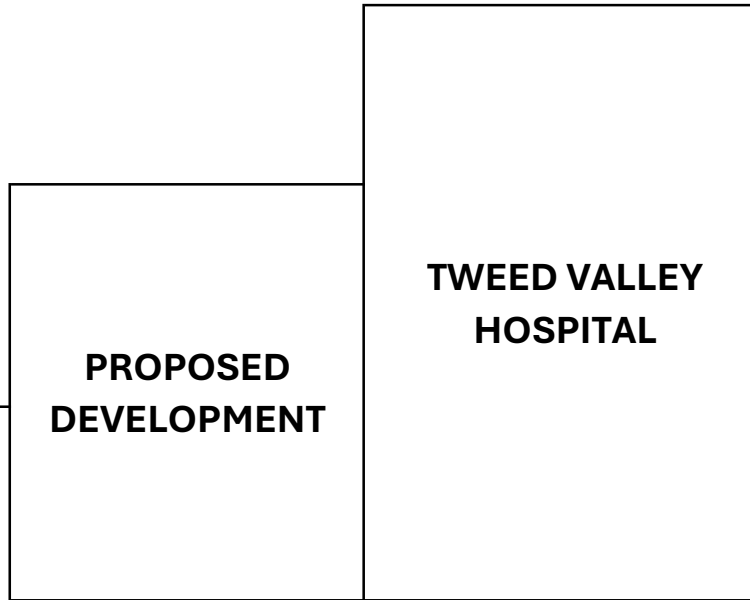
0	0
347	9
69	3
59	9
LV	HV

860	38
LV	HV

475	22
LV	HV

57	0
795	38
LV	HV

0	0
450	22
LV	HV



2026 BACKGROUND - PM PEAK

LV	HV
58	2
0	0
76	3

47	55	45	LV
2	2	2	HV

	↶	↑	↷
LV	124	31	918
HV	5	1	34

↑	101	4
←	135	5
↙	739	28
	LV	HV

LV	HV
29	0
35	0
0	0
0	0

2	7	281	68	LV
0	0	11	3	HV

LV	868	
HV	36	

LV	1072
HV	39

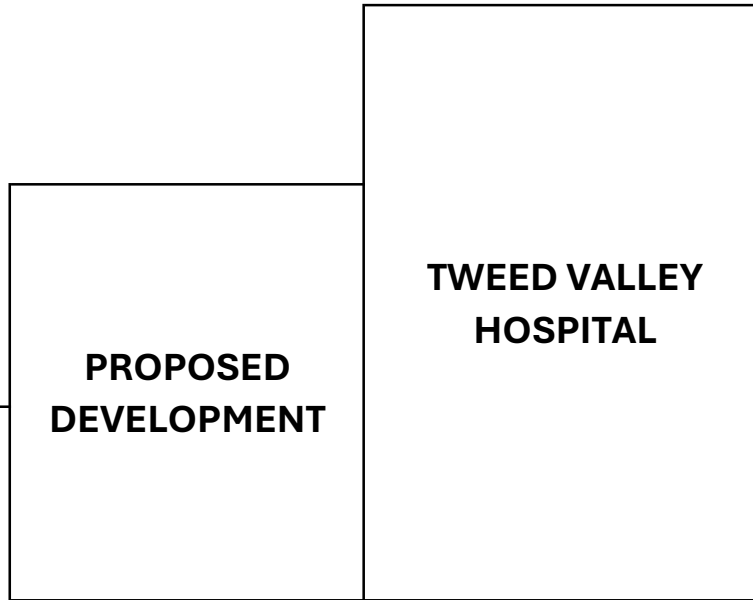
LV	HV
25	0
110	0
32	2
0	0

0	14	419	435	LV
0	0	13	22	HV

		LV
		HV

131	0	LV
0	0	HV

↗	2	0
↖	92	4
←	14	0
↙	550	22
	LV	HV



	↶	↷	↵	↴
LV	21	383	102	0
HV	0	22	9	0

↗	0	0
↖	682	12
←	103	6
↘	179	11
	LV	HV

LV	HV

↑	0	0
←	962	33
	LV	HV

32	0
627	25
LV	HV

↑	0	0
←	831	33
	LV	HV

2036 BACKGROUND - AM PEAK

LV	HV
57	3
0	0
125	6

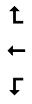


57	68	46	LV
3	3	2	HV

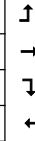


	←	↑	→
LV	75	29	765
HV	3	1	36

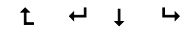
68	3
141	7
803	36
LV	HV



LV	HV
9	0
17	0
0	0
0	0



0	12	128	102	LV
0	0	6	5	HV



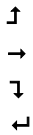
LV	982	
HV	58	



LV	869
HV	41



LV	HV
26	0
109	0
12	2
0	0



1	7	262	712	LV
0	2	42	14	HV



		LV
		HV



38	0	LV
0	0	HV



9	0
96	5
38	0
407	20
LV	HV



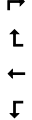
PROPOSED
DEVELOPMENT

TWEED VALLEY
HOSPITAL

	←	↑	→	↘
LV	0	330	613	0
HV	0	16	30	0

	←	↑	→	↘
LV	6	485	144	0
HV	2	14	8	0

0	0
419	11
83	4
71	11
LV	HV



1043	45
LV	HV



573	26
LV	HV



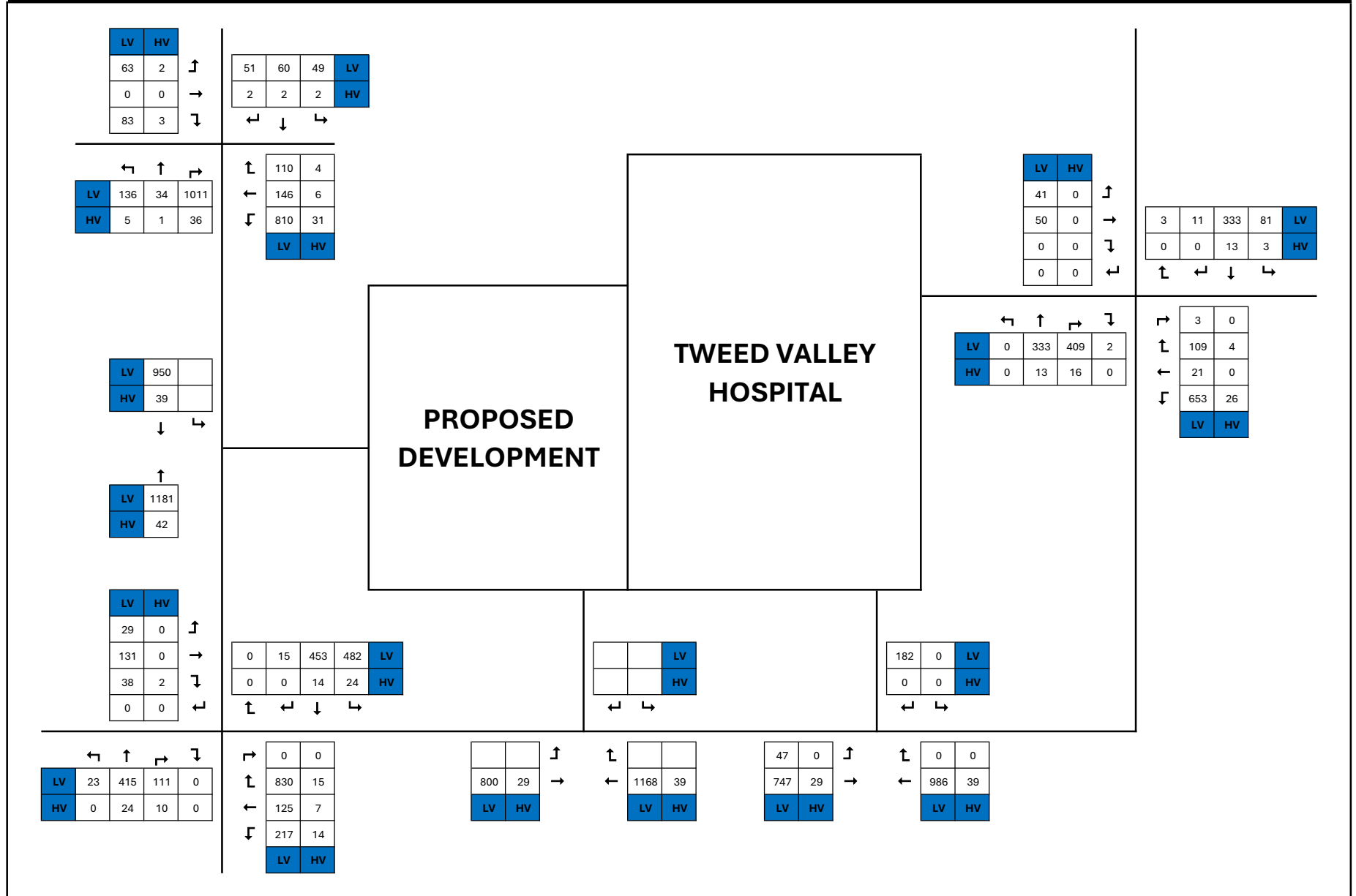
83	0
948	45
LV	HV



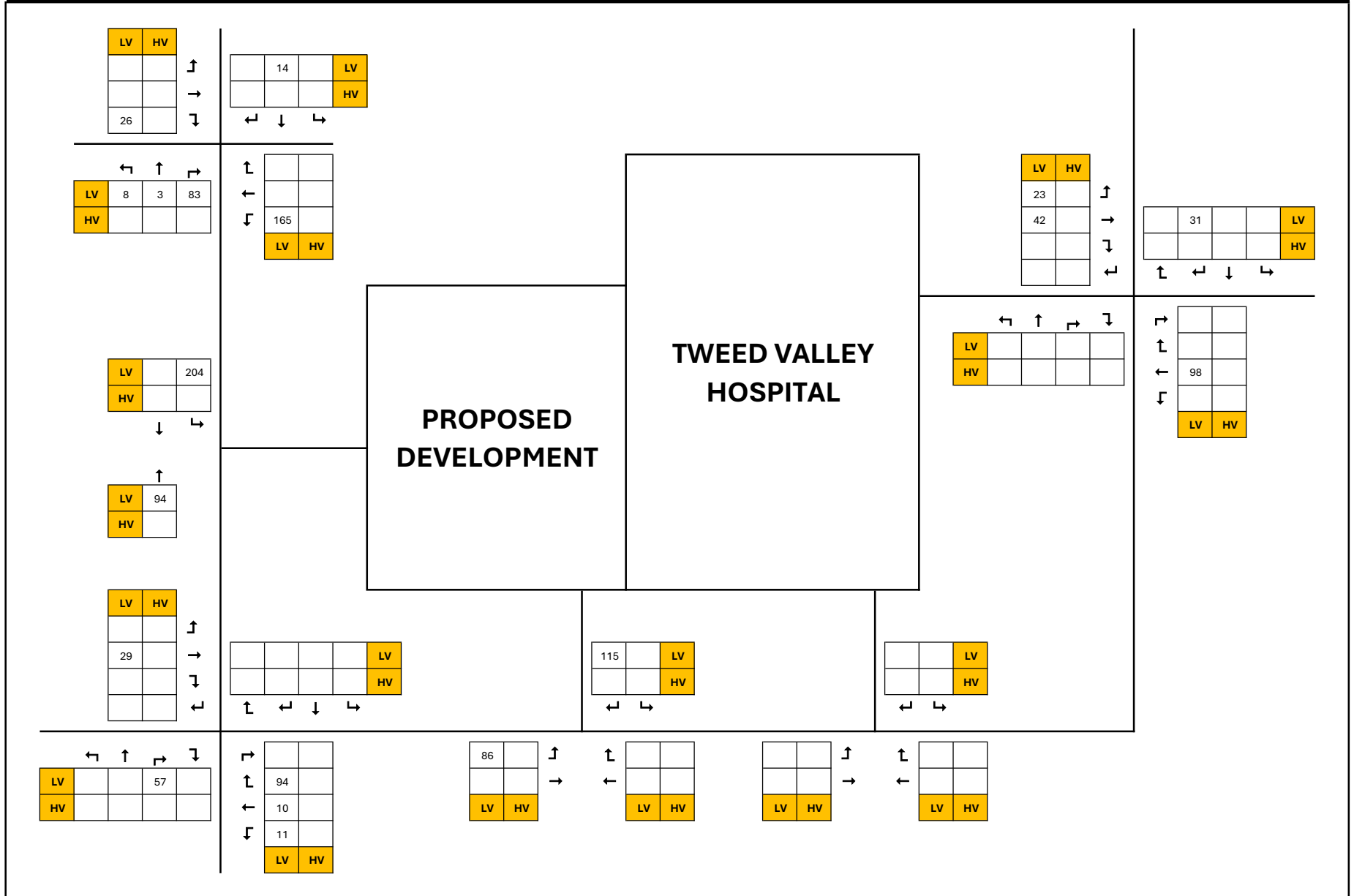
0	0
535	26
LV	HV



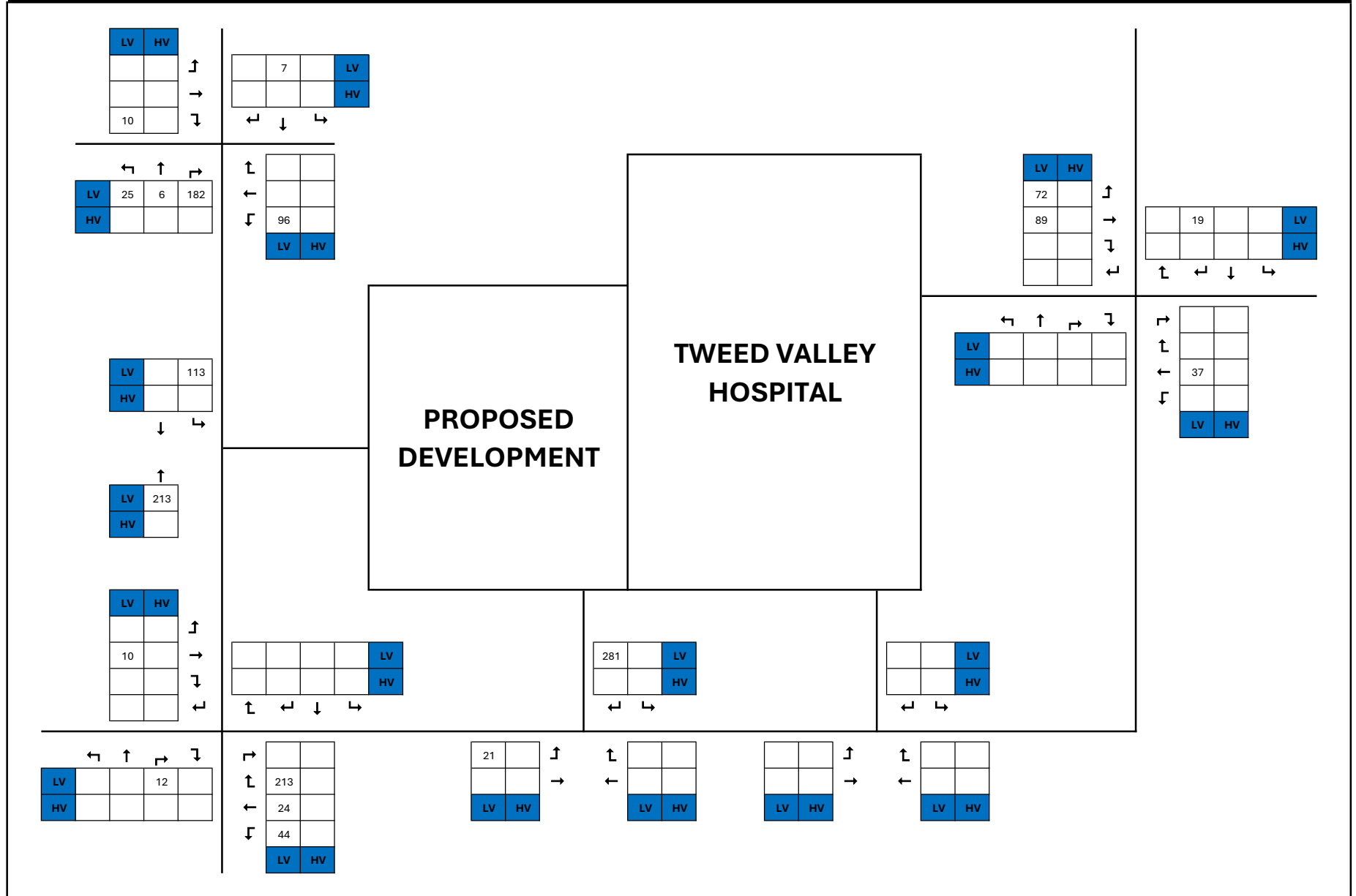
2036 BACKGROUND - PM PEAK



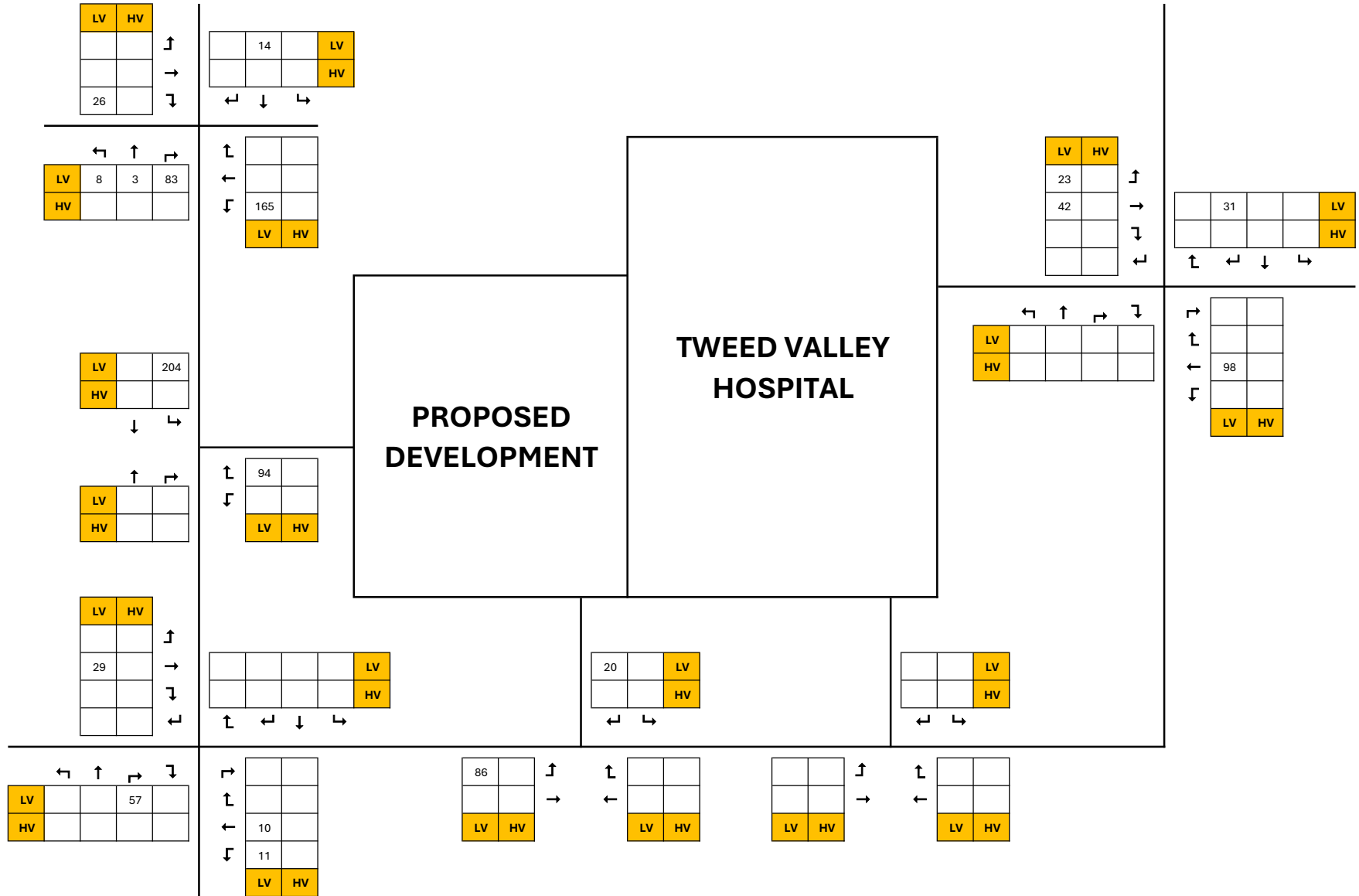
DEVELOPMENT (OPTION 1) - AM PEAK



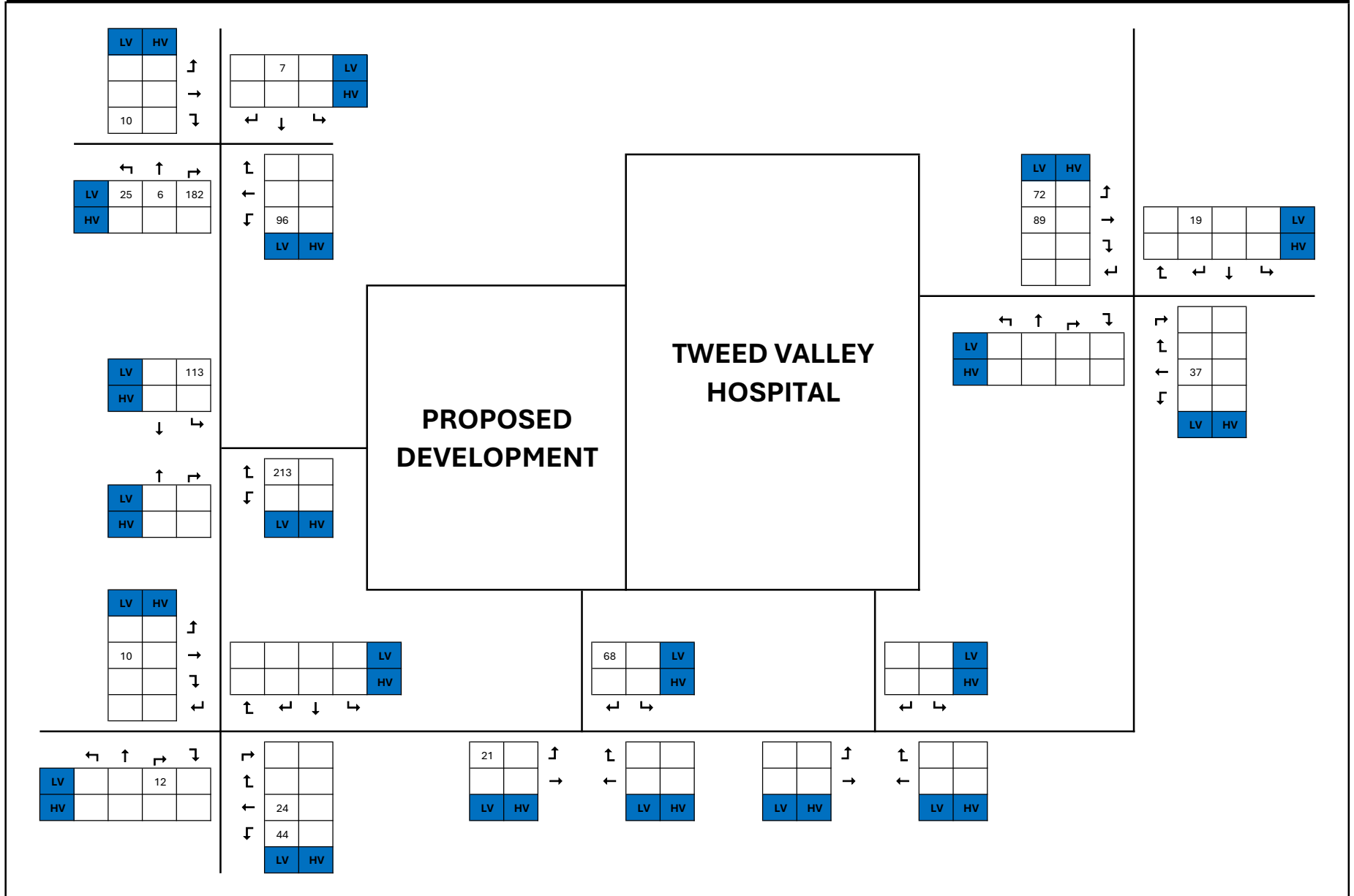
DEVELOPMENT (OPTION 1) - PM PEAK



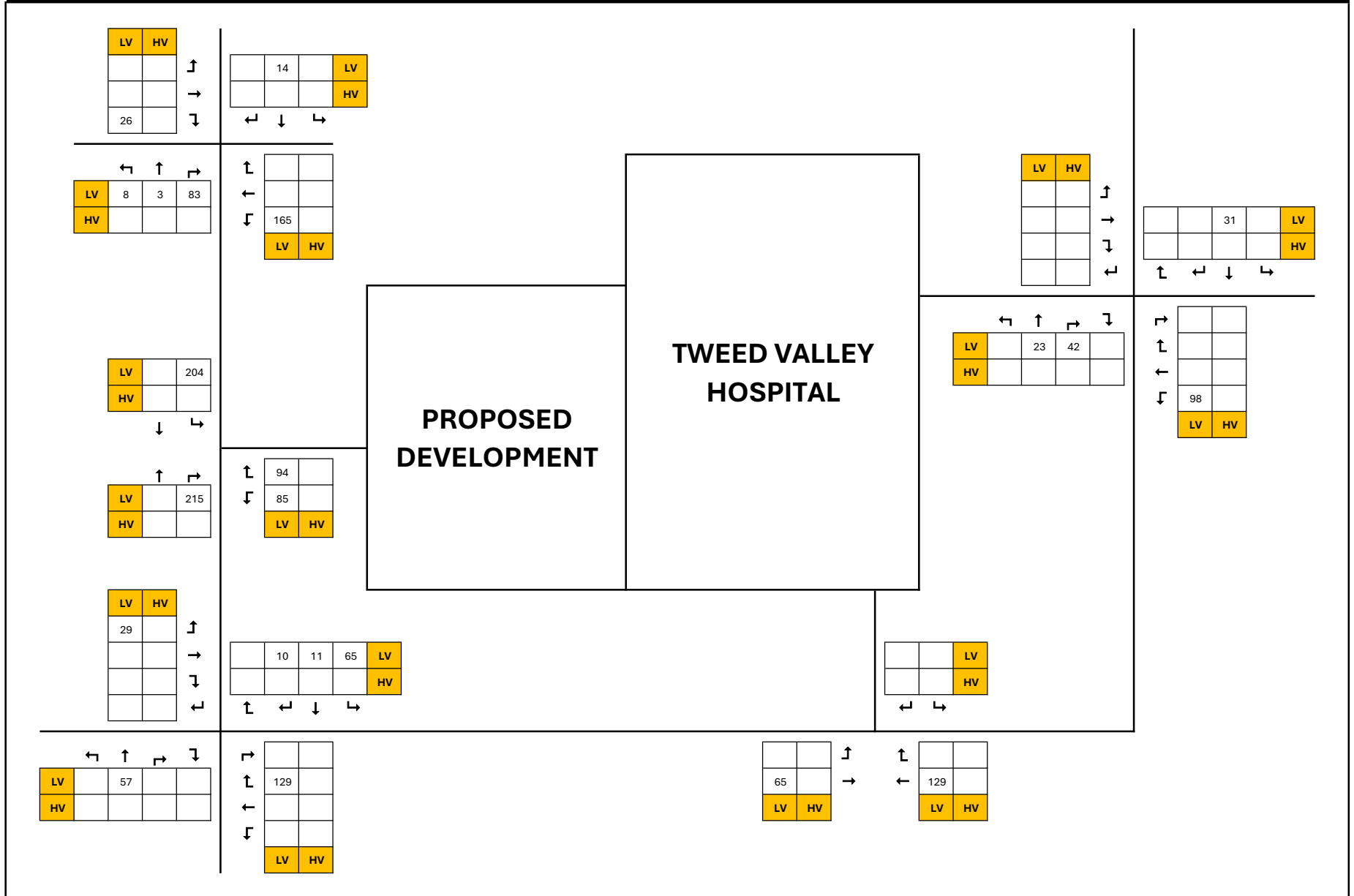
DEVELOPMENT (OPTION 2, 3 & 4) - AM PEAK



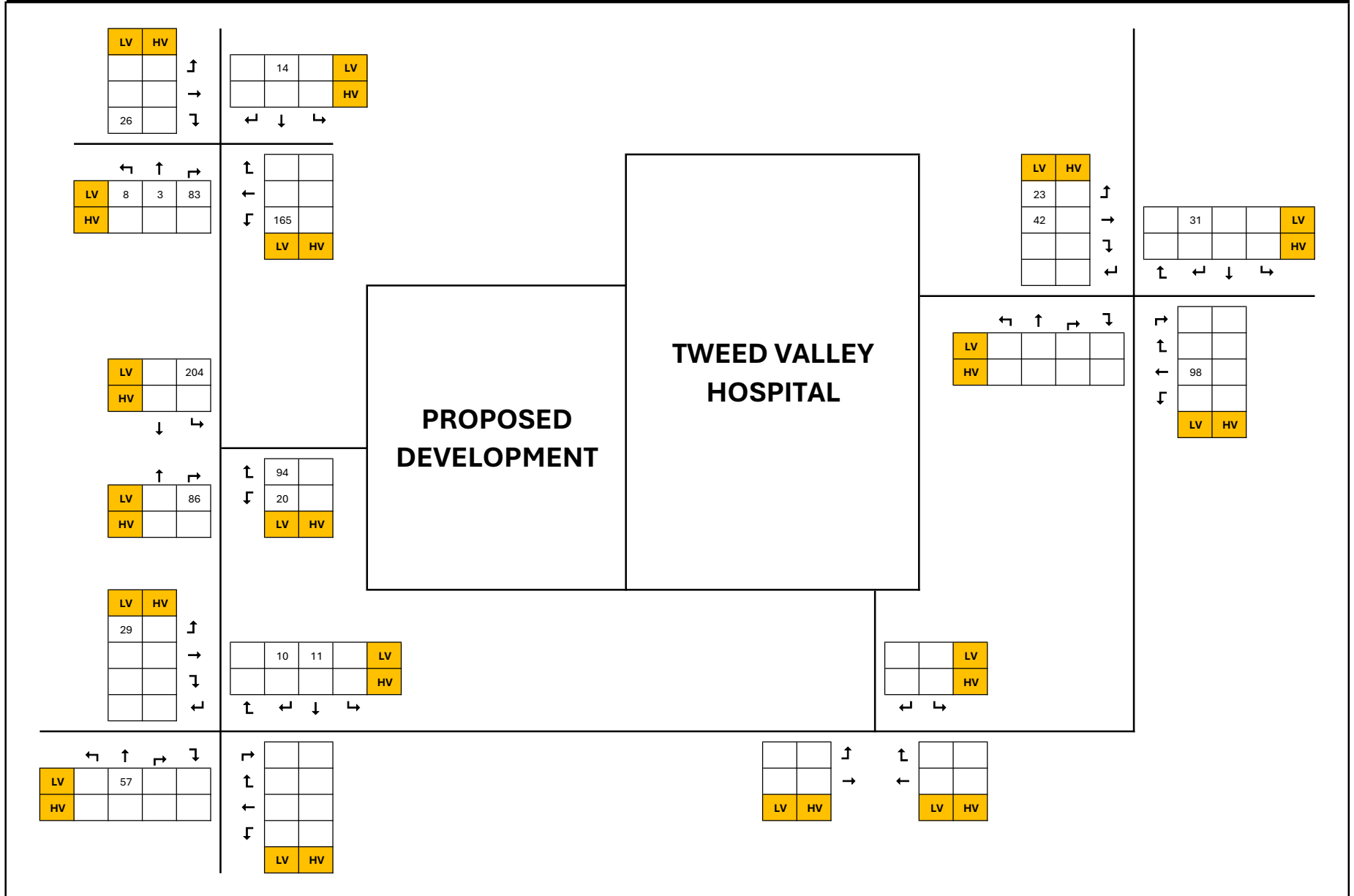
DEVELOPMENT (OPTION 2, 3 & 4) - PM PEAK



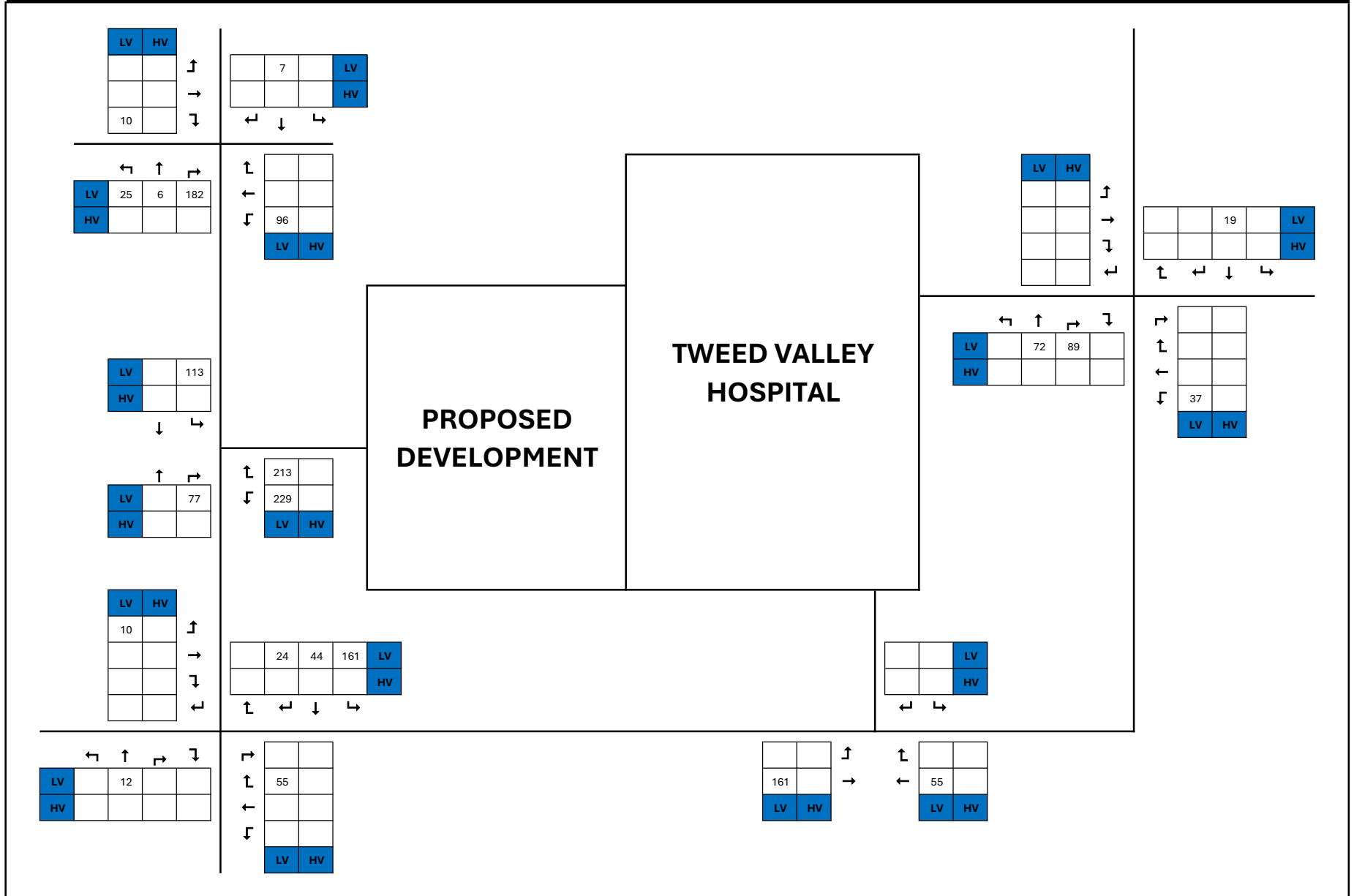
DEVELOPMENT (OPTION 5) NO TVH CONNECTION - AM PEAK



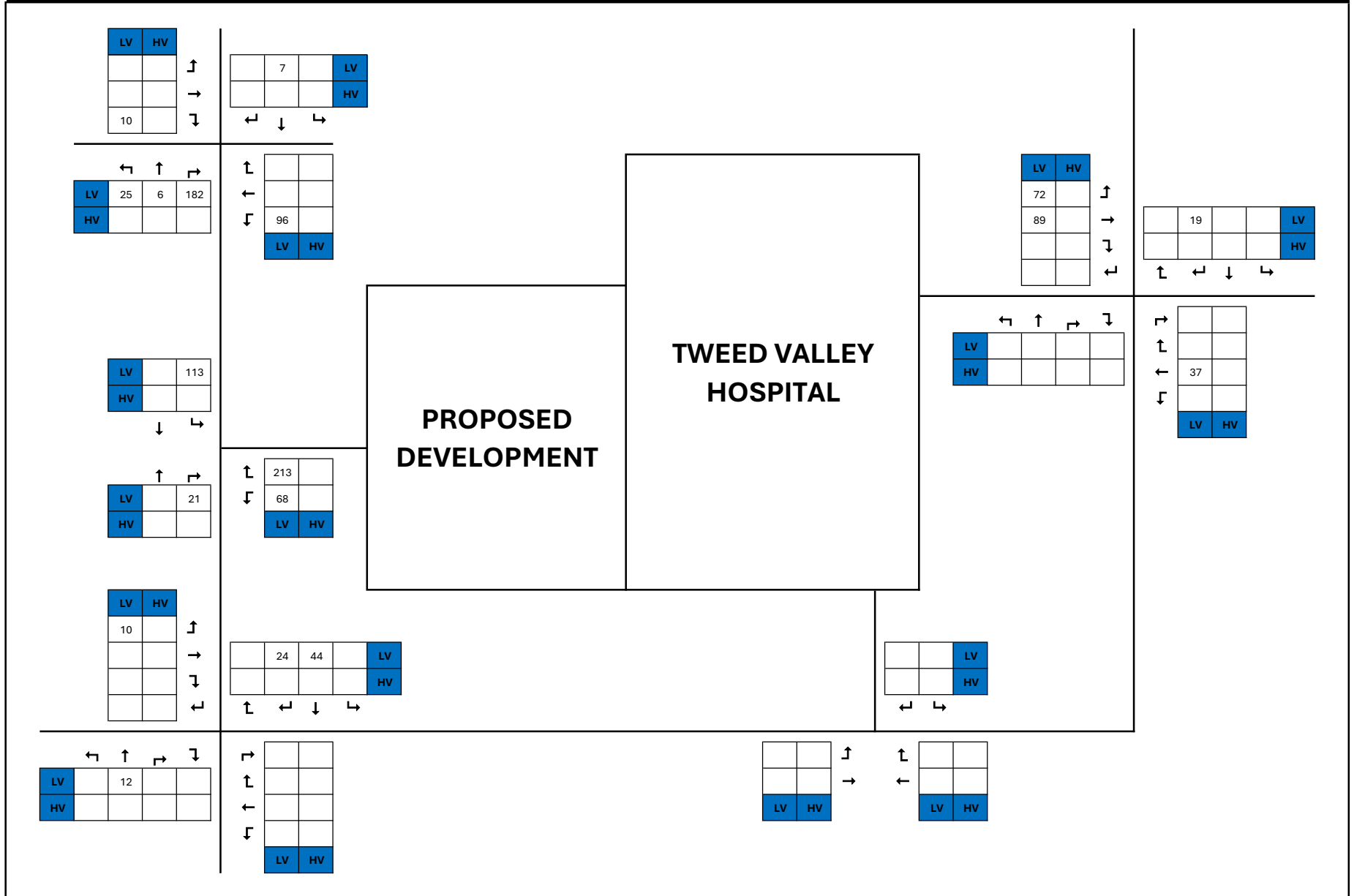
DEVELOPMENT (OPTION 5) - AM PEAK



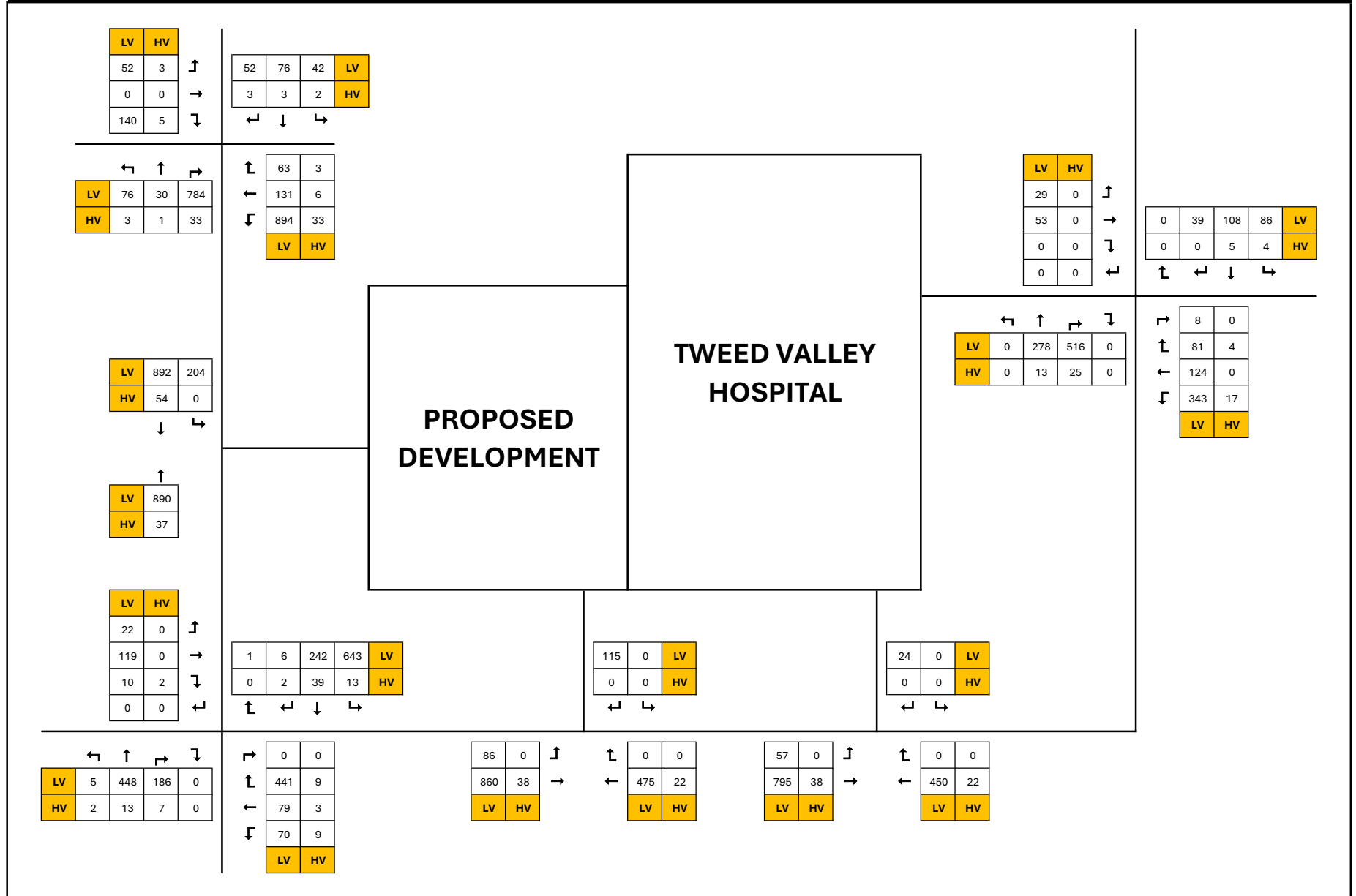
DEVELOPMENT (OPTION 5) NO TVH CONNECTION - PM PEAK



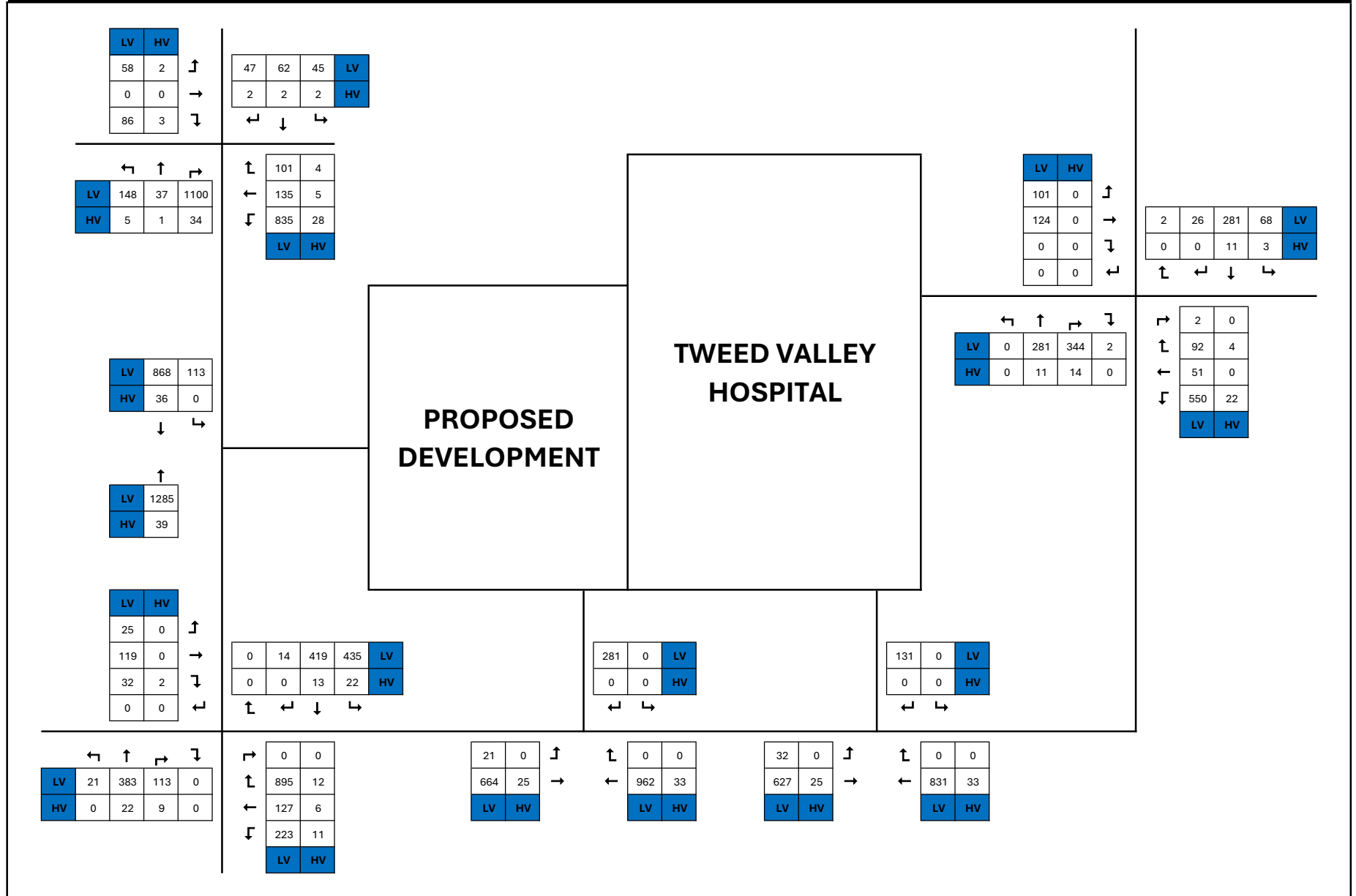
DEVELOPMENT (OPTION 5) - PM PEAK



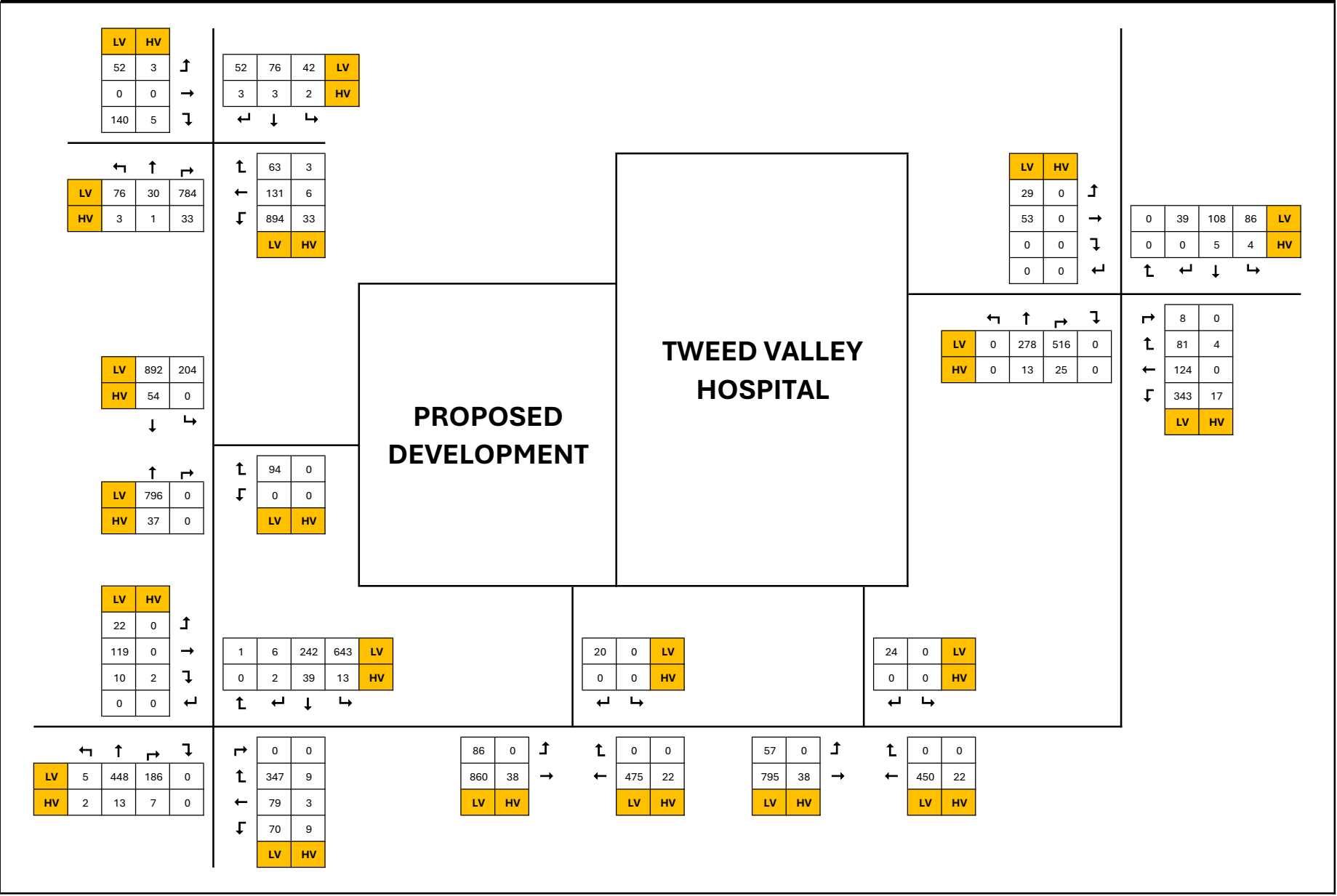
2026 DESIGN (OPTION 1) - AM PEAK



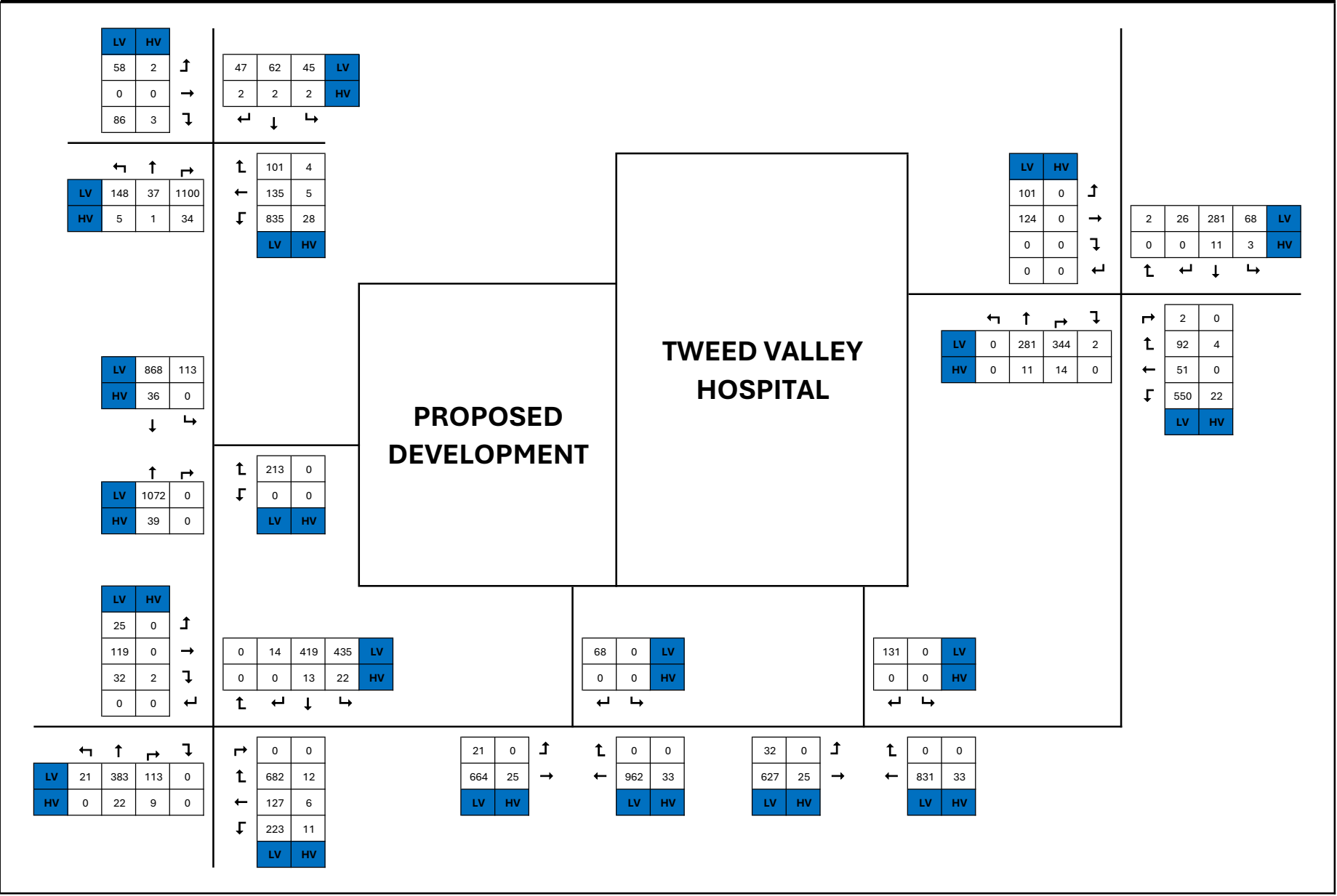
2026 DESIGN (OPTION 1) - PM PEAK



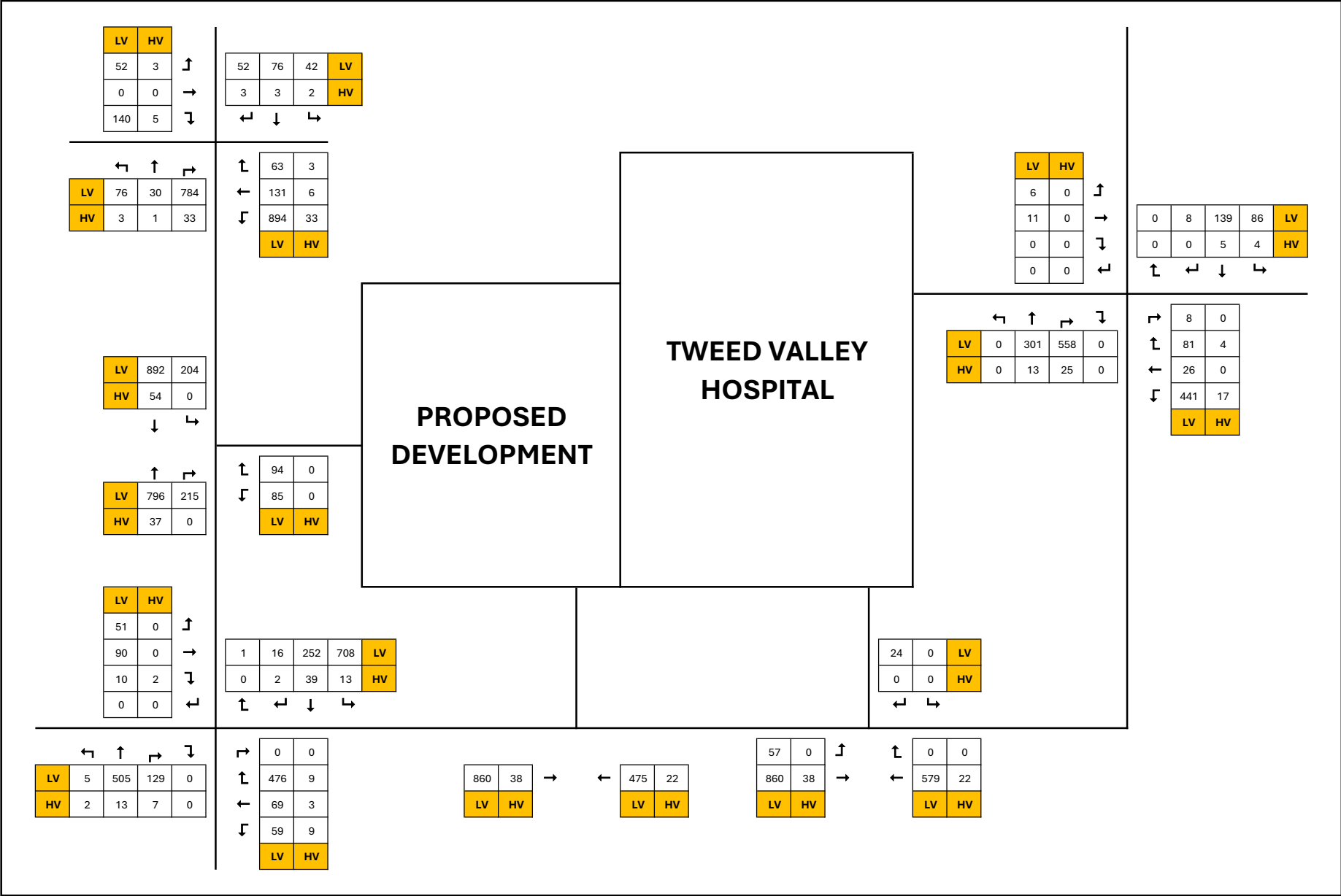
2026 DESIGN (OPTION 2, 3 & 4) - AM PEAK



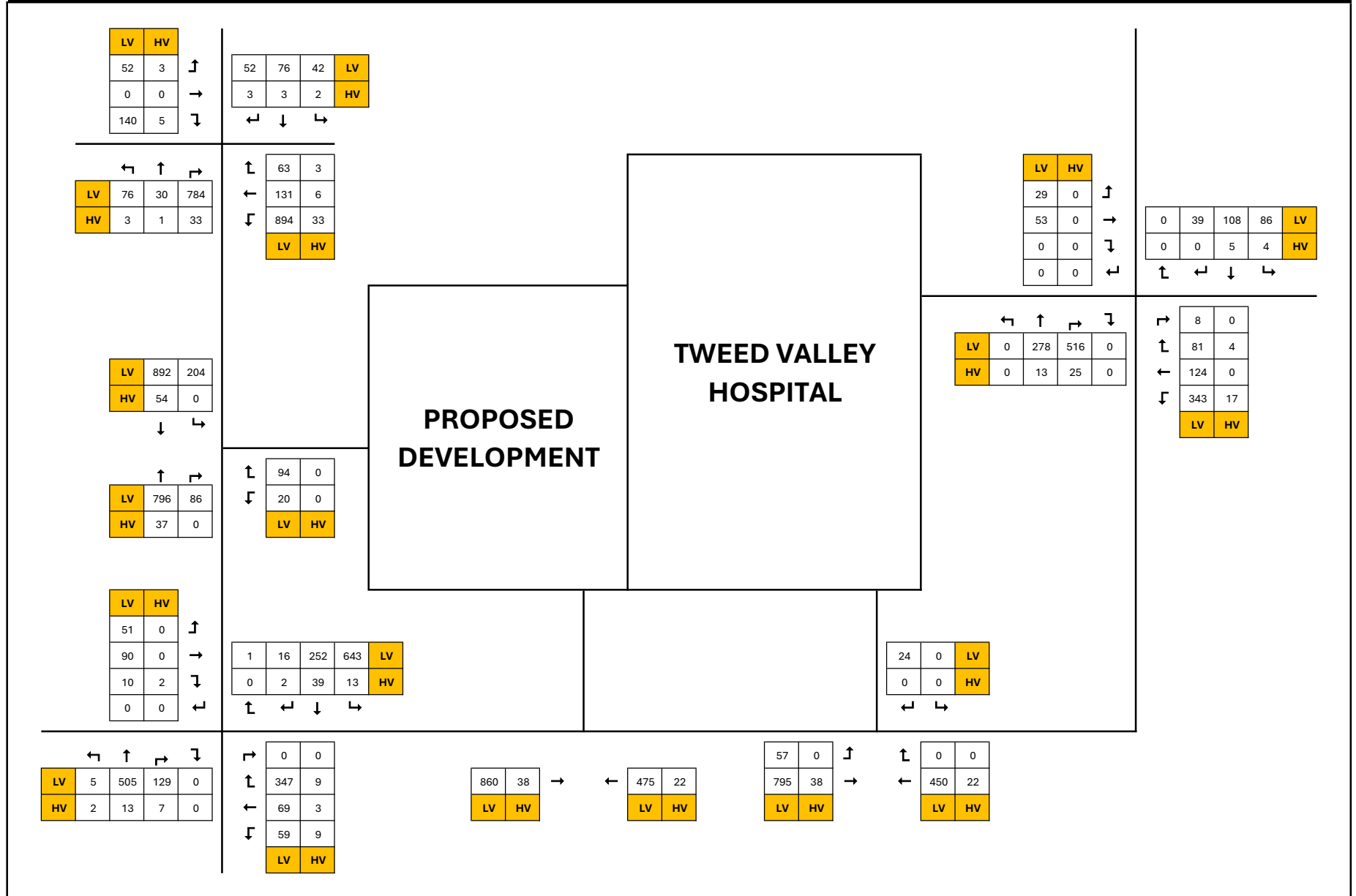
2026 DESIGN (OPTION 2, 3 & 4) - PM PEAK



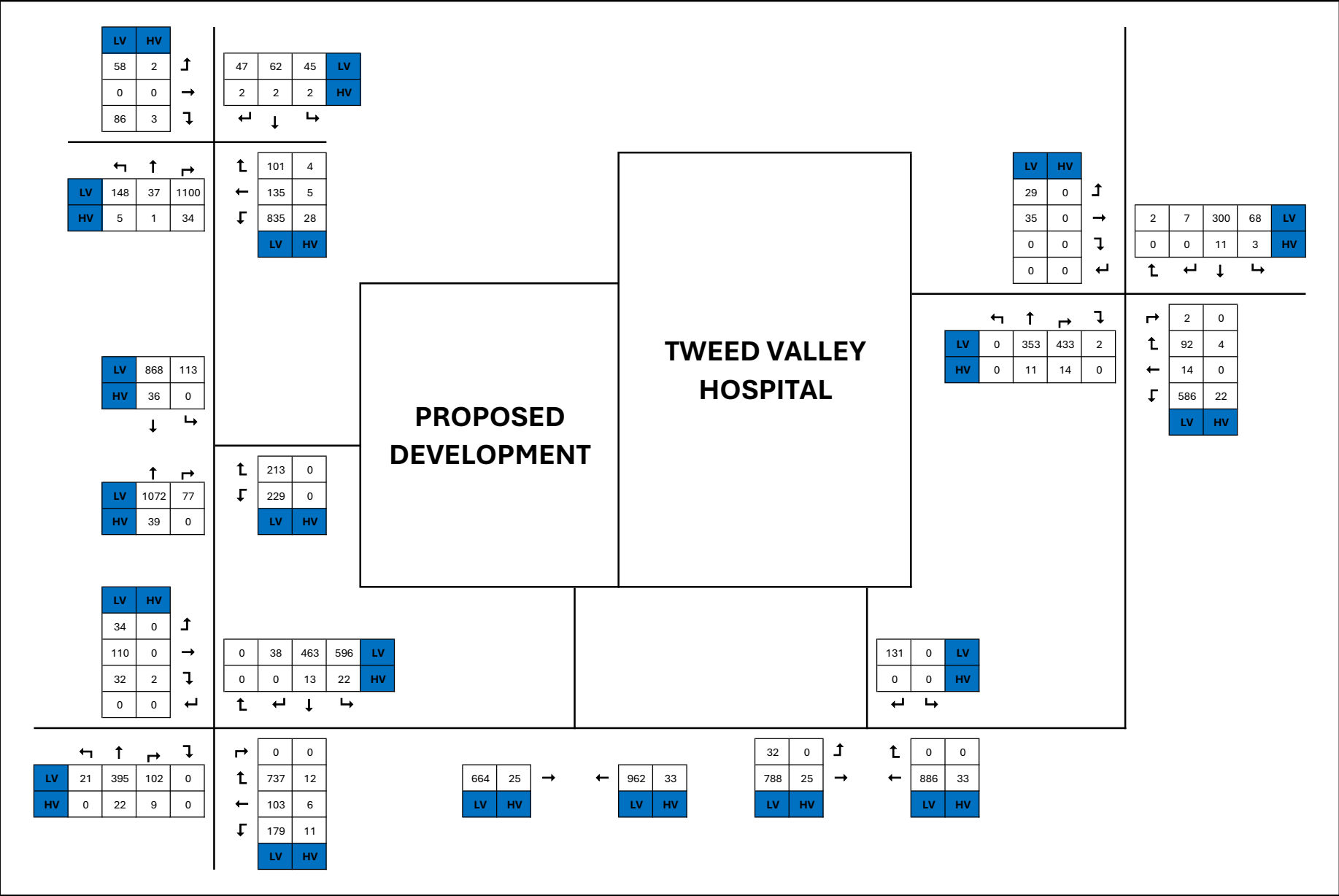
2026 DESIGN (OPTION 5) NO TVH CONNECTION - AM PEAK



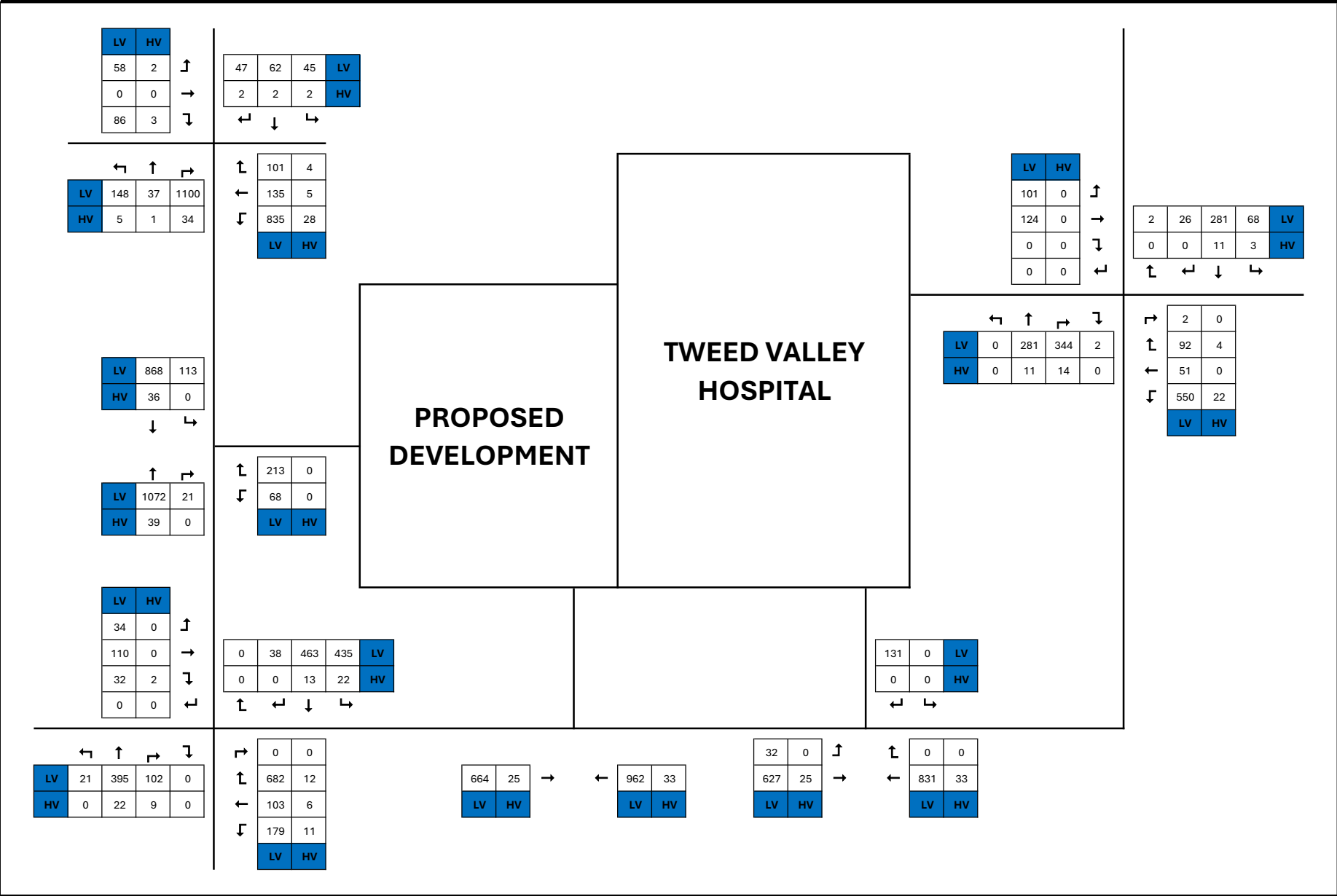
2026 DESIGN (OPTION 5) - AM PEAK



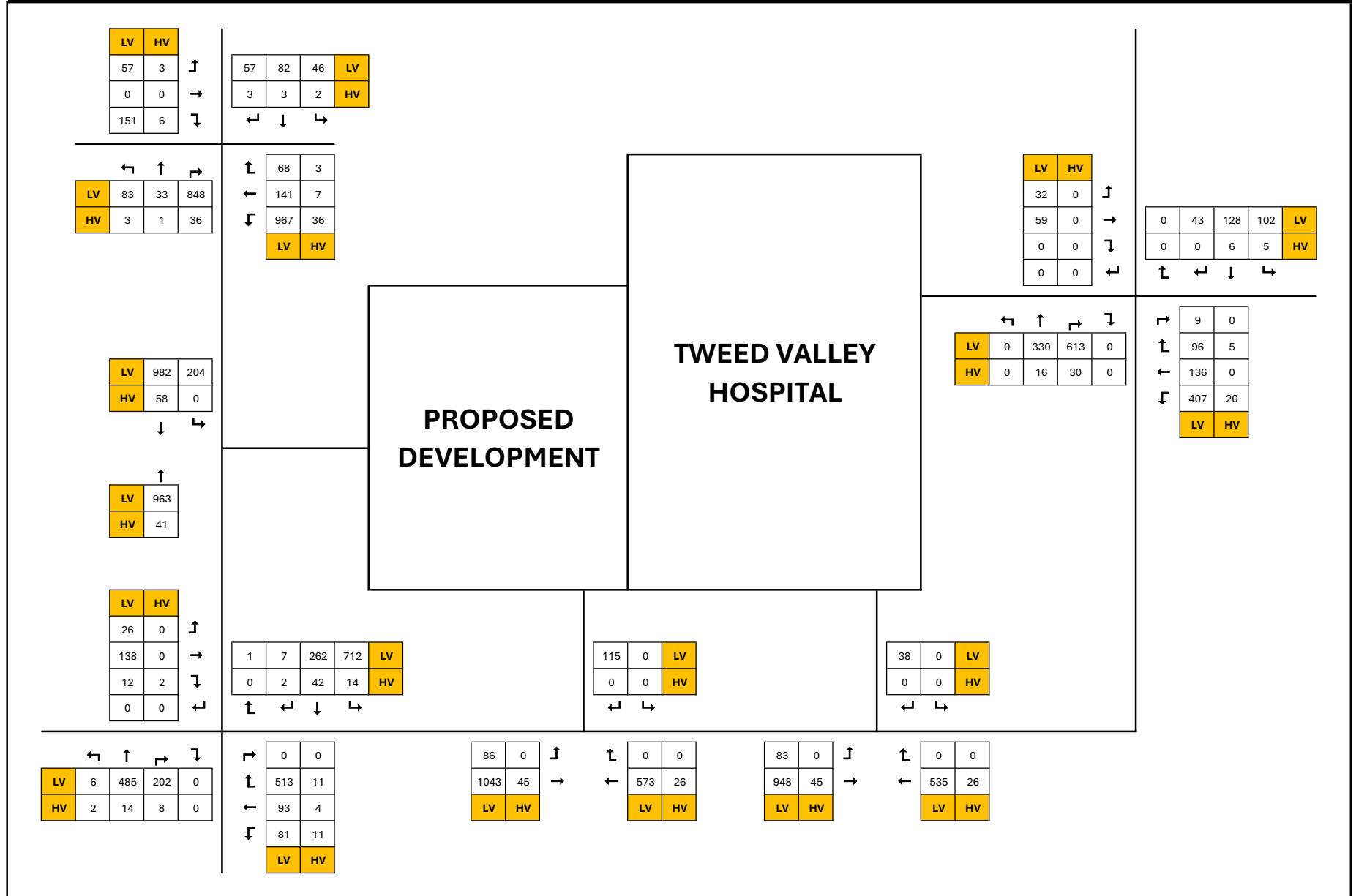
2026 DESIGN (OPTION 5) NO TVH CONNECTION - PM PEAK



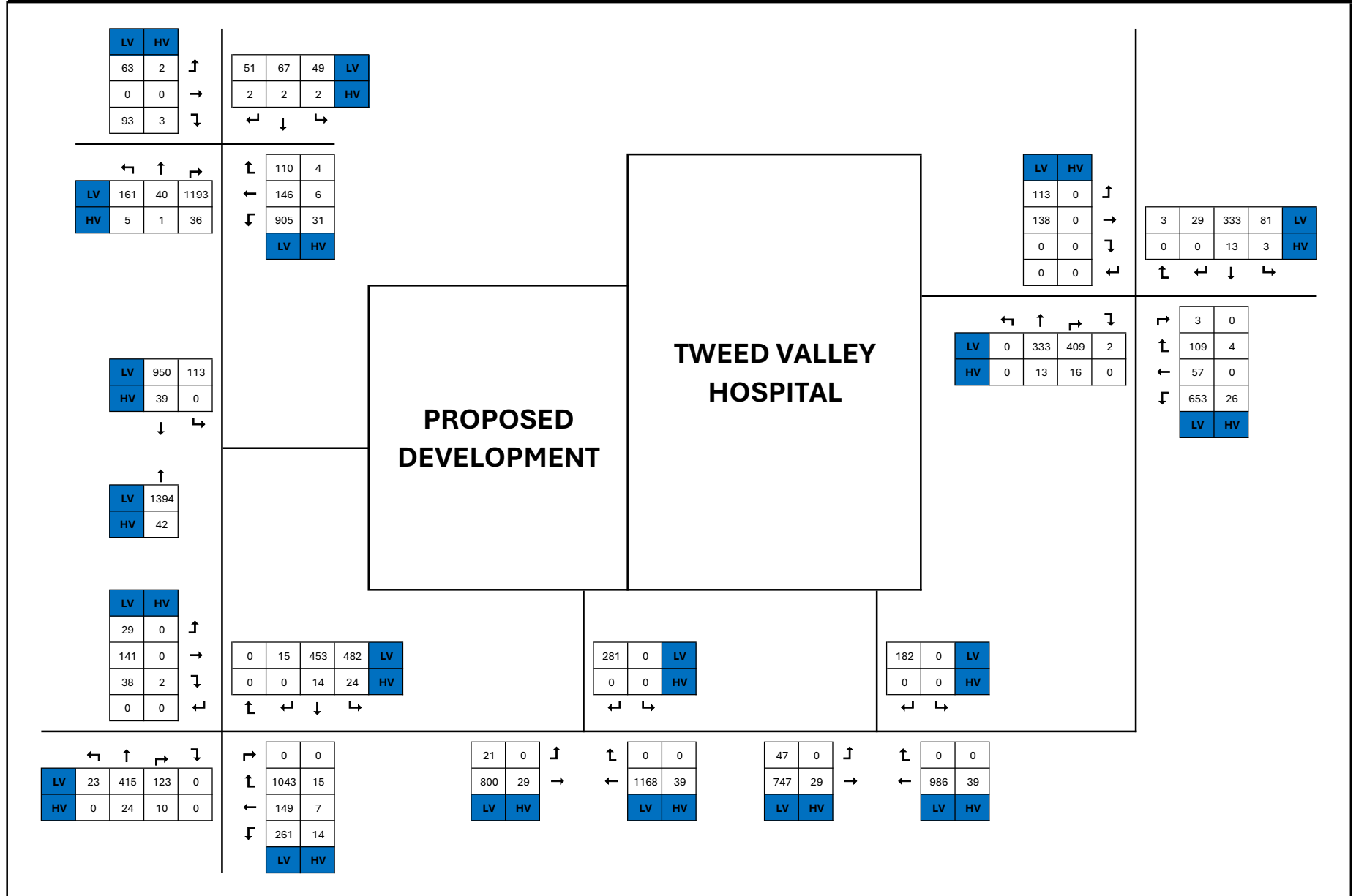
2026 DESIGN (OPTION 5) - PM PEAK



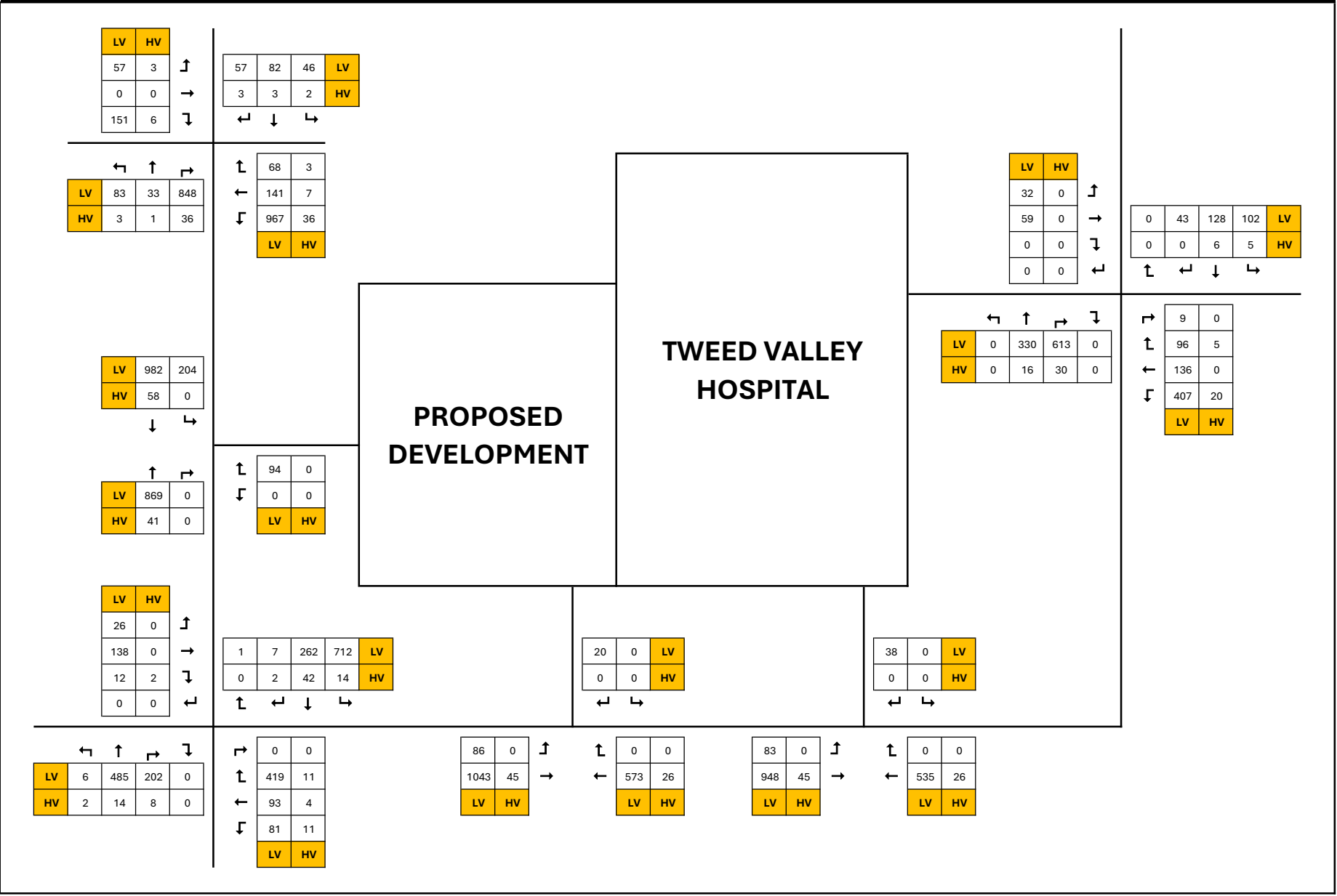
2036 DESIGN (OPTION 1) - AM PEAK



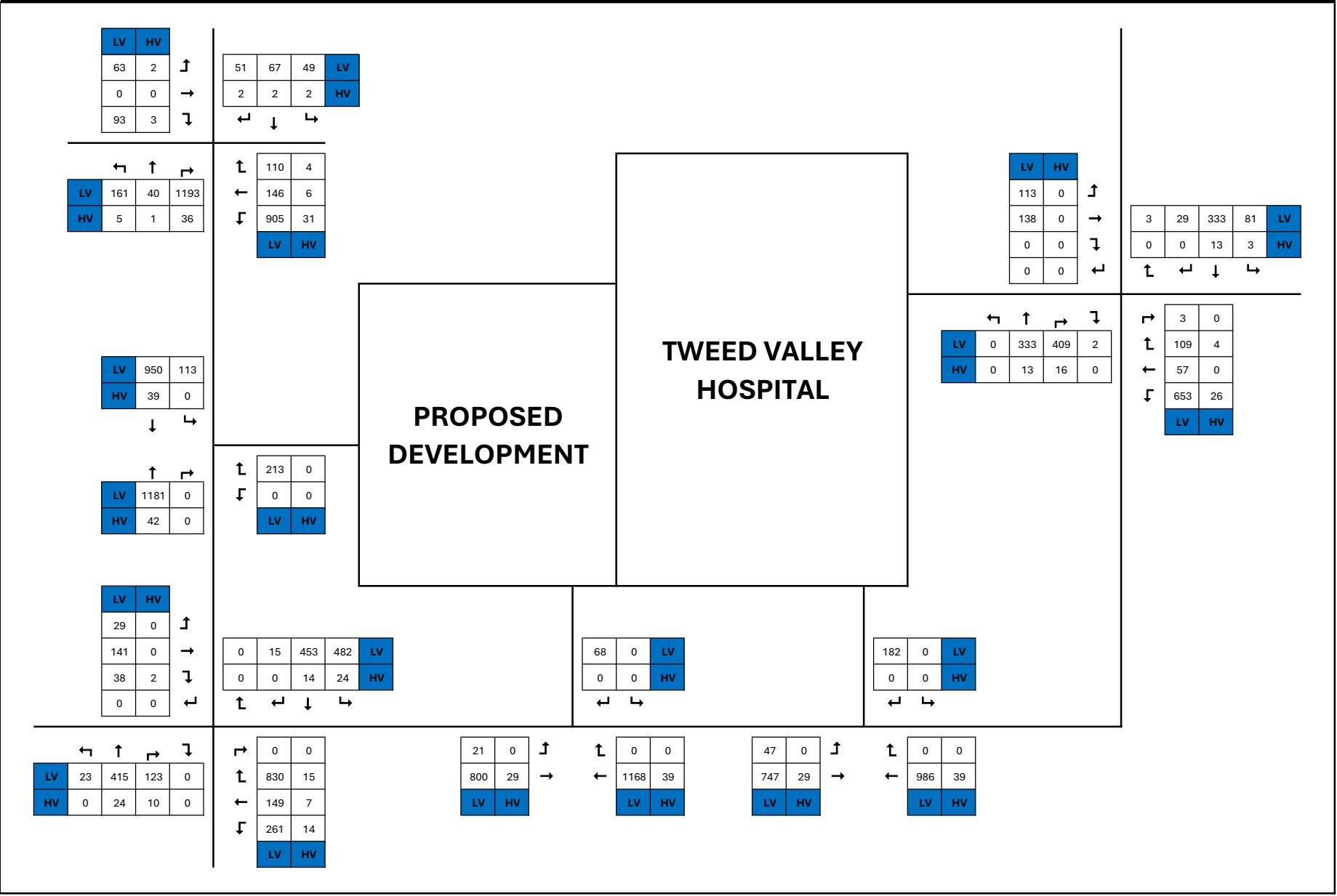
2036 DESIGN (OPTION 1) - PM PEAK



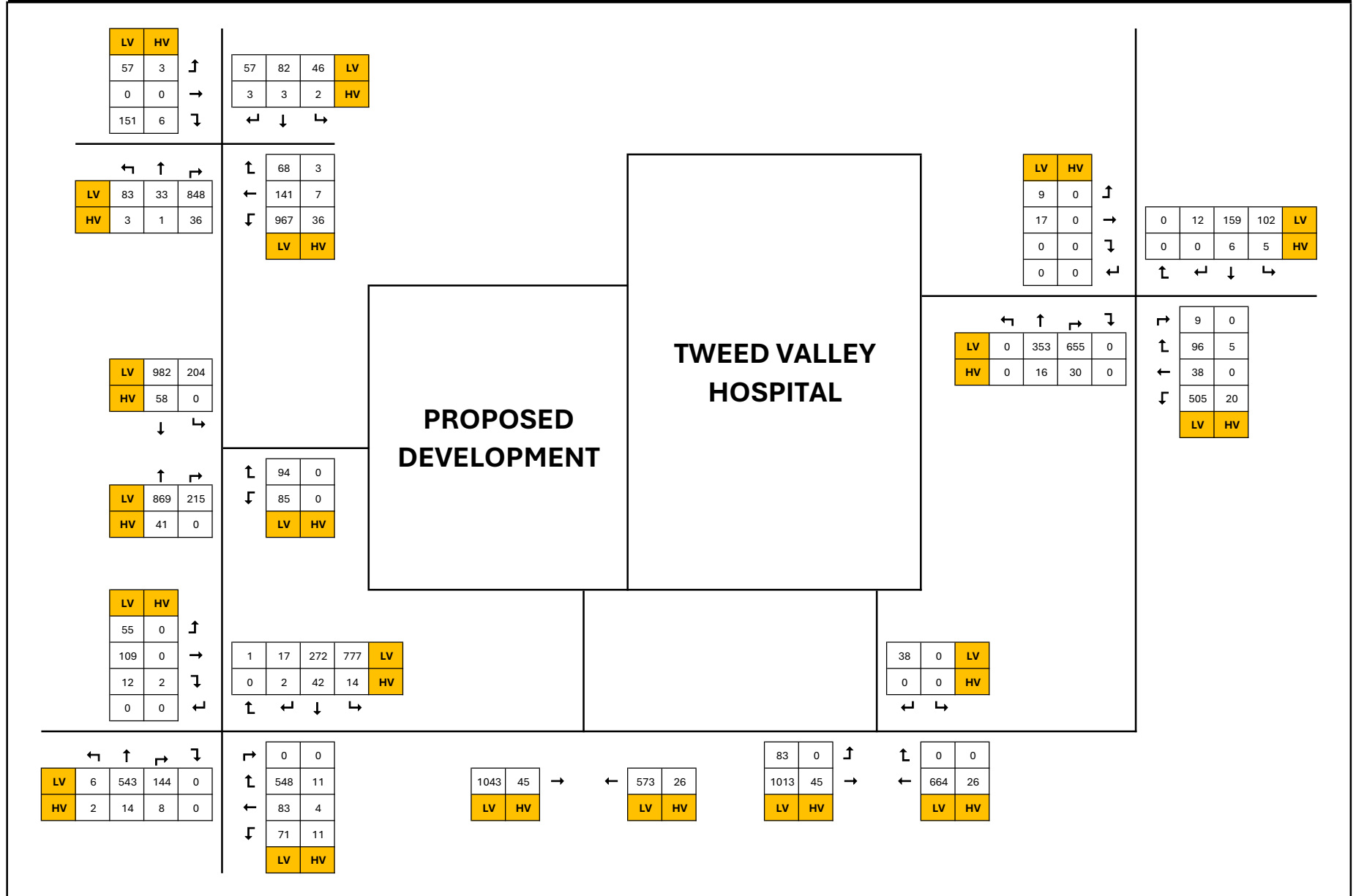
2036 DESIGN (OPTION 2, 3 & 4) - AM PEAK



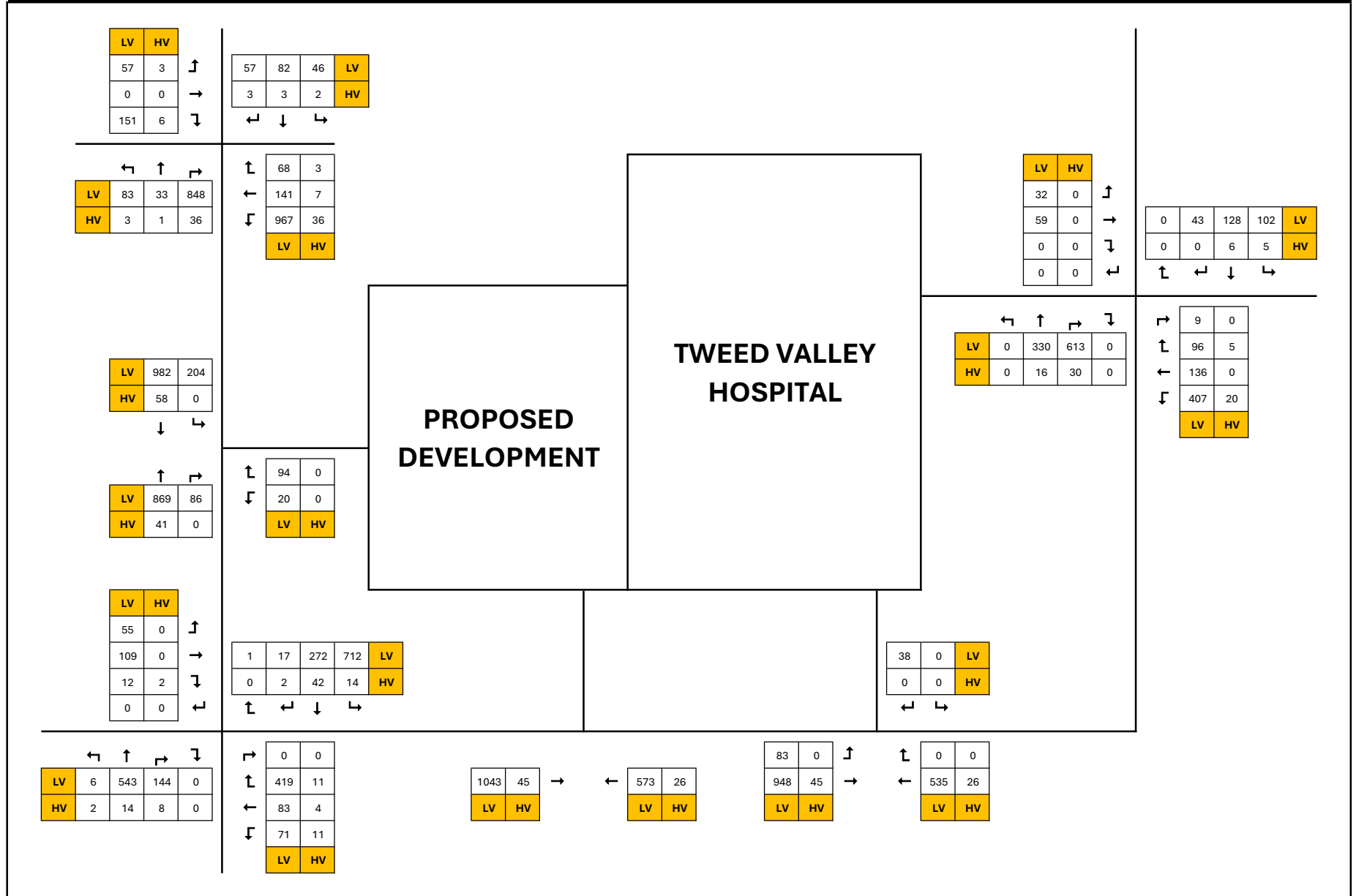
2036 DESIGN (OPTION 2, 3 & 4) - PM PEAK



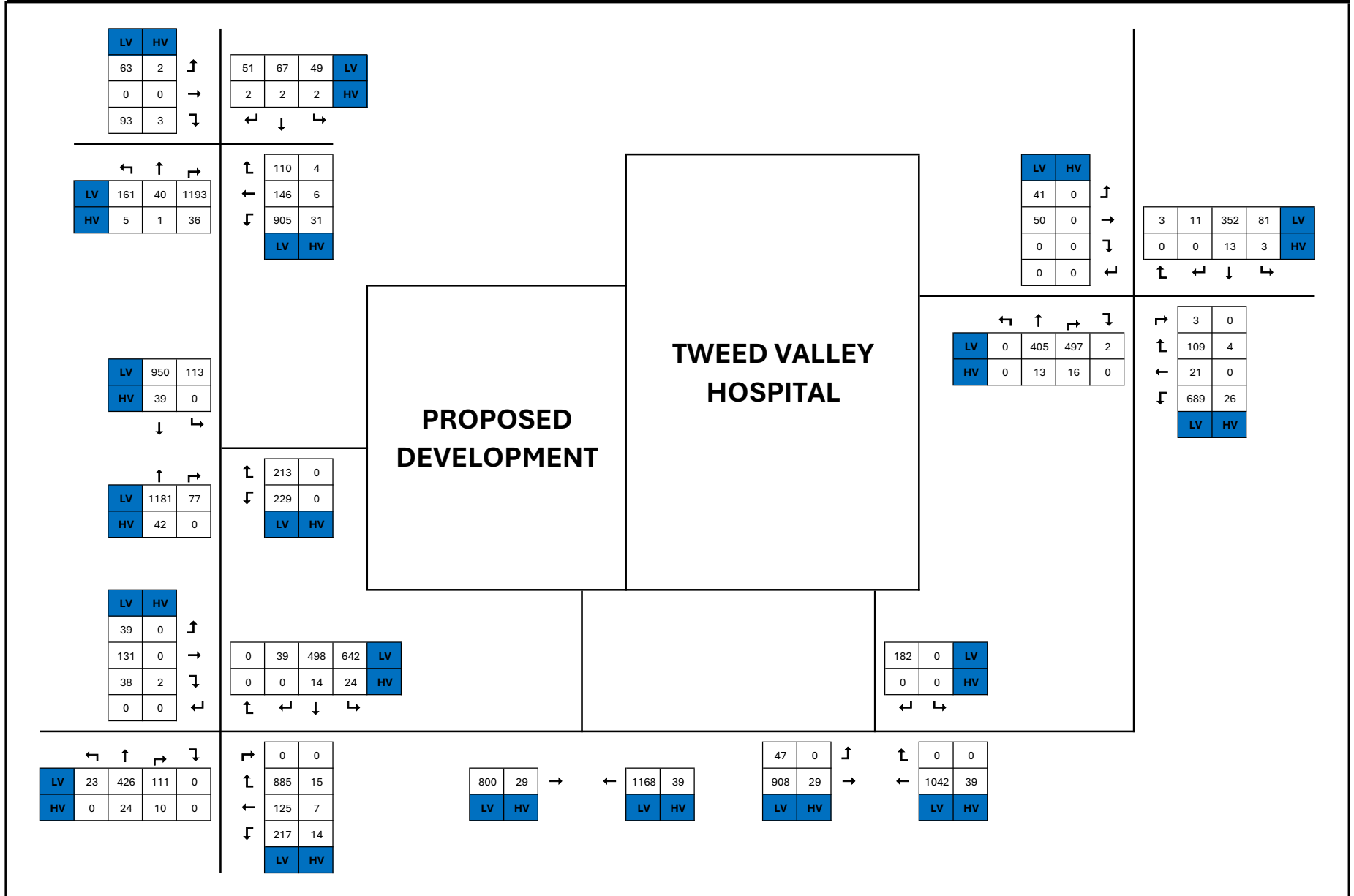
2036 DESIGN (OPTION 5) NO TVH CONNECTION - AM PEAK



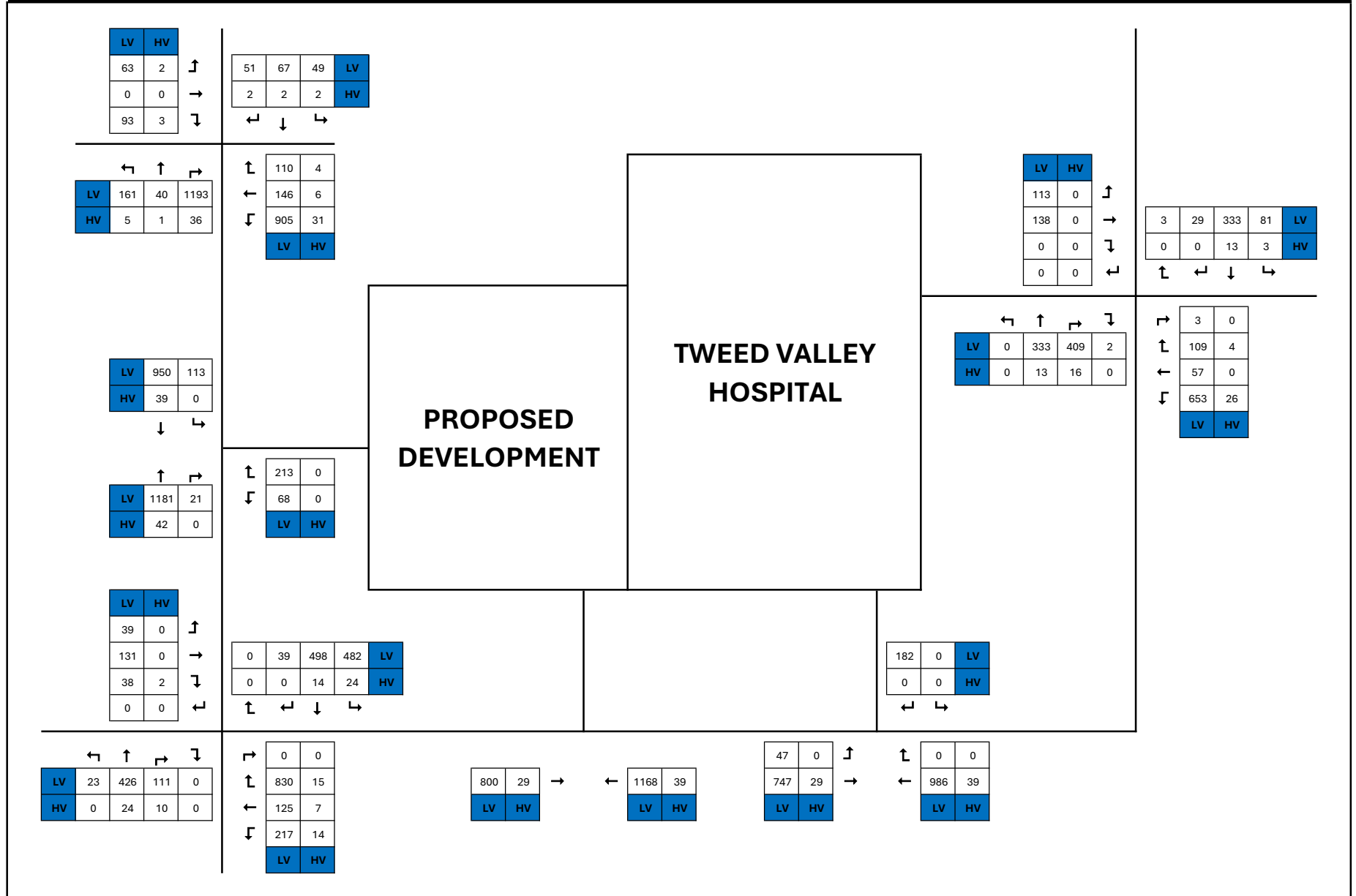
2036 DESIGN (OPTION 5) - AM PEAK



2036 DESIGN (OPTION 5) NO TVH CONNECTION - PM PEAK



2036 DESIGN (OPTION 5) - PM PEAK



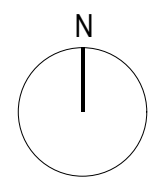


APPENDIX 3 DEVELOPMENT MASTERPLAN

AP03



1 0000 MASTERPLAN 06 DETAIL, ROTATED
SCALE 1:750 @ A1
SCALE 1:1500 @ A3



0 15 30 45 60 75
SCALE 1:750 @ A1
SCALE 1:1500 @ A3



APPENDIX 4 SIDRA MOVEMENT SUMMARIES

AP04

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2024 BASE CASE AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [2024 BASE CASE AM PEAK (Network Folder: 2024 BASE CASE)]**

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)															
1	L2	All MCs	74	4.3	74	4.3	0.067	2.7	LOS A	0.1	1.0	0.33	0.31	0.33	55.9
2	T1	All MCs	28	3.7	28	3.7	0.067	2.9	LOS A	0.1	1.0	0.33	0.31	0.33	55.9
3	R2	All MCs	759	4.4	759	4.4	0.409	9.9	LOS A	1.1	8.3	0.40	0.58	0.40	51.5
Approach			861	4.4	861	4.4	0.409	9.0	LOS A	1.1	8.3	0.39	0.55	0.39	51.9
East: Pacific Motorway (E)															
4	L2	All MCs	791	4.4	791	4.4	0.268	3.3	LOS A	0.8	5.5	0.16	0.26	0.16	54.6
5	T1	All MCs	141	4.5	141	4.5	0.268	2.8	LOS A	0.8	5.5	0.43	0.34	0.43	54.9
6	R2	All MCs	68	4.6	68	4.6	0.268	9.7	LOS A	0.8	5.5	0.43	0.34	0.43	54.5
Approach			1000	4.4	1000	4.4	0.268	3.7	LOS A	0.8	5.5	0.21	0.28	0.21	54.6
North: Chinderah Road (N)															
7	L2	All MCs	45	4.7	45	4.7	0.047	9.4	LOS A	0.2	1.3	0.88	0.59	0.88	53.1
8	T1	All MCs	67	4.7	67	4.7	0.099	7.1	LOS A	0.5	3.3	0.93	0.59	0.93	46.5
9	R2	All MCs	56	3.8	56	3.8	0.099	13.9	LOS B	0.5	3.3	0.93	0.59	0.93	51.1
Approach			168	4.4	168	4.4	0.099	9.9	LOS A	0.5	3.3	0.92	0.59	0.92	50.3
West: Pacific Motorway (W)															
10	L2	All MCs	56	3.8	56	3.8	0.065	5.1	LOS A	0.1	1.1	0.66	0.57	0.66	54.3
11	T1	All MCs	1	0.0	1	0.0	0.065	7.2	LOS A	0.1	1.1	0.66	0.57	0.66	54.3
12	R2	All MCs	123	4.3	123	4.3	0.105	11.5	LOS B	0.3	2.1	0.68	0.65	0.68	46.1
Approach			180	4.1	180	4.1	0.105	9.5	LOS A	0.3	2.1	0.67	0.63	0.67	49.0
All Vehicles			2209	4.4	2209	4.4	0.409	6.7	LOS A	1.1	8.3	0.38	0.44	0.38	52.4

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2024 BASE CASE AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2024 BASE CASE AM PEAK (Network Folder: 2024 BASE CASE)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.307	20.1	LOS C	3.4	24.7	0.71	0.60	0.71	45.6
2	T1	All MCs	478	2.9	478	2.9	0.307	15.5	LOS B	3.4	24.7	0.71	0.60	0.71	40.4
3b	R3	All MCs	141	5.2	141	5.2	* 0.897	52.3	LOS D	3.7	26.7	1.00	1.06	1.63	22.6
Approach			626	3.7	626	3.7	0.897	23.9	LOS C	3.7	26.7	0.78	0.70	0.92	34.4
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	69	13.6	69	13.6	0.062	8.7	LOS A	0.2	1.8	0.24	0.63	0.24	52.0
22	T1	All MCs	74	4.3	74	4.3	0.507	20.7	LOS C	3.6	26.0	0.81	0.72	0.81	45.0
23a	R1	All MCs	362	2.6	362	2.6	0.507	25.4	LOS C	3.6	26.0	0.81	0.74	0.81	37.6
Approach			505	4.4	505	4.4	0.507	22.4	LOS C	3.6	26.0	0.73	0.72	0.73	41.3
North: Tweed Coast Road (N)															
7a	L1	All MCs	680	2.0	680	2.0	* 0.814	18.9	LOS B	8.0	57.2	0.93	0.91	1.04	37.7
8	T1	All MCs	291	13.8	291	13.8	0.505	26.7	LOS C	3.7	29.0	0.91	0.74	0.91	41.8
9b	R3	All MCs	8	25.0	8	25.0	0.060	39.4	LOS D	0.2	1.4	0.93	0.67	0.93	35.2
Approach			979	5.7	979	5.7	0.814	21.3	LOS C	8.0	57.2	0.93	0.86	1.00	39.4
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	22	0.0	22	0.0	0.162	10.3	LOS B	0.6	4.2	0.86	0.69	0.86	37.8
28	T1	All MCs	92	0.0	92	0.0	* 0.366	31.7	LOS C	1.6	11.7	0.94	0.73	0.94	30.9
29a	R1	All MCs	13	16.7	13	16.7	0.366	37.0	LOS D	1.6	11.7	0.96	0.74	0.96	38.0
Approach			126	1.7	126	1.7	0.366	28.5	LOS C	1.6	11.7	0.93	0.72	0.93	33.0
All Vehicles			2237	4.6	2237	4.6	0.897	22.7	LOS C	8.0	57.2	0.84	0.78	0.91	38.3

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2024 BASE CASE AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2024 BASE CASE AM PEAK (Network Folder: 2024 BASE CASE)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]			km/h	
			veh/h	%	veh/h	%									
East: Cudgen Road (E)															
5	T1	All MCs	480	4.6	480	4.6	0.348	3.7	LOS A	3.6	26.4	0.39	0.35	0.39	51.3
6	R2	All MCs	1	0.0	1	0.0	0.002	12.4	LOS B	0.0	0.1	0.51	0.60	0.51	39.6
Approach			481	4.6	481	4.6	0.348	3.7	LOS A	3.6	26.4	0.39	0.35	0.39	51.3
North: Hospital Access (N)															
7	L2	All MCs	1	0.0	1	0.0	0.053	8.5	LOS A	0.2	1.1	0.90	0.67	0.90	15.2
9	R2	All MCs	25	0.0	25	0.0	0.084	33.6	LOS C	0.3	2.2	0.92	0.68	0.92	12.2
Approach			26	0.0	26	0.0	0.084	32.6	LOS C	0.3	2.2	0.92	0.68	0.92	12.3
West: Cudgen Road (W)															
10	L2	All MCs	58	0.0	58	0.0	* 0.052	9.8	LOS A	0.4	3.1	0.47	0.65	0.47	47.9
11	T1	All MCs	846	4.5	846	4.5	* 0.473	10.6	LOS B	6.2	45.2	0.63	0.55	0.63	48.0
Approach			904	4.2	904	4.2	0.473	10.6	LOS B	6.2	45.2	0.62	0.56	0.62	48.0
All Vehicles			1412	4.3	1412	4.3	0.473	8.7	LOS A	6.2	45.2	0.55	0.49	0.55	48.0

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						
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Hospital Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2024 BASE CASE AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [2024 BASE CASE AM PEAK (Network Folder: 2024 BASE CASE)]**

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]				
			veh/h	%	veh/h	%	v/c	sec			m			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	365	4.6	365	4.6	0.395	4.8	LOS A	1.2	8.8	0.43	0.52	0.43	49.7
22	T1	All MCs	26	0.0	26	0.0	0.395	5.0	LOS A	1.2	8.8	0.43	0.52	0.43	53.2
23	R2	All MCs	86	4.9	86	4.9	0.395	9.5	LOS A	1.2	8.8	0.43	0.52	0.43	52.0
23u	U	All MCs	7	0.0	7	0.0	0.395	11.5	LOS B	1.2	8.8	0.43	0.52	0.43	52.4
Approach			485	4.3	485	4.3	0.395	5.7	LOS A	1.2	8.8	0.43	0.52	0.43	50.7
NorthEast: Turnock Street (NE)															
24	L2	All MCs	92	4.6	92	4.6	0.256	7.8	LOS A	0.7	5.3	0.72	0.63	0.72	51.7
25	T1	All MCs	115	4.6	115	4.6	0.256	7.8	LOS A	0.7	5.3	0.72	0.63	0.72	47.5
26	R2	All MCs	8	0.0	8	0.0	0.256	12.5	LOS B	0.7	5.3	0.72	0.63	0.72	51.2
26u	U	All MCs	1	0.0	1	0.0	0.256	14.6	LOS B	0.7	5.3	0.72	0.63	0.72	51.0
Approach			216	4.4	216	4.4	0.256	8.0	LOS A	0.7	5.3	0.72	0.63	0.72	50.0
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	6	0.0	6	0.0	0.029	6.9	LOS A	0.0	0.3	0.58	0.66	0.58	52.0
28	T1	All MCs	12	0.0	12	0.0	0.029	6.8	LOS A	0.0	0.3	0.58	0.66	0.58	52.6
29	R2	All MCs	1	0.0	1	0.0	0.029	11.7	LOS B	0.0	0.3	0.58	0.66	0.58	48.5
29u	U	All MCs	1	0.0	1	0.0	0.029	13.7	LOS B	0.0	0.3	0.58	0.66	0.58	51.6
Approach			20	0.0	20	0.0	0.029	7.4	LOS A	0.0	0.3	0.58	0.66	0.58	52.2
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.254	5.2	LOS A	0.5	4.0	0.31	0.47	0.31	52.0
31	T1	All MCs	297	4.6	297	4.6	0.254	5.0	LOS A	0.5	4.0	0.31	0.47	0.31	52.4
32	R2	All MCs	551	4.6	551	4.6	0.376	9.3	LOS A	1.0	7.0	0.32	0.62	0.32	48.5
32u	U	All MCs	1	0.0	1	0.0	0.376	11.3	LOS B	1.0	7.0	0.32	0.62	0.32	42.2
Approach			849	4.6	849	4.6	0.376	7.8	LOS A	1.0	7.0	0.32	0.57	0.32	49.8
All Vehicles			1571	4.4	1571	4.4	0.395	7.2	LOS A	1.2	8.8	0.41	0.56	0.41	50.1

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2024 BASE CASE PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [2024 BASE CASE PM PEAK (Network Folder: 2024 BASE CASE)]**

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
South: Tweed Coast Road (S)															
1	L2	All MCs	133	3.2	133	3.2	0.109	2.9	LOS A	0.2	1.5	0.35	0.33	0.35	55.9
2	T1	All MCs	33	3.2	33	3.2	0.109	3.1	LOS A	0.2	1.5	0.35	0.33	0.35	55.9
3	R2	All MCs	985	3.5	985	3.5	0.538	10.2	LOS B	1.8	12.9	0.44	0.61	0.44	51.3
Approach			1151	3.5	1151	3.5	0.538	9.2	LOS A	1.8	12.9	0.42	0.57	0.42	51.8
East: Pacific Motorway (E)															
4	L2	All MCs	796	3.7	796	3.7	0.278	3.1	LOS A	0.8	5.8	0.14	0.26	0.14	54.6
5	T1	All MCs	145	3.6	145	3.6	0.278	2.7	LOS A	0.8	5.8	0.39	0.34	0.39	54.8
6	R2	All MCs	109	3.8	109	3.8	0.278	9.5	LOS A	0.8	5.8	0.39	0.34	0.39	54.4
Approach			1051	3.7	1051	3.7	0.278	3.7	LOS A	0.8	5.8	0.20	0.28	0.20	54.6
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.069	17.1	LOS B	0.4	2.7	1.00	0.69	1.00	49.2
8	T1	All MCs	59	3.6	59	3.6	0.112	12.9	LOS B	0.8	5.6	1.00	0.68	1.00	42.5
9	R2	All MCs	52	4.1	52	4.1	0.112	19.8	LOS B	0.8	5.6	1.00	0.68	1.00	48.2
Approach			160	3.9	160	3.9	0.112	16.4	LOS B	0.8	5.6	1.00	0.68	1.00	46.9
West: Pacific Motorway (W)															
10	L2	All MCs	62	3.4	62	3.4	0.087	7.4	LOS A	0.3	1.8	0.82	0.65	0.82	53.5
11	T1	All MCs	1	0.0	1	0.0	0.084	6.5	LOS A	0.3	2.1	0.85	0.66	0.85	50.0
12	R2	All MCs	82	3.8	82	3.8	0.084	13.5	LOS B	0.3	2.1	0.85	0.66	0.85	45.2
Approach			145	3.6	145	3.6	0.087	10.8	LOS B	0.3	2.1	0.84	0.66	0.84	49.2
All Vehicles			2506	3.6	2506	3.6	0.538	7.4	LOS A	1.8	12.9	0.39	0.46	0.39	52.2

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

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2024 BASE CASE PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2024 BASE CASE PM PEAK (Network Folder: 2024 BASE CASE)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]				
			veh/h	%	veh/h	%	v/c	sec			m			km/h	
South: Tweed Coast Road (S)															
1a	L1	All MCs	22	0.0	22	0.0	0.304	21.1	LOS C	3.3	23.7	0.74	0.63	0.74	45.5
2	T1	All MCs	420	5.5	420	5.5	0.304	17.5	LOS B	3.3	23.8	0.74	0.62	0.74	39.1
3b	R3	All MCs	115	8.3	115	8.3	* 0.868	50.4	LOS D	2.9	21.6	1.00	1.01	1.57	23.1
Approach			557	5.9	557	5.9	0.868	24.5	LOS C	3.3	23.8	0.79	0.70	0.91	34.6
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	194	6.0	194	6.0	0.180	10.5	LOS B	1.2	8.6	0.40	0.68	0.40	51.2
22	T1	All MCs	112	5.7	112	5.7	* 0.798	29.9	LOS C	8.9	64.0	0.99	0.95	1.15	40.9
23a	R1	All MCs	706	1.8	706	1.8	0.798	35.3	LOS D	8.9	64.0	0.99	0.95	1.15	32.9
Approach			1012	3.0	1012	3.0	0.798	30.0	LOS C	8.9	64.0	0.88	0.90	1.01	37.7
North: Tweed Coast Road (N)															
7a	L1	All MCs	474	4.9	474	4.9	0.561	12.8	LOS B	3.9	28.7	0.78	0.79	0.78	42.8
8	T1	All MCs	447	3.1	447	3.1	* 0.839	33.9	LOS C	7.0	50.3	0.98	0.92	1.17	38.7
9b	R3	All MCs	15	0.0	15	0.0	0.106	40.4	LOS D	0.3	2.1	0.95	0.69	0.95	35.2
Approach			936	3.9	936	3.9	0.839	23.3	LOS C	7.0	50.3	0.88	0.85	0.97	39.9
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	25	0.0	25	0.0	0.225	13.2	LOS B	0.6	4.5	0.89	0.70	0.89	38.7
28	T1	All MCs	112	0.0	112	0.0	* 0.508	30.3	LOS C	2.3	16.5	0.95	0.75	0.95	31.0
29a	R1	All MCs	35	6.1	35	6.1	0.508	37.6	LOS D	2.3	16.5	0.98	0.77	0.98	37.6
Approach			172	1.2	172	1.2	0.508	29.2	LOS C	2.3	16.5	0.95	0.75	0.95	33.8
All Vehicles			2676	3.8	2676	3.8	0.868	26.4	LOS C	8.9	64.0	0.86	0.83	0.97	37.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2024 BASE CASE PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2024 BASE CASE PM PEAK (Network Folder: 2024 BASE CASE)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]									
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			km/h
East: Cudgen Road (E)														
5	T1	All MCs	879	3.8	879	3.8	*0.634	5.4	LOS A	9.2	66.8	0.55	0.50	48.5
6	R2	All MCs	1	0.0	1	0.0	0.002	11.1	LOS B	0.0	0.1	0.47	0.59	40.8
Approach			880	3.8	880	3.8	0.634	5.4	LOS A	9.2	66.8	0.55	0.50	48.5
North: Hospital Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.278	8.1	LOS A	1.0	7.1	0.96	0.75	11.2
9	R2	All MCs	133	0.0	133	0.0	*0.437	38.8	LOS D	1.7	12.0	0.97	0.76	10.7
Approach			134	0.0	134	0.0	0.437	38.6	LOS D	1.7	12.0	0.97	0.76	10.7
West: Cudgen Road (W)														
10	L2	All MCs	33	0.0	33	0.0	0.030	8.9	LOS A	0.2	1.4	0.38	0.62	48.6
11	T1	All MCs	663	3.8	663	3.8	0.369	9.5	LOS A	4.4	31.9	0.57	0.49	48.9
Approach			696	3.6	696	3.6	0.369	9.5	LOS A	4.4	31.9	0.57	0.50	48.9
All Vehicles			1709	3.4	1709	3.4	0.634	9.7	LOS A	9.2	66.8	0.59	0.52	45.1

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 ped	Dist] m					
		ped/h	sec						sec	m	m/sec
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Hospital Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2024 BASE CASE PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2024 BASE CASE PM PEAK (Network Folder: 2024 BASE CASE)]

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	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	581	3.8	581	3.8	0.692	8.6	LOS A	3.3	23.5	0.83	0.73	0.96	46.2
22	T1	All MCs	15	0.0	15	0.0	0.692	8.7	LOS A	3.3	23.5	0.83	0.73	0.96	51.1
23	R2	All MCs	98	4.3	98	4.3	0.692	13.3	LOS B	3.3	23.5	0.83	0.73	0.96	50.0
23u	U	All MCs	2	0.0	2	0.0	0.692	15.2	LOS B	3.3	23.5	0.83	0.73	0.96	50.3
Approach			696	3.8	696	3.8	0.692	9.3	LOS A	3.3	23.5	0.83	0.73	0.96	47.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	73	4.3	73	4.3	0.393	6.7	LOS A	1.1	8.2	0.66	0.59	0.66	52.1
25	T1	All MCs	297	3.9	297	3.9	0.393	6.7	LOS A	1.1	8.2	0.66	0.59	0.66	48.3
26	R2	All MCs	7	0.0	7	0.0	0.393	11.5	LOS B	1.1	8.2	0.66	0.59	0.66	51.6
26u	U	All MCs	2	0.0	2	0.0	0.393	13.5	LOS B	1.1	8.2	0.66	0.59	0.66	51.5
Approach			379	3.9	379	3.9	0.393	6.8	LOS A	1.1	8.2	0.66	0.59	0.66	49.6
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	29	0.0	29	0.0	0.089	6.4	LOS A	0.1	1.0	0.54	0.66	0.54	52.5
28	T1	All MCs	36	0.0	36	0.0	0.089	6.3	LOS A	0.1	1.0	0.54	0.66	0.54	53.2
29	R2	All MCs	1	0.0	1	0.0	0.089	11.2	LOS B	0.1	1.0	0.54	0.66	0.54	49.4
29u	U	All MCs	1	0.0	1	0.0	0.089	13.2	LOS B	0.1	1.0	0.54	0.66	0.54	52.2
Approach			67	0.0	67	0.0	0.089	6.5	LOS A	0.1	1.0	0.54	0.66	0.54	52.8
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.238	5.1	LOS A	0.6	4.1	0.32	0.46	0.32	52.0
31	T1	All MCs	297	3.9	297	3.9	0.238	4.9	LOS A	0.6	4.1	0.32	0.46	0.32	52.4
32	R2	All MCs	364	3.8	364	3.8	0.254	9.2	LOS A	0.6	4.6	0.31	0.62	0.31	48.6
32u	U	All MCs	2	0.0	2	0.0	0.254	11.2	LOS B	0.6	4.6	0.31	0.62	0.31	42.2
Approach			664	3.8	664	3.8	0.254	7.3	LOS A	0.6	4.6	0.32	0.55	0.32	50.1
All Vehicles			1806	3.7	1806	3.7	0.692	7.9	LOS A	3.3	23.5	0.60	0.63	0.65	49.2

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	75	4.2	75	4.2	0.069	2.7	LOS A	0.1	1.0	0.34	0.31	0.34	55.9
2	T1	All MCs	29	3.6	29	3.6	0.069	2.9	LOS A	0.1	1.0	0.34	0.31	0.34	55.9
3	R2	All MCs	773	4.5	773	4.5	0.418	9.9	LOS A	1.2	8.6	0.41	0.59	0.41	51.4
Approach			877	4.4	877	4.4	0.418	9.1	LOS A	1.2	8.6	0.40	0.55	0.40	51.8
East: Pacific Motorway (E)															
4	L2	All MCs	802	4.3	802	4.3	0.273	3.4	LOS A	0.8	5.6	0.16	0.26	0.16	54.6
5	T1	All MCs	144	4.4	144	4.4	0.273	2.8	LOS A	0.8	5.6	0.44	0.34	0.44	54.8
6	R2	All MCs	69	4.5	69	4.5	0.273	9.7	LOS A	0.8	5.6	0.44	0.34	0.44	54.5
Approach			1016	4.4	1016	4.4	0.273	3.7	LOS A	0.8	5.6	0.22	0.28	0.22	54.6
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.049	9.7	LOS A	0.2	1.4	0.90	0.60	0.90	53.1
8	T1	All MCs	68	4.6	68	4.6	0.104	7.3	LOS A	0.5	3.5	0.95	0.60	0.95	46.4
9	R2	All MCs	58	5.5	58	5.5	0.104	14.2	LOS B	0.5	3.5	0.95	0.60	0.95	50.9
Approach			173	4.9	173	4.9	0.104	10.3	LOS B	0.5	3.5	0.94	0.60	0.94	50.2
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.069	5.2	LOS A	0.2	1.2	0.67	0.58	0.67	54.2
11	T1	All MCs	1	0.0	1	0.0	0.069	7.4	LOS A	0.2	1.2	0.67	0.58	0.67	54.2
12	R2	All MCs	125	4.2	125	4.2	0.108	11.6	LOS B	0.3	2.1	0.69	0.65	0.69	46.1
Approach			184	4.6	184	4.6	0.108	9.6	LOS A	0.3	2.1	0.68	0.63	0.68	49.0
All Vehicles			2249	4.4	2249	4.4	0.418	6.8	LOS A	1.2	8.6	0.38	0.44	0.38	52.4

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

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2026 BKG AM PEAK (Network Folder: 2026 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.311	20.1	LOS C	3.5	25.1	0.71	0.60	45.6
2	T1	All MCs	485	2.8	485	2.8	0.311	15.6	LOS B	3.5	25.1	0.71	0.60	40.4
3b	R3	All MCs	143	5.1	143	5.1	* 0.910	53.8	LOS D	3.8	27.6	1.00	1.08	22.2
Approach			636	3.6	636	3.6	0.910	24.3	LOS C	3.8	27.6	0.78	0.71	34.1
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	72	13.2	72	13.2	0.064	8.7	LOS A	0.2	1.8	0.24	0.63	52.0
22	T1	All MCs	76	4.2	76	4.2	0.524	20.8	LOS C	3.8	27.1	0.82	0.73	45.0
23a	R1	All MCs	375	2.5	375	2.5	0.524	25.6	LOS C	3.8	27.1	0.82	0.75	37.5
Approach			522	4.2	522	4.2	0.524	22.5	LOS C	3.8	27.1	0.74	0.73	41.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	691	2.0	* 0.827	19.8	LOS B	8.5	60.2	0.94	0.92	37.1
8	T1	All MCs	296	13.9	296	13.9	0.514	26.7	LOS C	3.8	29.6	0.91	0.74	41.8
9b	R3	All MCs	8	25.0	8	25.0	0.060	39.4	LOS D	0.2	1.4	0.93	0.67	35.2
Approach			995	5.7	995	5.7	0.827	22.0	LOS C	8.5	60.2	0.93	0.87	39.0
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	23	0.0	23	0.0	0.167	10.6	LOS B	0.6	4.2	0.86	0.69	38.0
28	T1	All MCs	95	0.0	95	0.0	* 0.377	31.7	LOS C	1.7	12.1	0.94	0.73	30.9
29a	R1	All MCs	13	16.7	13	16.7	0.377	37.1	LOS D	1.7	12.1	0.97	0.74	38.0
Approach			131	1.6	131	1.6	0.377	28.4	LOS C	1.7	12.1	0.93	0.72	33.0
All Vehicles			2283	4.6	2283	4.6	0.910	23.1	LOS C	8.5	60.2	0.84	0.78	38.1

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2026 BKG AM PEAK (Network Folder: 2026 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.360	3.8	LOS A	3.8	27.6	0.40	0.35	51.2
6	R2	All MCs	1	0.0	1	0.0	0.002	12.9	LOS B	0.0	0.1	0.53	0.60	39.2
Approach			498	4.7	498	4.7	0.360	3.8	LOS A	3.8	27.6	0.40	0.35	51.2
North: Hospital Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.053	8.8	LOS A	0.1	1.0	0.90	0.67	15.4
9	R2	All MCs	25	0.0	25	0.0	0.084	33.4	LOS C	0.3	2.2	0.92	0.68	12.2
Approach			26	0.0	26	0.0	0.084	32.4	LOS C	0.3	2.2	0.92	0.68	12.3
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.054	9.8	LOS A	0.5	3.3	0.48	0.65	47.9
11	T1	All MCs	877	4.6	877	4.6	*0.491	10.8	LOS B	6.5	47.5	0.64	0.56	47.9
Approach			937	4.3	937	4.3	0.491	10.8	LOS B	6.5	47.5	0.63	0.56	47.9
All Vehicles			1461	4.3	1461	4.3	0.491	8.8	LOS A	6.5	47.5	0.55	0.49	48.0

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Hospital Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 BKG AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Network: N101 [2026 BKG AM PEAK (Network Folder: 2026 SCENARIO)]

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]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	379	4.7	379	4.7	0.413	4.8	LOS A	1.3	9.4	0.45	0.45	49.6
22	T1	All MCs	27	0.0	27	0.0	0.413	5.0	LOS A	1.3	9.4	0.45	0.45	53.1
23	R2	All MCs	89	4.7	89	4.7	0.413	9.5	LOS A	1.3	9.4	0.45	0.45	52.0
23u	U	All MCs	8	0.0	8	0.0	0.413	11.5	LOS B	1.3	9.4	0.45	0.45	52.3
Approach			504	4.4	504	4.4	0.413	5.8	LOS A	1.3	9.4	0.45	0.45	50.6
NorthEast: Turnock Street (NE)														
24	L2	All MCs	95	4.4	95	4.4	0.270	8.0	LOS A	0.8	5.7	0.74	0.74	51.5
25	T1	All MCs	119	4.4	119	4.4	0.270	8.0	LOS A	0.8	5.7	0.74	0.74	47.2
26	R2	All MCs	8	0.0	8	0.0	0.270	12.8	LOS B	0.8	5.7	0.74	0.74	51.0
26u	U	All MCs	1	0.0	1	0.0	0.270	14.8	LOS B	0.8	5.7	0.74	0.74	50.8
Approach			223	4.2	223	4.2	0.270	8.2	LOS A	0.8	5.7	0.74	0.74	49.8
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	6	0.0	6	0.0	0.029	7.0	LOS A	0.0	0.3	0.59	0.59	51.9
28	T1	All MCs	12	0.0	12	0.0	0.029	6.9	LOS A	0.0	0.3	0.59	0.59	52.5
29	R2	All MCs	1	0.0	1	0.0	0.029	11.8	LOS B	0.0	0.3	0.59	0.59	48.4
29u	U	All MCs	1	0.0	1	0.0	0.029	13.8	LOS B	0.0	0.3	0.59	0.59	51.6
Approach			20	0.0	20	0.0	0.029	7.6	LOS A	0.0	0.3	0.59	0.59	52.2
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.263	5.2	LOS A	0.6	4.2	0.32	0.32	52.0
31	T1	All MCs	306	4.5	306	4.5	0.263	5.0	LOS A	0.6	4.2	0.32	0.32	52.4
32	R2	All MCs	569	4.6	569	4.6	0.391	9.4	LOS A	1.0	7.4	0.33	0.33	48.5
32u	U	All MCs	1	0.0	1	0.0	0.391	11.3	LOS B	1.0	7.4	0.33	0.33	42.1
Approach			878	4.6	878	4.6	0.391	7.9	LOS A	1.0	7.4	0.33	0.33	49.7
All Vehicles			1625	4.4	1625	4.4	0.413	7.3	LOS A	1.3	9.4	0.42	0.42	50.0

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.

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 BKG PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 **Network: N101 [2026 BKG PM PEAK (Network Folder: 2026 SCENARIO)]**

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]				
			veh/h		veh/h		v/c	sec			m				km/h
South: Tweed Coast Road (S)															
1	L2	All MCs	136	3.9	136	3.9	0.113	2.9	LOS A	0.2	1.6	0.35	0.33	0.35	55.9
2	T1	All MCs	34	3.1	34	3.1	0.113	3.1	LOS A	0.2	1.6	0.35	0.33	0.35	55.9
3	R2	All MCs	1002	3.6	1002	3.6	0.548	10.3	LOS B	1.9	13.4	0.44	0.61	0.44	51.3
Approach			1172	3.6	1172	3.6	0.548	9.2	LOS A	1.9	13.4	0.43	0.57	0.43	51.8
East: Pacific Motorway (E)															
4	L2	All MCs	807	3.7	807	3.7	0.282	3.1	LOS A	0.8	5.9	0.14	0.26	0.14	54.6
5	T1	All MCs	147	3.6	147	3.6	0.282	2.7	LOS A	0.8	5.9	0.40	0.34	0.40	54.8
6	R2	All MCs	111	3.8	111	3.8	0.282	9.5	LOS A	0.8	5.9	0.40	0.34	0.40	54.4
Approach			1065	3.7	1065	3.7	0.282	3.7	LOS A	0.8	5.9	0.20	0.28	0.20	54.6
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.070	18.1	LOS B	0.4	2.9	1.00	0.69	1.00	48.6
8	T1	All MCs	60	3.5	60	3.5	0.116	13.9	LOS B	0.8	6.1	1.00	0.69	1.00	41.8
9	R2	All MCs	52	4.1	52	4.1	0.116	20.7	LOS C	0.8	6.1	1.00	0.69	1.00	47.7
Approach			161	3.9	161	3.9	0.116	17.4	LOS B	0.8	6.1	1.00	0.69	1.00	46.3
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.090	7.7	LOS A	0.3	1.9	0.83	0.65	0.83	53.3
11	T1	All MCs	1	0.0	1	0.0	0.086	6.8	LOS A	0.3	2.2	0.87	0.66	0.87	50.0
12	R2	All MCs	83	3.8	83	3.8	0.086	13.7	LOS B	0.3	2.2	0.87	0.66	0.87	45.2
Approach			147	3.6	147	3.6	0.090	11.1	LOS B	0.3	2.2	0.85	0.66	0.85	49.0
All Vehicles			2545	3.6	2545	3.6	0.548	7.5	LOS A	1.9	13.4	0.39	0.46	0.39	52.1

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2026 BKG PM PEAK (Network Folder: 2026 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.308	21.1	LOS C	3.3	24.1	0.74	0.63	45.5
2	T1	All MCs	426	5.4	426	5.4	0.308	17.7	LOS B	3.3	24.2	0.74	0.62	39.1
3b	R3	All MCs	117	8.1	117	8.1	*0.883	51.6	LOS D	3.0	22.3	1.00	1.03	22.8
Approach			565	5.8	565	5.8	0.883	24.8	LOS C	3.3	24.2	0.79	0.71	34.5
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	200	5.8	200	5.8	0.187	10.6	LOS B	1.2	8.9	0.40	0.68	51.2
22	T1	All MCs	115	5.5	115	5.5	*0.825	31.8	LOS C	9.5	68.4	1.00	0.99	40.2
23a	R1	All MCs	731	1.7	731	1.7	0.825	37.2	LOS D	9.6	68.4	1.00	0.98	32.1
Approach			1045	2.9	1045	2.9	0.825	31.5	LOS C	9.6	68.4	0.89	0.93	37.0
North: Tweed Coast Road (N)														
7a	L1	All MCs	481	4.8	481	4.8	0.569	12.9	LOS B	4.0	29.3	0.78	0.79	42.8
8	T1	All MCs	455	3.0	455	3.0	*0.853	34.6	LOS C	7.2	51.9	0.98	0.93	38.4
9b	R3	All MCs	15	0.0	15	0.0	0.106	40.4	LOS D	0.3	2.1	0.95	0.69	35.2
Approach			951	3.9	951	3.9	0.853	23.7	LOS C	7.2	51.9	0.88	0.86	39.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	26	0.0	26	0.0	0.234	13.4	LOS B	0.7	4.7	0.89	0.71	38.6
28	T1	All MCs	116	0.0	116	0.0	*0.526	30.4	LOS C	2.4	17.2	0.96	0.75	31.0
29a	R1	All MCs	36	5.9	36	5.9	0.526	37.7	LOS D	2.4	17.2	0.99	0.77	37.6
Approach			178	1.2	178	1.2	0.526	29.3	LOS C	2.4	17.2	0.95	0.75	33.8
All Vehicles			2739	3.7	2739	3.7	0.883	27.3	LOS C	9.6	68.4	0.87	0.85	37.3

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2026 BKG PM PEAK (Network Folder: 2026 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
6	R2	All MCs	1	0.0	1	0.0	0.002	11.5	LOS B	0.0	0.1	0.48	0.59	40.4
Approach			911	3.8	911	3.8	0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
North: Hospital Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	8.4	LOS A	1.1	7.4	0.96	0.75	11.1
9	R2	All MCs	138	0.0	138	0.0	* 0.455	39.1	LOS D	1.8	12.5	0.98	0.76	10.7
Approach			139	0.0	139	0.0	0.455	38.8	LOS D	1.8	12.5	0.97	0.76	10.7
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.031	8.9	LOS A	0.2	1.5	0.38	0.62	48.6
11	T1	All MCs	686	3.8	686	3.8	0.382	9.6	LOS A	4.6	33.4	0.58	0.50	48.8
Approach			720	3.7	720	3.7	0.382	9.6	LOS A	4.6	33.4	0.57	0.51	48.8
All Vehicles			1769	3.5	1769	3.5	0.656	9.9	LOS A	9.9	71.2	0.60	0.53	44.9

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Hospital Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	602	3.8	602	3.8	0.724	9.4	LOS A	3.7	26.8	0.87	1.04	45.3
22	T1	All MCs	15	0.0	15	0.0	0.724	9.5	LOS A	3.7	26.8	0.87	1.04	50.5
23	R2	All MCs	101	4.2	101	4.2	0.724	14.1	LOS B	3.7	26.8	0.87	1.04	49.4
23u	U	All MCs	2	0.0	2	0.0	0.724	16.0	LOS B	3.7	26.8	0.87	1.04	49.8
Approach			720	3.8	720	3.8	0.724	10.1	LOS B	3.7	26.8	0.87	1.04	46.4
NorthEast: Turnock Street (NE)														
24	L2	All MCs	75	4.2	75	4.2	0.410	6.8	LOS A	1.2	8.7	0.68	0.68	52.1
25	T1	All MCs	307	3.8	307	3.8	0.410	6.8	LOS A	1.2	8.7	0.68	0.68	48.2
26	R2	All MCs	7	0.0	7	0.0	0.410	11.6	LOS B	1.2	8.7	0.68	0.68	51.5
26u	U	All MCs	2	0.0	2	0.0	0.410	13.6	LOS B	1.2	8.7	0.68	0.68	51.4
Approach			392	3.8	392	3.8	0.410	6.9	LOS A	1.2	8.7	0.68	0.68	49.5
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	31	0.0	31	0.0	0.093	6.5	LOS A	0.1	1.0	0.55	0.55	52.5
28	T1	All MCs	37	0.0	37	0.0	0.093	6.4	LOS A	0.1	1.0	0.55	0.55	53.1
29	R2	All MCs	1	0.0	1	0.0	0.093	11.3	LOS B	0.1	1.0	0.55	0.55	49.3
29u	U	All MCs	1	0.0	1	0.0	0.093	13.3	LOS B	0.1	1.0	0.55	0.55	52.1
Approach			69	0.0	69	0.0	0.093	6.6	LOS A	0.1	1.0	0.55	0.55	52.8
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.248	5.1	LOS A	0.6	4.3	0.33	0.33	51.9
31	T1	All MCs	307	3.8	307	3.8	0.248	4.9	LOS A	0.6	4.3	0.33	0.33	52.3
32	R2	All MCs	377	3.9	377	3.9	0.264	9.2	LOS A	0.7	4.9	0.32	0.32	48.5
32u	U	All MCs	2	0.0	2	0.0	0.264	11.2	LOS B	0.7	4.9	0.32	0.32	42.2
Approach			687	3.8	687	3.8	0.264	7.3	LOS A	0.7	4.9	0.33	0.33	50.1
All Vehicles			1868	3.7	1868	3.7	0.724	8.3	LOS A	3.7	26.8	0.62	0.68	48.9

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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				
South: Tweed Coast Road (S)															
1	L2	All MCs	83	3.8	83	3.8	0.076	2.7	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	33	3.2	0.076	2.9	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
3	R2	All MCs	860	4.0	860	4.0	0.465	10.0	LOS A	1.5	11.1	0.51	0.57	0.51	51.0
Approach			976	4.0	976	4.0	0.465	9.1	LOS A	1.5	11.1	0.50	0.54	0.50	51.4
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.322	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.322	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.6
6	R2	All MCs	69	4.5	69	4.5	0.322	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.322	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.053	10.0	LOS B	0.2	1.3	0.91	0.67	0.91	53.0
8	T1	All MCs	83	3.8	83	3.8	0.133	7.3	LOS A	0.5	3.8	0.96	0.67	0.96	46.4
9	R2	All MCs	58	5.5	58	5.5	0.133	14.2	LOS B	0.5	3.8	0.96	0.67	0.96	51.0
Approach			187	4.5	187	4.5	0.133	10.1	LOS B	0.5	3.8	0.95	0.67	0.95	50.0
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.077	5.4	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
11	T1	All MCs	1	0.0	1	0.0	0.077	8.0	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
12	R2	All MCs	153	3.4	153	3.4	0.144	11.7	LOS B	0.4	2.6	0.72	0.71	0.72	45.9
Approach			212	4.0	212	4.0	0.144	9.9	LOS A	0.4	2.6	0.71	0.68	0.71	48.5
All Vehicles			2564	3.9	2564	3.9	0.465	7.0	LOS A	1.5	11.1	0.43	0.44	0.43	52.0

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
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2026
OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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	976	4.0	976	4.0	0.383	0.6	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			976	4.0	976	4.0	0.383	0.6	NA	0.0	0.0	0.00	0.00	0.00	59.8
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.220	5.7	LOS A	0.0	0.0	0.00	0.31	0.00	53.5
8	T1	All MCs	996	5.7	996	5.7	0.220	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	58.8
Approach			1211	4.7	1211	4.7	0.220	1.1	NA	0.0	0.0	0.00	0.10	0.00	57.5
All Vehicles			2186	4.4	2186	4.4	0.383	0.9	NA	0.0	0.0	0.00	0.05	0.00	57.9

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.314	24.4	LOS C	4.5	32.2	0.72	0.61	43.3
2	T1	All MCs	485	2.8	485	2.8	0.314	19.2	LOS B	4.5	32.2	0.72	0.61	36.9
3b	R3	All MCs	203	3.6	203	3.6	* 0.944	73.7	LOS E	7.7	55.6	1.00	1.15	18.0
Approach			696	3.3	696	3.3	0.944	35.2	LOS D	7.7	55.6	0.80	0.77	28.3
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	83	11.4	83	11.4	0.071	8.5	LOS A	0.3	2.3	0.19	0.63	48.2
22	T1	All MCs	86	3.7	86	3.7	* 0.890	39.8	LOS D	8.1	57.9	1.00	0.96	30.2
23a	R1	All MCs	474	2.0	474	2.0	0.890	44.0	LOS D	8.1	57.9	1.00	0.96	14.1
Approach			643	3.4	643	3.4	0.890	38.9	LOS D	8.1	57.9	0.90	0.92	21.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	691	2.0	* 0.867	27.5	LOS C	13.3	94.5	0.98	0.95	15.5
8	T1	All MCs	296	13.9	296	13.9	0.431	30.2	LOS C	4.5	35.3	0.87	0.71	34.0
9b	R3	All MCs	8	25.0	8	25.0	0.027	36.5	LOS D	0.2	1.5	0.81	0.67	29.8
Approach			995	5.7	995	5.7	0.867	28.4	LOS C	13.3	94.5	0.94	0.88	24.0
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	23	0.0	23	0.0	0.368	10.3	LOS B	1.2	8.7	0.96	0.74	32.8
28	T1	All MCs	125	0.0	125	0.0	* 0.830	46.4	LOS D	2.8	20.3	0.98	0.88	25.1
29a	R1	All MCs	13	16.7	13	16.7	0.830	57.5	LOS E	2.8	20.3	1.00	0.96	31.4
Approach			161	1.3	161	1.3	0.830	42.1	LOS D	2.8	20.3	0.98	0.86	26.7
All Vehicles			2495	4.2	2495	4.2	0.944	33.9	LOS C	13.3	94.5	0.89	0.86	24.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	523	4.4	523	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
6	R2	All MCs	1	0.0	1	0.0	*0.366	33.2	LOS C	4.1	30.0	0.33	0.29	52.0
Approach			524	4.4	524	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.740	53.3	LOS D	3.5	24.7	1.00	0.87	11.5
9	R2	All MCs	121	0.0	121	0.0	*0.740	53.2	LOS D	3.5	24.7	1.00	0.87	11.5
Approach			122	0.0	122	0.0	0.740	53.2	LOS D	3.5	24.7	1.00	0.87	11.5
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	91	0.0	0.849	14.4	LOS B	24.6	177.7	0.89	0.83	31.8
11	T1	All MCs	945	4.2	945	4.2	*0.849	19.7	LOS B	24.6	177.7	0.89	0.83	23.8
Approach			1036	3.9	1036	3.9	0.849	19.2	LOS B	24.6	177.7	0.89	0.83	24.7
All Vehicles			1682	3.8	1682	3.8	0.849	16.7	LOS B	24.6	177.7	0.72	0.66	31.1

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
6	R2	All MCs	1	0.0	1	0.0	*0.002	12.3	LOS B	0.0	0.1	0.44	0.60	39.7
Approach			498	4.7	498	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.060	8.8	LOS A	0.2	1.4	0.92	0.67	12.5
9	R2	All MCs	25	0.0	25	0.0	0.095	42.8	LOS D	0.4	2.8	0.94	0.68	10.0
Approach			26	0.0	26	0.0	0.095	41.4	LOS D	0.4	2.8	0.94	0.68	10.1
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.049	9.2	LOS A	0.5	3.6	0.41	0.61	45.4
11	T1	All MCs	877	4.6	877	4.6	*0.421	10.6	LOS B	7.6	55.5	0.59	0.48	44.4
Approach			937	4.3	937	4.3	0.421	10.5	LOS B	7.6	55.5	0.58	0.49	44.5
All Vehicles			1461	4.3	1461	4.3	0.421	8.6	LOS A	7.6	55.5	0.50	0.43	45.5

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 1 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	379	4.7	379	4.7	0.514	5.2	LOS A	1.8	13.0	0.56	0.54	49.0
22	T1	All MCs	131	0.0	131	0.0	0.514	5.4	LOS A	1.8	13.0	0.56	0.54	52.8
23	R2	All MCs	89	4.7	89	4.7	0.514	9.9	LOS A	1.8	13.0	0.56	0.54	51.6
23u	U	All MCs	8	0.0	8	0.0	0.514	11.9	LOS B	1.8	13.0	0.56	0.54	52.0
Approach			607	3.6	607	3.6	0.514	6.0	LOS A	1.8	13.0	0.56	0.54	50.7
NorthEast: Turnock Street (NE)														
24	L2	All MCs	95	4.4	95	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	50.7
25	T1	All MCs	119	4.4	119	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	46.0
26	R2	All MCs	41	0.0	41	0.0	0.332	13.2	LOS B	1.0	7.0	0.79	0.69	50.3
26u	U	All MCs	1	0.0	1	0.0	0.332	15.2	LOS B	1.0	7.0	0.79	0.69	50.1
Approach			256	3.7	256	3.7	0.332	9.3	LOS A	1.0	7.0	0.79	0.69	49.1
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	31	0.0	31	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	52.0
28	T1	All MCs	56	0.0	56	0.0	0.137	7.2	LOS A	0.2	1.7	0.64	0.72	52.7
29	R2	All MCs	1	0.0	1	0.0	0.137	12.2	LOS B	0.2	1.7	0.64	0.72	48.5
29u	U	All MCs	1	0.0	1	0.0	0.137	14.2	LOS B	0.2	1.7	0.64	0.72	51.7
Approach			88	0.0	88	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	52.4
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.304	6.1	LOS A	0.7	5.0	0.47	0.56	51.3
31	T1	All MCs	306	4.5	306	4.5	0.304	6.0	LOS A	0.7	5.0	0.47	0.56	51.6
32	R2	All MCs	569	4.6	569	4.6	0.444	10.2	LOS B	1.2	8.7	0.49	0.68	48.0
32u	U	All MCs	1	0.0	1	0.0	0.444	12.1	LOS B	1.2	8.7	0.49	0.68	41.3
Approach			878	4.6	878	4.6	0.444	8.7	LOS A	1.2	8.7	0.48	0.64	49.2
All Vehicles			1829	3.9	1829	3.9	0.514	7.8	LOS A	1.8	13.0	0.56	0.62	49.8

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 1 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	161	3.3	161	3.3	0.133	2.9	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	40	2.6	0.133	3.1	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1194	3.0	0.652	10.5	LOS B	2.6	18.7	0.63	0.63	0.63	50.6
Approach			1395	3.0	1395	3.0	0.652	9.4	LOS A	2.6	18.7	0.60	0.59	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.102	19.9	LOS B	0.4	2.8	1.00	0.81	1.00	48.8
8	T1	All MCs	67	3.1	67	3.1	0.179	13.3	LOS B	0.8	6.0	1.00	0.81	1.00	42.3
9	R2	All MCs	52	4.1	52	4.1	0.179	20.2	LOS C	0.8	6.0	1.00	0.81	1.00	48.1
Approach			168	3.8	168	3.8	0.179	17.4	LOS B	0.8	6.0	1.00	0.81	1.00	46.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.123	8.6	LOS A	0.3	2.1	0.85	0.77	0.85	52.6
11	T1	All MCs	1	0.0	1	0.0	0.123	10.5	LOS B	0.4	2.6	0.88	0.77	0.88	51.0
12	R2	All MCs	94	3.4	94	3.4	0.123	14.1	LOS B	0.4	2.6	0.90	0.76	0.90	45.0
Approach			158	3.3	158	3.3	0.123	11.8	LOS B	0.4	2.6	0.88	0.77	0.88	48.4
All Vehicles			2887	3.2	2887	3.2	0.652	7.8	LOS A	2.6	18.7	0.48	0.49	0.48	51.6

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2026
OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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	%								
South: Tweed Coast Road (S)														
2	T1	All MCs	1394	2.9	1394	2.9	0.543	1.6	LOS A	0.0	0.0	0.00	0.00	59.6
Approach			1394	2.9	1394	2.9	0.543	1.6	NA	0.0	0.0	0.00	0.00	59.6
North: Tweed Coast Road (N)														
7	L2	All MCs	119	0.0	119	0.0	0.188	5.7	LOS A	0.0	0.0	0.00	0.19	55.0
8	T1	All MCs	952	4.0	952	4.0	0.188	0.0	LOS A	0.0	0.0	0.00	0.05	59.0
Approach			1071	3.5	1071	3.5	0.188	0.7	NA	0.0	0.0	0.00	0.06	58.3
All Vehicles			2464	3.2	2464	3.2	0.543	1.2	NA	0.0	0.0	0.00	0.03	58.7

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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 (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.

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.357	29.4	LOS C	4.6	33.5	0.80	0.68	0.80	41.3
2	T1	All MCs	426	5.4	426	5.4	0.357	24.6	LOS C	4.6	33.6	0.80	0.68	0.80	33.3
3b	R3	All MCs	128	7.4	128	7.4	* 0.872	61.2	LOS E	4.1	30.8	1.00	1.03	1.48	20.4
Approach			577	5.7	577	5.7	0.872	32.9	LOS C	4.6	33.6	0.85	0.76	0.95	29.6
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	246	4.7	246	4.7	0.220	18.5	LOS B	1.9	13.6	0.37	0.68	0.37	46.5
22	T1	All MCs	140	4.5	140	4.5	* 0.891	48.9	LOS D	15.8	112.7	1.00	1.05	1.26	29.6
23a	R1	All MCs	955	1.3	955	1.3	0.891	47.9	LOS D	17.8	125.7	1.00	1.04	1.24	13.8
Approach			1341	2.3	1341	2.3	0.891	42.6	LOS D	17.8	125.7	0.88	0.97	1.08	20.4
North: Tweed Coast Road (N)															
7a	L1	All MCs	481	4.8	481	4.8	0.498	12.8	LOS B	4.7	34.0	0.69	0.77	0.69	25.6
8	T1	All MCs	455	3.0	455	3.0	* 0.891	46.1	LOS D	9.5	68.3	0.98	0.97	1.21	27.7
9b	R3	All MCs	15	0.0	15	0.0	0.074	45.3	LOS D	0.4	2.5	0.91	0.69	0.91	27.1
Approach			951	3.9	951	3.9	0.891	29.2	LOS C	9.5	68.3	0.83	0.86	0.94	27.3
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	26	0.0	26	0.0	0.362	14.0	LOS B	1.1	7.6	0.95	0.74	0.95	33.9
28	T1	All MCs	125	0.0	125	0.0	* 0.815	43.6	LOS D	3.5	24.9	0.98	0.87	1.20	25.6
29a	R1	All MCs	36	5.9	36	5.9	0.815	55.1	LOS E	3.5	24.9	1.00	0.94	1.34	31.9
Approach			187	1.1	187	1.1	0.815	41.6	LOS D	3.5	24.9	0.98	0.87	1.19	28.2
All Vehicles			3056	3.3	3056	3.3	0.891	36.6	LOS D	17.8	125.7	0.87	0.89	1.02	24.7

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	1.04

SouthEast: Cudgen Road (SE)											
P5 Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04	
North: Tweed Coast Road (N)											
P3 Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04	
NorthWest: Cudgen Road (NW)											
P7 Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04	
All Pedestrians	8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04	

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1047	3.3	1047	3.3	0.824	10.9	LOS B	20.1	144.5	0.76	0.71	43.1
6	R2	All MCs	1	0.0	1	0.0	*0.824	49.1	LOS D	20.1	144.5	0.76	0.71	44.5
Approach			1048	3.3	1048	3.3	0.824	11.0	LOS B	20.1	144.5	0.76	0.71	43.1
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.910	59.1	LOS E	9.7	67.6	1.00	1.02	10.6
9	R2	All MCs	296	0.0	296	0.0	*0.910	59.0	LOS E	9.7	67.6	1.00	1.02	10.6
Approach			297	0.0	297	0.0	0.910	59.0	LOS E	9.7	67.6	1.00	1.02	10.6
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.883	20.0	LOS C	20.6	148.2	0.96	0.97	26.1
11	T1	All MCs	725	3.6	725	3.6	*0.883	29.7	LOS C	20.6	148.2	0.96	0.97	18.0
Approach			747	3.5	747	3.5	0.883	29.4	LOS C	20.6	148.2	0.96	0.97	18.3
All Vehicles			2093	2.9	2093	2.9	0.910	24.4	LOS C	20.6	148.2	0.87	0.85	27.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.615	4.8	LOS A	10.3	74.2	0.46	0.43	49.7
6	R2	All MCs	1	0.0	1	0.0	0.002	9.5	LOS A	0.0	0.1	0.35	0.59	42.4
Approach			911	3.8	911	3.8	0.615	4.8	LOS A	10.3	74.2	0.46	0.43	49.7
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.325	7.5	LOS A	1.4	9.7	0.97	0.75	9.2
9	R2	All MCs	138	0.0	138	0.0	* 0.512	49.2	LOS D	2.3	16.2	0.99	0.76	8.8
Approach			139	0.0	139	0.0	0.512	48.9	LOS D	2.3	16.2	0.99	0.76	8.8
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.028	7.5	LOS A	0.2	1.1	0.23	0.59	47.1
11	T1	All MCs	686	3.8	686	3.8	0.328	4.7	LOS A	3.0	21.8	0.30	0.26	52.2
Approach			720	3.7	720	3.7	0.328	4.8	LOS A	3.0	21.8	0.29	0.27	51.8
All Vehicles			1769	3.5	1769	3.5	0.615	8.3	LOS A	10.3	74.2	0.44	0.39	44.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 1 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	%									[Veh. veh
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	602	3.8	602	3.8	0.782	11.3	LOS B	4.7	33.8	0.95	0.84	1.22	43.4
22	T1	All MCs	54	0.0	54	0.0	0.782	11.4	LOS B	4.7	33.8	0.95	0.84	1.22	49.3
23	R2	All MCs	101	4.2	101	4.2	0.782	16.0	LOS B	4.7	33.8	0.95	0.84	1.22	48.2
23u	U	All MCs	2	0.0	2	0.0	0.782	17.9	LOS B	4.7	33.8	0.95	0.84	1.22	48.6
Approach			759	3.6	759	3.6	0.782	11.9	LOS B	4.7	33.8	0.95	0.84	1.22	45.0
NorthEast: Turnock Street (NE)															
24	L2	All MCs	75	4.2	75	4.2	0.474	8.0	LOS A	1.4	10.2	0.75	0.69	0.79	51.4
25	T1	All MCs	307	3.8	307	3.8	0.474	8.0	LOS A	1.4	10.2	0.75	0.69	0.79	47.1
26	R2	All MCs	27	0.0	27	0.0	0.474	12.8	LOS B	1.4	10.2	0.75	0.69	0.79	50.9
26u	U	All MCs	2	0.0	2	0.0	0.474	14.8	LOS B	1.4	10.2	0.75	0.69	0.79	50.8
Approach			412	3.6	412	3.6	0.474	8.3	LOS A	1.4	10.2	0.75	0.69	0.79	48.7
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	106	0.0	106	0.0	0.337	7.2	LOS A	0.6	4.2	0.64	0.74	0.65	52.1
28	T1	All MCs	131	0.0	131	0.0	0.337	7.1	LOS A	0.6	4.2	0.64	0.74	0.65	52.7
29	R2	All MCs	1	0.0	1	0.0	0.337	12.0	LOS B	0.6	4.2	0.64	0.74	0.65	48.7
29u	U	All MCs	1	0.0	1	0.0	0.337	14.0	LOS B	0.6	4.2	0.64	0.74	0.65	51.8
Approach			239	0.0	239	0.0	0.337	7.2	LOS A	0.6	4.2	0.64	0.74	0.65	52.5
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.265	5.4	LOS A	0.7	5.0	0.45	0.49	0.45	51.4
31	T1	All MCs	307	3.8	307	3.8	0.265	5.2	LOS A	0.7	5.0	0.45	0.49	0.45	51.7
32	R2	All MCs	377	3.9	377	3.9	0.280	9.5	LOS A	0.8	5.6	0.44	0.61	0.44	48.2
32u	U	All MCs	2	0.0	2	0.0	0.280	11.4	LOS B	0.8	5.6	0.44	0.61	0.44	41.5
Approach			687	3.8	687	3.8	0.280	7.6	LOS A	0.8	5.6	0.44	0.55	0.44	49.7
All Vehicles			2097	3.3	2097	3.3	0.782	9.3	LOS A	4.7	33.8	0.71	0.71	0.82	48.4

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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MOVEMENT SUMMARY

 Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	83	3.8	77	4.1	0.071	2.7	LOS A	0.2	1.2	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	30	3.5	0.071	2.9	LOS A	0.2	1.2	0.40	0.31	0.40	55.6
3	R2	All MCs	860	4.0	797	4.4	0.432	9.9	LOS A	1.4	10.0	0.50	0.57	0.50	51.1
Approach			976	4.0	905	4.3	0.432	9.1	LOS A	1.4	10.0	0.49	0.54	0.49	51.5
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.321	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.321	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.7
6	R2	All MCs	69	4.5	69	4.5	0.321	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.321	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.050	8.9	LOS A	0.2	1.2	0.87	0.64	0.87	53.2
8	T1	All MCs	83	3.8	83	3.8	0.124	6.5	LOS A	0.5	3.4	0.91	0.65	0.91	46.8
9	R2	All MCs	58	5.5	58	5.5	0.124	13.4	LOS B	0.5	3.4	0.91	0.65	0.91	51.3
Approach			187	4.5	187	4.5	0.124	9.3	LOS A	0.5	3.4	0.90	0.65	0.90	50.3
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.073	5.0	LOS A	0.1	1.1	0.66	0.58	0.66	54.2
11	T1	All MCs	1	0.0	1	0.0	0.073	7.3	LOS A	0.1	1.1	0.66	0.58	0.66	54.3
12	R2	All MCs	153	3.4	153	3.4	0.137	11.4	LOS B	0.3	2.4	0.68	0.69	0.68	46.1
Approach			212	4.0	212	4.0	0.137	9.6	LOS A	0.3	2.4	0.68	0.66	0.68	48.7
All Vehicles			2564	3.9	2493	4.0	0.432	6.9	LOS A	1.4	10.0	0.42	0.44	0.42	52.1

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.

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MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2026
OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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]	%									
South: Tweed Coast Road (S)															
2	T1	All MCs	877	4.4	877	4.4	0.349	0.6	LOS A	0.0	0.3	0.01	0.01	0.01	59.5
3	R2	All MCs	1	0.0	1	0.0	0.349	13.6	LOS B	0.0	0.3	0.01	0.01	0.01	53.8
Approach			878	4.4	878	4.4	0.349	0.6	NA	0.0	0.3	0.01	0.01	0.01	59.5
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	3.575	2335.4	LOS F	19.1	133.7	1.00	2.25	6.74	0.3
6	R2	All MCs	99	0.0	99	0.0	3.575	2461.2	LOS F	19.1	133.7	1.00	2.25	6.74	0.3
Approach			100	0.0	100	0.0	3.575	2459.9	LOS F	19.1	133.7	1.00	2.25	6.74	0.3
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.215	5.6	LOS A	0.0	0.0	0.00	0.32	0.00	52.9
8	T1	All MCs	996	5.7	996	5.7	0.215	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	58.8
Approach			1211	4.7	1211	4.7	0.215	1.0	NA	0.0	0.0	0.00	0.10	0.00	57.3
All Vehicles			2188	4.4	2188	4.4	3.575	113.2	NA	19.1	133.7	0.05	0.16	0.31	9.9

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.314	24.4	LOS C	4.5	32.2	0.72	0.61	43.3
2	T1	All MCs	485	2.8	485	2.8	0.314	19.2	LOS B	4.5	32.2	0.72	0.61	36.9
3b	R3	All MCs	203	3.6	203	3.6	*0.893	61.2	LOS E	6.9	49.9	1.00	1.07	20.4
Approach			696	3.3	696	3.3	0.893	31.5	LOS C	6.9	49.9	0.80	0.74	29.9
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	83	11.4	83	11.4	0.071	7.6	LOS A	0.1	0.5	0.04	0.59	49.1
22	T1	All MCs	86	3.7	86	3.7	0.787	32.8	LOS C	5.9	42.6	0.95	0.83	33.0
23a	R1	All MCs	375	2.5	375	2.5	0.787	37.0	LOS D	5.9	42.6	0.95	0.83	16.1
Approach			544	4.1	544	4.1	0.787	31.8	LOS C	5.9	42.6	0.81	0.79	24.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	690	2.0	*0.890	31.1	LOS C	14.4	102.5	1.00	0.98	14.0
8	T1	All MCs	296	13.9	296	13.9	0.431	30.2	LOS C	4.5	35.3	0.87	0.71	34.0
9b	R3	All MCs	8	25.0	8	25.0	0.026	35.6	LOS D	0.2	1.5	0.80	0.67	30.1
Approach			995	5.7	994	5.7	0.890	30.9	LOS C	14.4	102.5	0.96	0.89	22.8
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	23	0.0	23	0.0	0.367	9.7	LOS A	1.3	9.1	0.96	0.74	32.2
28	T1	All MCs	125	0.0	125	0.0	*0.827	47.1	LOS D	2.8	20.3	0.98	0.88	25.0
29a	R1	All MCs	13	16.7	13	16.7	0.827	57.3	LOS E	2.8	20.3	1.00	0.96	31.4
Approach			161	1.3	161	1.3	0.827	42.5	LOS D	2.8	20.3	0.98	0.86	26.6
All Vehicles			2396	4.3	2395	4.4	0.893	32.1	LOS C	14.4	102.5	0.88	0.83	25.9

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	523	4.4	523	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
6	R2	All MCs	1	0.0	1	0.0	*0.366	33.2	LOS C	4.1	30.0	0.33	0.29	52.0
Approach			524	4.4	524	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.134	48.1	LOS D	0.6	4.0	0.95	0.70	12.5
9	R2	All MCs	21	0.0	21	0.0	*0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
Approach			22	0.0	22	0.0	0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	90	0.0	0.848	14.3	LOS B	24.5	177.0	0.88	0.83	31.9
11	T1	All MCs	945	4.2	945	4.2	*0.848	19.5	LOS B	24.5	177.0	0.88	0.83	23.9
Approach			1036	3.9	1035	3.9	0.848	19.1	LOS B	24.5	177.0	0.88	0.83	24.9
All Vehicles			1582	4.0	1582	4.0	0.848	14.2	LOS B	24.5	177.0	0.70	0.65	33.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
6	R2	All MCs	1	0.0	1	0.0	*0.002	12.3	LOS B	0.0	0.1	0.44	0.60	39.7
Approach			498	4.7	498	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.060	8.8	LOS A	0.2	1.4	0.92	0.67	12.5
9	R2	All MCs	25	0.0	25	0.0	0.095	42.8	LOS D	0.4	2.8	0.94	0.68	10.0
Approach			26	0.0	26	0.0	0.095	41.4	LOS D	0.4	2.8	0.94	0.68	10.1
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.049	8.8	LOS A	0.5	3.2	0.37	0.63	45.8
11	T1	All MCs	877	4.6	876	4.6	*0.420	10.6	LOS B	7.6	55.3	0.59	0.48	44.4
Approach			937	4.3	936	4.3	0.420	10.5	LOS B	7.6	55.3	0.58	0.49	44.5
All Vehicles			1461	4.3	1461	4.3	0.420	8.6	LOS A	7.6	55.3	0.50	0.43	45.6

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026
OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]
			veh/h	%	veh/h	%	v/c	sec						km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	379	4.7	379	4.7	0.514	5.2	LOS A	1.8	13.0	0.56	0.54	0.56	49.0
22	T1	All MCs	131	0.0	131	0.0	0.514	5.4	LOS A	1.8	13.0	0.56	0.54	0.56	52.8
23	R2	All MCs	89	4.7	89	4.7	0.514	9.9	LOS A	1.8	13.0	0.56	0.54	0.56	51.6
23u	U	All MCs	8	0.0	8	0.0	0.514	11.9	LOS B	1.8	13.0	0.56	0.54	0.56	52.0
Approach			607	3.6	607	3.6	0.514	6.0	LOS A	1.8	13.0	0.56	0.54	0.56	50.7
NorthEast: Turnock Street (NE)															
24	L2	All MCs	95	4.4	95	4.4	0.332	8.4	LOS A	1.0	7.0	0.79	0.69	0.79	50.7
25	T1	All MCs	119	4.4	119	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	0.79	46.0
26	R2	All MCs	41	0.0	41	0.0	0.332	13.2	LOS B	1.0	7.0	0.79	0.69	0.79	50.3
26u	U	All MCs	1	0.0	1	0.0	0.332	15.2	LOS B	1.0	7.0	0.79	0.69	0.79	50.1
Approach			256	3.7	256	3.7	0.332	9.3	LOS A	1.0	7.0	0.79	0.69	0.79	49.1
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	31	0.0	31	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	0.64	52.0
28	T1	All MCs	56	0.0	56	0.0	0.137	7.2	LOS A	0.2	1.7	0.64	0.72	0.64	52.7
29	R2	All MCs	1	0.0	1	0.0	0.137	12.2	LOS B	0.2	1.7	0.64	0.72	0.64	48.5
29u	U	All MCs	1	0.0	1	0.0	0.137	14.2	LOS B	0.2	1.7	0.64	0.72	0.64	51.7
Approach			88	0.0	88	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	0.64	52.4
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.304	6.1	LOS A	0.7	5.0	0.47	0.56	0.47	51.3
31	T1	All MCs	306	4.5	306	4.5	0.304	6.0	LOS A	0.7	5.0	0.47	0.56	0.47	51.6
32	R2	All MCs	569	4.6	569	4.6	0.444	10.2	LOS B	1.2	8.7	0.49	0.68	0.49	48.0
32u	U	All MCs	1	0.0	1	0.0	0.444	12.1	LOS B	1.2	8.7	0.49	0.68	0.49	41.3
Approach			878	4.6	877	4.6	0.444	8.7	LOS A	1.2	8.7	0.48	0.64	0.48	49.2
All Vehicles			1829	3.9	1829	3.9	0.514	7.8	LOS A	1.8	13.0	0.56	0.62	0.56	49.8

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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MOVEMENT SUMMARY

 Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	161	3.3	137	3.8	0.114	2.9	LOS A	0.3	1.9	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	34	3.1	0.114	3.1	LOS A	0.3	1.9	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1015	3.5	0.556	10.3	LOS B	2.0	14.2	0.58	0.60	0.58	50.7
Approach			1395	3.0	1186	3.5	0.556	9.2	LOS A	2.0	14.2	0.56	0.56	0.56	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.076	13.2	LOS B	0.3	1.9	0.98	0.73	0.98	51.9
8	T1	All MCs	67	3.1	67	3.1	0.132	8.7	LOS A	0.6	4.0	1.00	0.72	1.00	45.7
9	R2	All MCs	52	4.1	52	4.1	0.132	15.6	LOS B	0.6	4.0	1.00	0.72	1.00	50.5
Approach			168	3.8	168	3.8	0.132	12.1	LOS B	0.6	4.0	0.99	0.72	0.99	49.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.101	6.6	LOS A	0.2	1.6	0.78	0.71	0.78	53.7
11	T1	All MCs	1	0.0	1	0.0	0.101	10.3	LOS B	0.2	1.6	0.78	0.71	0.78	53.7
12	R2	All MCs	94	3.4	94	3.4	0.102	12.5	LOS B	0.3	2.0	0.80	0.73	0.80	45.5
Approach			158	3.3	158	3.3	0.102	10.1	LOS B	0.3	2.0	0.79	0.72	0.79	49.2
All Vehicles			2887	3.2	2679	3.5	0.556	7.2	LOS A	2.0	14.2	0.45	0.46	0.45	52.0

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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MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2026
OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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	1169	3.5	1169	3.5	0.461	1.0	LOS A	0.0	0.2	0.00	0.00	59.8
3	R2	All MCs	1	0.0	1	0.0	0.461	9.4	LOS A	0.0	0.2	0.01	0.01	53.9
Approach			1171	3.5	1171	3.5	0.461	1.0	NA	0.0	0.2	0.00	0.00	59.8
East: Site Access (E)														
4	L2	All MCs	1	0.0	1	0.0	14.422	12089.4	LOS F	53.4	374.0	1.00	1.92	0.1
6	R2	All MCs	224	0.0	224	0.0	14.422	12302.4	LOS F	53.4	374.0	1.00	1.92	0.1
Approach			225	0.0	225	0.0	14.422	12301.4	LOS F	53.4	374.0	1.00	1.92	0.1
North: Tweed Coast Road (N)														
7	L2	All MCs	119	0.0	119	0.0	0.188	5.6	LOS A	0.0	0.0	0.00	0.20	54.2
8	T1	All MCs	952	4.0	952	4.0	0.188	0.0	LOS A	0.0	0.0	0.00	0.05	59.0
Approach			1071	3.5	1071	3.5	0.188	0.7	NA	0.0	0.0	0.00	0.07	58.2
All Vehicles			2466	3.2	2466	3.2	14.422	1124.3	NA	53.4	374.0	0.09	0.21	1.0

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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 (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.

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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.308	21.1	LOS C	3.3	24.1	0.74	0.63	45.5
2	T1	All MCs	426	5.4	426	5.4	0.308	16.3	LOS B	3.3	24.2	0.74	0.62	39.1
3b	R3	All MCs	128	7.4	128	7.4	* 0.850	48.8	LOS D	3.2	23.6	1.00	1.00	23.6
Approach			577	5.7	577	5.7	0.850	23.7	LOS C	3.3	24.2	0.80	0.71	34.5
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	246	4.7	246	4.7	0.229	9.1	LOS A	0.8	6.1	0.22	0.64	48.2
22	T1	All MCs	140	4.5	140	4.5	* 0.896	39.0	LOS D	10.8	77.0	1.00	1.08	30.5
23a	R1	All MCs	731	1.7	731	1.7	0.896	43.2	LOS D	10.8	77.0	1.00	1.07	14.3
Approach			1117	2.7	1117	2.7	0.896	35.1	LOS D	10.8	77.0	0.83	0.98	24.1
North: Tweed Coast Road (N)														
7a	L1	All MCs	481	4.8	481	4.8	0.587	13.4	LOS B	4.0	29.3	0.80	0.80	25.0
8	T1	All MCs	455	3.0	454	3.0	* 0.852	34.5	LOS C	7.2	51.8	0.98	0.93	32.1
9b	R3	All MCs	15	0.0	15	0.0	0.091	39.0	LOS D	0.3	2.1	0.94	0.69	29.2
Approach			951	3.9	950	3.9	0.852	23.9	LOS C	7.2	51.8	0.89	0.86	30.4
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	26	0.0	26	0.0	0.251	10.9	LOS B	0.7	4.9	0.90	0.71	38.3
28	T1	All MCs	125	0.0	125	0.0	* 0.565	30.4	LOS C	2.6	18.3	0.96	0.77	30.8
29a	R1	All MCs	36	5.9	36	5.9	0.565	38.1	LOS D	2.6	18.3	0.99	0.79	37.5
Approach			187	1.1	187	1.1	0.565	29.1	LOS C	2.6	18.3	0.96	0.76	33.5
All Vehicles			2832	3.6	2831	3.6	0.896	28.6	LOS C	10.8	77.0	0.85	0.87	28.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1047	3.3	1047	3.3	0.772	5.7	LOS A	12.9	93.0	0.66	0.58	49.7
6	R2	All MCs	1	0.0	1	0.0	*0.772	34.7	LOS C	12.9	93.0	0.66	0.58	49.2
Approach			1048	3.3	1048	3.3	0.772	5.7	LOS A	12.9	93.0	0.66	0.58	49.7
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.391	39.5	LOS D	1.5	10.7	0.98	0.76	14.5
9	R2	All MCs	72	0.0	72	0.0	*0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
Approach			73	0.0	73	0.0	0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.858	20.6	LOS C	16.5	119.3	0.95	0.99	28.1
11	T1	All MCs	725	3.6	725	3.6	*0.858	25.4	LOS C	16.5	119.3	0.95	0.99	20.0
Approach			747	3.5	747	3.5	0.858	25.2	LOS C	16.5	119.3	0.95	0.99	20.3
All Vehicles			1868	3.3	1868	3.3	0.858	14.8	LOS B	16.5	119.3	0.79	0.75	35.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Site Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		11	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
6	R2	All MCs	1	0.0	1	0.0	0.002	12.8	LOS B	0.0	0.1	0.53	0.59	39.2
Approach			911	3.8	911	3.8	0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	9.2	LOS A	1.1	7.4	0.96	0.75	10.9
9	R2	All MCs	138	0.0	138	0.0	* 0.455	39.3	LOS D	1.8	12.5	0.98	0.76	10.6
Approach			139	0.0	139	0.0	0.455	39.1	LOS D	1.8	12.5	0.97	0.76	10.6
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.030	11.8	LOS B	0.4	2.7	0.71	0.52	43.0
11	T1	All MCs	686	3.8	686	3.8	0.382	14.7	LOS B	6.4	46.2	0.81	0.56	39.9
Approach			720	3.7	720	3.7	0.382	14.6	LOS B	6.4	46.2	0.81	0.56	40.1
All Vehicles			1769	3.5	1769	3.5	0.656	11.9	LOS B	9.9	71.2	0.70	0.55	40.2

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Valley Hospital (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026
OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	602	3.8	602	3.8	0.783	11.3	LOS B	4.7	34.0	0.95	0.84	1.22	43.3
22	T1	All MCs	54	0.0	54	0.0	0.783	11.4	LOS B	4.7	34.0	0.95	0.84	1.22	49.3
23	R2	All MCs	101	4.2	101	4.2	0.783	16.0	LOS B	4.7	34.0	0.95	0.84	1.22	48.2
23u	U	All MCs	2	0.0	2	0.0	0.783	17.9	LOS B	4.7	34.0	0.95	0.84	1.22	48.6
Approach			759	3.6	759	3.6	0.783	12.0	LOS B	4.7	34.0	0.95	0.84	1.22	45.0
NorthEast: Turnock Street (NE)															
24	L2	All MCs	75	4.2	75	4.2	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	51.4
25	T1	All MCs	307	3.8	307	3.8	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	47.2
26	R2	All MCs	27	0.0	27	0.0	0.458	12.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.9
26u	U	All MCs	2	0.0	2	0.0	0.458	14.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.8
Approach			412	3.6	412	3.6	0.458	8.2	LOS A	1.5	10.5	0.77	0.64	0.77	48.7
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	106	0.0	106	0.0	0.314	7.0	LOS A	0.6	4.2	0.62	0.69	0.62	52.2
28	T1	All MCs	131	0.0	131	0.0	0.314	6.8	LOS A	0.6	4.2	0.62	0.69	0.62	52.9
29	R2	All MCs	1	0.0	1	0.0	0.314	11.8	LOS B	0.6	4.2	0.62	0.69	0.62	48.9
29u	U	All MCs	1	0.0	1	0.0	0.314	13.8	LOS B	0.6	4.2	0.62	0.69	0.62	51.9
Approach			239	0.0	239	0.0	0.314	6.9	LOS A	0.6	4.2	0.62	0.69	0.62	52.6
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.264	5.4	LOS A	0.6	4.4	0.36	0.50	0.36	51.8
31	T1	All MCs	307	3.8	307	3.8	0.264	5.2	LOS A	0.6	4.4	0.36	0.50	0.36	52.2
32	R2	All MCs	377	3.9	377	3.9	0.280	9.5	LOS A	0.7	5.0	0.35	0.64	0.35	48.4
32u	U	All MCs	2	0.0	2	0.0	0.280	11.4	LOS B	0.7	5.0	0.35	0.64	0.35	42.0
Approach			687	3.8	687	3.8	0.280	7.6	LOS A	0.7	5.0	0.36	0.57	0.36	50.0
All Vehicles			2097	3.3	2096	3.3	0.783	9.2	LOS A	4.7	34.0	0.68	0.70	0.78	48.5

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 3 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	83	3.8	83	3.8	0.076	2.7	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	33	3.2	0.076	2.9	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
3	R2	All MCs	860	4.0	860	4.0	0.465	10.0	LOS A	1.5	11.1	0.51	0.57	0.51	51.0
Approach			976	4.0	976	4.0	0.465	9.1	LOS A	1.5	11.1	0.50	0.54	0.50	51.4
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.322	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.322	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.6
6	R2	All MCs	69	4.5	69	4.5	0.322	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.322	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.053	10.0	LOS B	0.2	1.3	0.91	0.67	0.91	53.0
8	T1	All MCs	83	3.8	83	3.8	0.133	7.3	LOS A	0.5	3.8	0.96	0.67	0.96	46.4
9	R2	All MCs	58	5.5	58	5.5	0.133	14.2	LOS B	0.5	3.8	0.96	0.67	0.96	51.0
Approach			187	4.5	187	4.5	0.133	10.1	LOS B	0.5	3.8	0.95	0.67	0.95	50.0
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.077	5.4	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
11	T1	All MCs	1	0.0	1	0.0	0.077	8.0	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
12	R2	All MCs	153	3.4	153	3.4	0.144	11.7	LOS B	0.4	2.6	0.72	0.71	0.72	45.9
Approach			212	4.0	212	4.0	0.144	9.9	LOS A	0.4	2.6	0.71	0.68	0.71	48.5
All Vehicles			2564	3.9	2564	3.9	0.465	7.0	LOS A	1.5	11.1	0.43	0.44	0.43	52.0

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101v [Tweed Coast Road/Site Access (Site Folder: 2026
OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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)															
2	T1	All MCs	877	4.4	877	4.4	0.438	2.0	LOS A	3.0	21.7	0.19	0.16	0.19	51.9
3	R2	All MCs	1	0.0	1	0.0	* 0.438	13.5	LOS B	3.0	21.7	0.19	0.16	0.19	51.0
Approach			878	4.4	878	4.4	0.438	2.0	LOS A	3.0	21.7	0.19	0.16	0.19	51.9
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.808	57.1	LOS E	3.0	21.1	1.00	0.92	1.34	11.3
6	R2	All MCs	99	0.0	99	0.0	* 0.808	57.2	LOS E	3.0	21.1	1.00	0.92	1.34	11.3
Approach			100	0.0	100	0.0	0.808	57.2	LOS E	3.0	21.1	1.00	0.92	1.34	11.3
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.888	70.3	LOS E	11.0	78.3	1.00	1.06	1.35	27.1
8	T1	All MCs	996	5.7	996	5.7	* 0.888	54.5	LOS D	16.3	120.0	1.00	1.07	1.29	24.6
Approach			1211	4.7	1211	4.7	0.888	57.3	LOS E	16.3	120.0	1.00	1.07	1.30	21.7
All Vehicles			2188	4.4	2188	4.4	0.888	35.1	LOS D	16.3	120.0	0.67	0.70	0.86	23.3

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)

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.306	23.7	LOS C	4.4	31.5	0.70	0.60	43.7
2	T1	All MCs	485	2.8	485	2.8	0.306	18.5	LOS B	4.4	31.5	0.70	0.60	37.5
3b	R3	All MCs	203	3.6	203	3.6	* 0.874	58.1	LOS E	6.5	47.1	1.00	1.03	21.1
Approach			696	3.3	696	3.3	0.874	30.1	LOS C	6.5	47.1	0.79	0.72	30.6
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	83	11.4	83	11.4	0.073	7.6	LOS A	0.1	0.5	0.04	0.59	49.1
22	T1	All MCs	86	3.7	86	3.7	0.648	28.3	LOS C	5.3	37.9	0.87	0.76	35.0
23a	R1	All MCs	375	2.5	375	2.5	0.648	32.5	LOS C	5.3	37.9	0.87	0.77	17.7
Approach			544	4.1	544	4.1	0.648	28.0	LOS C	5.3	37.9	0.74	0.74	26.7
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	691	2.0	* 0.804	28.2	LOS C	11.7	83.0	1.00	0.82	15.2
8	T1	All MCs	296	13.9	296	13.9	0.413	38.1	LOS D	5.2	41.0	1.00	0.81	30.5
9b	R3	All MCs	8	25.0	8	25.0	0.032	22.9	LOS C	0.1	0.8	0.43	0.64	35.8
Approach			995	5.7	995	5.7	0.804	31.1	LOS C	11.7	83.0	1.00	0.82	22.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	23	0.0	23	0.0	0.320	9.6	LOS A	1.2	8.2	0.94	0.73	32.3
28	T1	All MCs	125	0.0	125	0.0	* 0.722	45.1	LOS D	2.9	20.4	0.98	0.83	25.7
29a	R1	All MCs	13	16.7	13	16.7	0.722	52.5	LOS D	2.9	20.4	1.00	0.87	32.8
Approach			161	1.3	161	1.3	0.722	40.5	LOS D	2.9	20.4	0.98	0.82	27.3
All Vehicles			2396	4.3	2396	4.3	0.874	30.7	LOS C	11.7	83.0	0.88	0.77	26.6

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	523	4.4	523	4.4	0.365	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
6	R2	All MCs	1	0.0	1	0.0	*0.365	27.2	LOS C	4.1	30.0	0.33	0.29	52.0
Approach			524	4.4	524	4.4	0.365	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.134	48.1	LOS D	0.6	4.0	0.95	0.70	12.5
9	R2	All MCs	21	0.0	21	0.0	*0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
Approach			22	0.0	22	0.0	0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	91	0.0	0.849	11.5	LOS B	20.5	148.6	0.75	0.74	37.2
11	T1	All MCs	945	4.2	945	4.2	*0.849	12.6	LOS B	20.5	148.6	0.75	0.74	30.2
Approach			1036	3.9	1036	3.9	0.849	12.5	LOS B	20.5	148.6	0.75	0.74	31.1
All Vehicles			1582	4.0	1582	4.0	0.849	9.9	LOS A	20.5	148.6	0.61	0.59	38.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 3 AM PEAK)

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
6	R2	All MCs	1	0.0	1	0.0	*0.002	12.3	LOS B	0.0	0.1	0.44	0.60	39.7
Approach			498	4.7	498	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.060	8.8	LOS A	0.2	1.4	0.92	0.67	12.5
9	R2	All MCs	25	0.0	25	0.0	0.095	42.8	LOS D	0.4	2.8	0.94	0.68	10.0
Approach			26	0.0	26	0.0	0.095	41.4	LOS D	0.4	2.8	0.94	0.68	10.1
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.049	8.8	LOS A	0.5	3.2	0.37	0.63	45.8
11	T1	All MCs	877	4.6	877	4.6	*0.421	10.6	LOS B	7.6	55.4	0.59	0.48	44.4
Approach			937	4.3	937	4.3	0.421	10.5	LOS B	7.6	55.4	0.58	0.49	44.5
All Vehicles			1461	4.3	1461	4.3	0.421	8.6	LOS A	7.6	55.4	0.50	0.43	45.5

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 3 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]
			veh/h	%	veh/h	%	v/c	sec						km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	379	4.7	379	4.7	0.514	5.2	LOS A	1.8	13.0	0.56	0.54	0.56	49.0
22	T1	All MCs	131	0.0	131	0.0	0.514	5.4	LOS A	1.8	13.0	0.56	0.54	0.56	52.8
23	R2	All MCs	89	4.7	89	4.7	0.514	9.9	LOS A	1.8	13.0	0.56	0.54	0.56	51.6
23u	U	All MCs	8	0.0	8	0.0	0.514	11.9	LOS B	1.8	13.0	0.56	0.54	0.56	52.0
Approach			607	3.6	607	3.6	0.514	6.0	LOS A	1.8	13.0	0.56	0.54	0.56	50.7
NorthEast: Turnock Street (NE)															
24	L2	All MCs	95	4.4	95	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	0.79	50.7
25	T1	All MCs	119	4.4	119	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	0.79	46.0
26	R2	All MCs	41	0.0	41	0.0	0.332	13.2	LOS B	1.0	7.0	0.79	0.69	0.79	50.3
26u	U	All MCs	1	0.0	1	0.0	0.332	15.2	LOS B	1.0	7.0	0.79	0.69	0.79	50.1
Approach			256	3.7	256	3.7	0.332	9.3	LOS A	1.0	7.0	0.79	0.69	0.79	49.1
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	31	0.0	31	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	0.64	52.0
28	T1	All MCs	56	0.0	56	0.0	0.137	7.2	LOS A	0.2	1.7	0.64	0.72	0.64	52.7
29	R2	All MCs	1	0.0	1	0.0	0.137	12.2	LOS B	0.2	1.7	0.64	0.72	0.64	48.5
29u	U	All MCs	1	0.0	1	0.0	0.137	14.2	LOS B	0.2	1.7	0.64	0.72	0.64	51.7
Approach			88	0.0	88	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	0.64	52.4
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.304	6.1	LOS A	0.7	5.0	0.47	0.56	0.47	51.3
31	T1	All MCs	306	4.5	306	4.5	0.304	6.0	LOS A	0.7	5.0	0.47	0.56	0.47	51.6
32	R2	All MCs	569	4.6	569	4.6	0.444	10.2	LOS B	1.2	8.7	0.49	0.68	0.49	48.0
32u	U	All MCs	1	0.0	1	0.0	0.444	12.1	LOS B	1.2	8.7	0.49	0.68	0.49	41.3
Approach			878	4.6	878	4.6	0.444	8.7	LOS A	1.2	8.7	0.48	0.64	0.48	49.2
All Vehicles			1829	3.9	1829	3.9	0.514	7.8	LOS A	1.8	13.0	0.56	0.62	0.56	49.8

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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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 3 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	161	3.3	161	3.3	0.133	2.9	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	40	2.6	0.133	3.1	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1194	3.0	0.652	10.5	LOS B	2.6	18.7	0.63	0.63	0.63	50.6
Approach			1395	3.0	1395	3.0	0.652	9.4	LOS A	2.6	18.7	0.60	0.59	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.102	19.9	LOS B	0.4	2.8	1.00	0.81	1.00	48.7
8	T1	All MCs	67	3.1	67	3.1	0.179	13.4	LOS B	0.8	6.0	1.00	0.81	1.00	42.2
9	R2	All MCs	52	4.1	52	4.1	0.179	20.2	LOS C	0.8	6.0	1.00	0.81	1.00	48.1
Approach			168	3.8	168	3.8	0.179	17.4	LOS B	0.8	6.0	1.00	0.81	1.00	46.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.123	8.6	LOS A	0.3	2.1	0.85	0.77	0.85	52.6
11	T1	All MCs	1	0.0	1	0.0	0.123	10.6	LOS B	0.4	2.6	0.88	0.77	0.88	51.0
12	R2	All MCs	94	3.4	94	3.4	0.123	14.1	LOS B	0.4	2.6	0.90	0.76	0.90	45.0
Approach			158	3.3	158	3.3	0.123	11.8	LOS B	0.4	2.6	0.88	0.77	0.88	48.4
All Vehicles			2887	3.2	2887	3.2	0.652	7.8	LOS A	2.6	18.7	0.48	0.49	0.48	51.6

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101v [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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)															
2	T1	All MCs	1169	3.5	1169	3.5	0.665	3.0	LOS A	4.0	29.1	0.22	0.19	0.22	52.0
3	R2	All MCs	1	0.0	1	0.0	* 0.665	9.8	LOS A	4.0	29.1	0.24	0.21	0.24	51.0
Approach			1171	3.5	1171	3.5	0.665	3.0	LOS A	4.0	29.1	0.22	0.19	0.22	52.0
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.943	56.6	LOS E	6.3	44.0	1.00	1.17	1.72	11.4
6	R2	All MCs	224	0.0	224	0.0	* 0.943	56.7	LOS E	6.3	44.0	1.00	1.17	1.72	11.4
Approach			225	0.0	225	0.0	0.943	56.7	LOS E	6.3	44.0	1.00	1.17	1.72	11.4
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.884	59.0	LOS E	7.6	54.5	1.00	1.09	1.45	29.3
8	T1	All MCs	952	4.0	952	4.0	* 0.884	44.8	LOS D	11.9	86.2	1.00	1.09	1.39	26.6
Approach			1071	3.5	1071	3.5	0.884	46.4	LOS D	11.9	86.2	1.00	1.09	1.39	24.4
All Vehicles			2466	3.2	2466	3.2	0.943	26.8	LOS C	11.9	86.2	0.63	0.67	0.87	25.6

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 (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)

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.308	21.1	LOS C	3.3	24.1	0.74	0.63	45.5
2	T1	All MCs	426	5.4	426	5.4	0.308	16.3	LOS B	3.3	24.2	0.74	0.62	39.1
3b	R3	All MCs	128	7.4	128	7.4	*0.966	65.1	LOS E	3.8	28.3	1.00	1.17	19.6
Approach			577	5.7	577	5.7	0.966	27.3	LOS C	3.8	28.3	0.80	0.75	32.4
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	246	4.7	246	4.7	0.229	9.2	LOS A	0.8	6.1	0.22	0.64	48.2
22	T1	All MCs	140	4.5	140	4.5	*0.849	33.8	LOS C	10.0	71.5	1.00	1.00	32.5
23a	R1	All MCs	731	1.7	731	1.7	0.849	38.0	LOS D	10.0	71.5	1.00	1.00	15.8
Approach			1117	2.7	1117	2.7	0.849	31.1	LOS C	10.0	71.5	0.83	0.92	25.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	481	4.8	481	4.8	0.569	18.1	LOS B	5.2	38.1	1.00	0.72	20.6
8	T1	All MCs	455	3.0	455	3.0	*0.853	36.8	LOS D	7.2	51.3	1.00	0.94	31.1
9b	R3	All MCs	15	0.0	15	0.0	0.106	31.0	LOS C	0.2	1.6	0.71	0.67	32.4
Approach			951	3.9	951	3.9	0.853	27.2	LOS C	7.2	51.3	0.99	0.82	28.4
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	26	0.0	26	0.0	0.247	10.9	LOS B	0.7	4.9	0.90	0.71	38.3
28	T1	All MCs	125	0.0	125	0.0	*0.557	30.4	LOS C	2.6	18.3	0.96	0.76	30.8
29a	R1	All MCs	36	5.9	36	5.9	0.557	37.9	LOS D	2.6	18.3	0.99	0.79	37.5
Approach			187	1.1	187	1.1	0.557	29.1	LOS C	2.6	18.3	0.96	0.76	33.5
All Vehicles			2832	3.6	2832	3.6	0.966	28.9	LOS C	10.0	71.5	0.89	0.84	28.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec		m				km/h
East: Cudgen Road (E)														
5	T1	All MCs	1047	3.3	1047	3.3	0.771	5.6	LOS A	12.9	92.7	0.66	0.58	49.7
6	R2	All MCs	1	0.0	1	0.0	*0.771	29.6	LOS C	12.9	92.7	0.66	0.58	49.2
Approach			1048	3.3	1048	3.3	0.771	5.7	LOS A	12.9	92.7	0.66	0.58	49.7
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.391	39.5	LOS D	1.5	10.7	0.98	0.76	14.5
9	R2	All MCs	72	0.0	72	0.0	*0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
Approach			73	0.0	73	0.0	0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.833	14.3	LOS B	13.5	97.3	0.82	0.82	34.6
11	T1	All MCs	725	3.6	725	3.6	*0.833	15.5	LOS B	13.5	97.3	0.82	0.82	27.0
Approach			747	3.5	747	3.5	0.833	15.4	LOS B	13.5	97.3	0.82	0.82	27.3
All Vehicles			1868	3.3	1868	3.3	0.833	10.9	LOS B	13.5	97.3	0.74	0.68	39.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Site Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		11	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
6	R2	All MCs	1	0.0	1	0.0	0.002	12.8	LOS B	0.0	0.1	0.53	0.59	39.2
Approach			911	3.8	911	3.8	0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	9.2	LOS A	1.1	7.4	0.96	0.75	10.9
9	R2	All MCs	138	0.0	138	0.0	* 0.455	39.3	LOS D	1.8	12.5	0.98	0.76	10.6
Approach			139	0.0	139	0.0	0.455	39.1	LOS D	1.8	12.5	0.97	0.76	10.6
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.030	11.8	LOS B	0.4	2.7	0.70	0.53	43.0
11	T1	All MCs	686	3.8	686	3.8	0.382	14.7	LOS B	6.4	46.1	0.81	0.56	39.9
Approach			720	3.7	720	3.7	0.382	14.5	LOS B	6.4	46.1	0.81	0.56	40.1
All Vehicles			1769	3.5	1769	3.5	0.656	11.9	LOS B	9.9	71.2	0.69	0.55	40.2

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Valley Hospital (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street] (Site Folder: 2026 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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/h	%	veh/h	%	v/c	sec		veh	Dist]			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	602	3.8	602	3.8	0.783	11.3	LOS B	4.7	34.0	0.95	0.84	1.22	43.3
22	T1	All MCs	54	0.0	54	0.0	0.783	11.4	LOS B	4.7	34.0	0.95	0.84	1.22	49.3
23	R2	All MCs	101	4.2	101	4.2	0.783	16.0	LOS B	4.7	34.0	0.95	0.84	1.22	48.2
23u	U	All MCs	2	0.0	2	0.0	0.783	17.9	LOS B	4.7	34.0	0.95	0.84	1.22	48.6
Approach			759	3.6	759	3.6	0.783	12.0	LOS B	4.7	34.0	0.95	0.84	1.22	45.0
NorthEast: Turnock Street (NE)															
24	L2	All MCs	75	4.2	75	4.2	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	51.4
25	T1	All MCs	307	3.8	307	3.8	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	47.2
26	R2	All MCs	27	0.0	27	0.0	0.458	12.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.9
26u	U	All MCs	2	0.0	2	0.0	0.458	14.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.8
Approach			412	3.6	412	3.6	0.458	8.2	LOS A	1.5	10.5	0.77	0.64	0.77	48.7
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	106	0.0	106	0.0	0.315	7.0	LOS A	0.6	4.2	0.62	0.69	0.62	52.2
28	T1	All MCs	131	0.0	131	0.0	0.315	6.8	LOS A	0.6	4.2	0.62	0.69	0.62	52.9
29	R2	All MCs	1	0.0	1	0.0	0.315	11.8	LOS B	0.6	4.2	0.62	0.69	0.62	48.9
29u	U	All MCs	1	0.0	1	0.0	0.315	13.8	LOS B	0.6	4.2	0.62	0.69	0.62	51.9
Approach			239	0.0	239	0.0	0.315	6.9	LOS A	0.6	4.2	0.62	0.69	0.62	52.6
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.265	5.4	LOS A	0.6	4.4	0.36	0.50	0.36	51.8
31	T1	All MCs	307	3.8	307	3.8	0.265	5.2	LOS A	0.6	4.4	0.36	0.50	0.36	52.2
32	R2	All MCs	377	3.9	377	3.9	0.280	9.5	LOS A	0.7	5.0	0.35	0.64	0.35	48.4
32u	U	All MCs	2	0.0	2	0.0	0.280	11.4	LOS B	0.7	5.0	0.35	0.64	0.35	42.0
Approach			687	3.8	687	3.8	0.280	7.6	LOS A	0.7	5.0	0.36	0.57	0.36	50.0
All Vehicles			2097	3.3	2097	3.3	0.783	9.2	LOS A	4.7	34.0	0.68	0.70	0.78	48.5

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 4 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	83	3.8	83	3.8	0.076	2.7	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	33	3.2	0.076	2.9	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
3	R2	All MCs	860	4.0	860	4.0	0.465	10.0	LOS A	1.5	11.1	0.51	0.57	0.51	51.0
Approach			976	4.0	976	4.0	0.465	9.1	LOS A	1.5	11.1	0.50	0.54	0.50	51.4
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.322	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.322	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.6
6	R2	All MCs	69	4.5	69	4.5	0.322	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.322	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.053	10.0	LOS B	0.2	1.3	0.91	0.67	0.91	53.0
8	T1	All MCs	83	3.8	83	3.8	0.133	7.3	LOS A	0.5	3.8	0.96	0.67	0.96	46.4
9	R2	All MCs	58	5.5	58	5.5	0.133	14.2	LOS B	0.5	3.8	0.96	0.67	0.96	51.0
Approach			187	4.5	187	4.5	0.133	10.1	LOS B	0.5	3.8	0.95	0.67	0.95	50.0
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.077	5.4	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
11	T1	All MCs	1	0.0	1	0.0	0.077	8.0	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
12	R2	All MCs	153	3.4	153	3.4	0.144	11.7	LOS B	0.4	2.6	0.72	0.71	0.72	45.9
Approach			212	4.0	212	4.0	0.144	9.9	LOS A	0.4	2.6	0.71	0.68	0.71	48.5
All Vehicles			2564	3.9	2564	3.9	0.465	7.0	LOS A	1.5	11.1	0.43	0.44	0.43	52.0

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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MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	877	4.4	877	4.4	0.437	4.8	LOS A	1.3	9.3	0.26	0.39	0.26	40.9
3	R2	All MCs	1	0.0	1	0.0	0.437	9.7	LOS A	1.3	9.3	0.27	0.39	0.27	45.6
Approach			878	4.4	878	4.4	0.437	4.8	LOS A	1.3	9.3	0.26	0.39	0.26	40.9
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.148	8.3	LOS A	0.2	1.7	0.63	0.81	0.63	32.5
6	R2	All MCs	99	0.0	99	0.0	0.148	13.4	LOS B	0.2	1.7	0.63	0.81	0.63	32.5
Approach			100	0.0	100	0.0	0.148	13.4	LOS B	0.2	1.7	0.63	0.81	0.63	32.5
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.378	3.6	LOS A	1.2	8.7	0.02	0.39	0.02	53.7
8	T1	All MCs	996	5.7	996	5.7	0.378	3.9	LOS A	1.2	9.0	0.02	0.38	0.02	53.5
Approach			1211	4.7	1211	4.7	0.378	3.8	LOS A	1.2	9.0	0.02	0.38	0.02	53.5
All Vehicles			2188	4.4	2188	4.4	0.437	4.7	LOS A	1.3	9.3	0.15	0.40	0.15	49.7

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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.314	24.4	LOS C	4.5	32.2	0.72	0.61	43.3
2	T1	All MCs	485	2.8	485	2.8	0.314	19.2	LOS B	4.5	32.2	0.72	0.61	36.9
3b	R3	All MCs	203	3.6	203	3.6	*0.892	61.1	LOS E	6.9	49.8	1.00	1.06	20.4
Approach			696	3.3	696	3.3	0.892	31.5	LOS C	6.9	49.8	0.80	0.74	29.9
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	83	11.4	83	11.4	0.071	7.6	LOS A	0.1	0.5	0.04	0.59	49.1
22	T1	All MCs	86	3.7	86	3.7	0.787	32.8	LOS C	5.9	42.6	0.95	0.83	33.0
23a	R1	All MCs	375	2.5	375	2.5	0.787	37.0	LOS D	5.9	42.6	0.95	0.83	16.1
Approach			544	4.1	544	4.1	0.787	31.8	LOS C	5.9	42.6	0.81	0.79	24.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	691	2.0	*0.891	31.2	LOS C	14.4	102.8	1.00	0.98	14.0
8	T1	All MCs	296	13.9	296	13.9	0.431	30.2	LOS C	4.5	35.3	0.87	0.71	34.0
9b	R3	All MCs	8	25.0	8	25.0	0.026	35.6	LOS D	0.2	1.5	0.80	0.67	30.1
Approach			995	5.7	995	5.7	0.891	31.0	LOS C	14.4	102.8	0.96	0.90	22.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	23	0.0	23	0.0	0.367	9.7	LOS A	1.3	9.1	0.96	0.74	32.2
28	T1	All MCs	125	0.0	125	0.0	*0.826	47.0	LOS D	2.8	20.3	0.98	0.88	25.0
29a	R1	All MCs	13	16.7	13	16.7	0.826	57.3	LOS E	2.8	20.3	1.00	0.96	31.4
Approach			161	1.3	161	1.3	0.826	42.5	LOS D	2.8	20.3	0.98	0.86	26.6
All Vehicles			2396	4.3	2396	4.3	0.892	32.1	LOS C	14.4	102.8	0.88	0.83	25.9

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	523	4.4	523	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
6	R2	All MCs	1	0.0	1	0.0	*0.366	32.3	LOS C	4.1	30.0	0.33	0.29	52.0
Approach			524	4.4	524	4.4	0.366	3.1	LOS A	4.1	30.0	0.33	0.29	53.9
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.134	48.1	LOS D	0.6	4.0	0.95	0.70	12.5
9	R2	All MCs	21	0.0	21	0.0	*0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
Approach			22	0.0	22	0.0	0.134	48.0	LOS D	0.6	4.0	0.95	0.70	12.5
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	91	0.0	0.849	14.3	LOS B	24.5	176.9	0.88	0.83	31.9
11	T1	All MCs	945	4.2	945	4.2	*0.849	19.5	LOS B	24.5	176.9	0.88	0.83	23.9
Approach			1036	3.9	1036	3.9	0.849	19.0	LOS B	24.5	176.9	0.88	0.83	24.9
All Vehicles			1582	4.0	1582	4.0	0.849	14.2	LOS B	24.5	176.9	0.70	0.65	33.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
6	R2	All MCs	1	0.0	1	0.0	*0.002	12.3	LOS B	0.0	0.1	0.44	0.60	39.7
Approach			498	4.7	498	4.7	0.338	3.2	LOS A	4.0	28.8	0.32	0.29	52.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.060	8.8	LOS A	0.2	1.4	0.92	0.67	12.5
9	R2	All MCs	25	0.0	25	0.0	0.095	42.8	LOS D	0.4	2.8	0.94	0.68	10.0
Approach			26	0.0	26	0.0	0.095	41.4	LOS D	0.4	2.8	0.94	0.68	10.1
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.049	9.0	LOS A	0.5	3.4	0.39	0.62	45.6
11	T1	All MCs	877	4.6	877	4.6	*0.421	10.6	LOS B	7.6	55.5	0.59	0.48	44.4
Approach			937	4.3	937	4.3	0.421	10.5	LOS B	7.6	55.5	0.58	0.49	44.5
All Vehicles			1461	4.3	1461	4.3	0.421	8.6	LOS A	7.6	55.5	0.50	0.43	45.5

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 4 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	379	4.7	379	4.7	0.514	5.2	LOS A	1.8	13.0	0.56	0.54	49.0
22	T1	All MCs	131	0.0	131	0.0	0.514	5.4	LOS A	1.8	13.0	0.56	0.54	52.8
23	R2	All MCs	89	4.7	89	4.7	0.514	9.9	LOS A	1.8	13.0	0.56	0.54	51.6
23u	U	All MCs	8	0.0	8	0.0	0.514	11.9	LOS B	1.8	13.0	0.56	0.54	52.0
Approach			607	3.6	607	3.6	0.514	6.0	LOS A	1.8	13.0	0.56	0.54	50.7
NorthEast: Turnock Street (NE)														
24	L2	All MCs	95	4.4	95	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	50.7
25	T1	All MCs	119	4.4	119	4.4	0.332	8.5	LOS A	1.0	7.0	0.79	0.69	46.0
26	R2	All MCs	41	0.0	41	0.0	0.332	13.2	LOS B	1.0	7.0	0.79	0.69	50.3
26u	U	All MCs	1	0.0	1	0.0	0.332	15.2	LOS B	1.0	7.0	0.79	0.69	50.1
Approach			256	3.7	256	3.7	0.332	9.3	LOS A	1.0	7.0	0.79	0.69	49.1
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	31	0.0	31	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	52.0
28	T1	All MCs	56	0.0	56	0.0	0.137	7.2	LOS A	0.2	1.7	0.64	0.72	52.7
29	R2	All MCs	1	0.0	1	0.0	0.137	12.2	LOS B	0.2	1.7	0.64	0.72	48.5
29u	U	All MCs	1	0.0	1	0.0	0.137	14.2	LOS B	0.2	1.7	0.64	0.72	51.7
Approach			88	0.0	88	0.0	0.137	7.4	LOS A	0.2	1.7	0.64	0.72	52.4
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.304	6.1	LOS A	0.7	5.0	0.46	0.56	51.3
31	T1	All MCs	306	4.5	306	4.5	0.304	6.0	LOS A	0.7	5.0	0.46	0.56	51.6
32	R2	All MCs	569	4.6	569	4.6	0.444	10.2	LOS B	1.2	8.7	0.49	0.68	48.0
32u	U	All MCs	1	0.0	1	0.0	0.444	12.1	LOS B	1.2	8.7	0.49	0.68	41.3
Approach			878	4.6	878	4.6	0.444	8.7	LOS A	1.2	8.7	0.48	0.64	49.2
All Vehicles			1829	3.9	1829	3.9	0.514	7.8	LOS A	1.8	13.0	0.56	0.62	49.8

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	161	3.3	161	3.3	0.133	2.9	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	40	2.6	0.133	3.1	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1194	3.0	0.652	10.5	LOS B	2.6	18.7	0.63	0.63	0.63	50.6
Approach			1395	3.0	1395	3.0	0.652	9.4	LOS A	2.6	18.7	0.60	0.59	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.102	19.9	LOS B	0.4	2.8	1.00	0.81	1.00	48.8
8	T1	All MCs	67	3.1	67	3.1	0.179	13.3	LOS B	0.8	6.0	1.00	0.81	1.00	42.3
9	R2	All MCs	52	4.1	52	4.1	0.179	20.2	LOS C	0.8	6.0	1.00	0.81	1.00	48.1
Approach			168	3.8	168	3.8	0.179	17.4	LOS B	0.8	6.0	1.00	0.81	1.00	46.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.123	8.6	LOS A	0.3	2.1	0.85	0.77	0.85	52.6
11	T1	All MCs	1	0.0	1	0.0	0.123	10.5	LOS B	0.4	2.6	0.88	0.77	0.88	51.0
12	R2	All MCs	94	3.4	94	3.4	0.123	14.1	LOS B	0.4	2.6	0.90	0.76	0.90	45.0
Approach			158	3.3	158	3.3	0.123	11.8	LOS B	0.4	2.6	0.88	0.77	0.88	48.4
All Vehicles			2887	3.2	2887	3.2	0.652	7.8	LOS A	2.6	18.7	0.48	0.49	0.48	51.6

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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MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]	[Total HV]	[Total HV]								
			veh/h	%	veh/h	%	v/c	sec		[Veh. veh	Dist] m			km/h
South: Tweed Coast Road (S)														
2	T1	All MCs	1169	3.5	1169	3.5	0.667	7.1	LOS A	2.6	18.4	0.45	0.51	38.0
3	R2	All MCs	1	0.0	1	0.0	0.667	10.9	LOS B	2.6	18.4	0.47	0.51	43.7
Approach			1171	3.5	1171	3.5	0.667	7.1	LOS A	2.6	18.4	0.45	0.51	38.0
East: Site Access (E)														
4	L2	All MCs	1	0.0	1	0.0	0.324	8.5	LOS A	0.6	4.1	0.67	0.84	32.2
6	R2	All MCs	224	0.0	224	0.0	0.324	13.7	LOS B	0.6	4.1	0.67	0.84	32.2
Approach			225	0.0	225	0.0	0.324	13.7	LOS B	0.6	4.1	0.67	0.84	32.2
North: Tweed Coast Road (N)														
7	L2	All MCs	119	0.0	119	0.0	0.325	3.6	LOS A	1.1	7.7	0.02	0.38	53.7
8	T1	All MCs	952	4.0	952	4.0	0.325	3.9	LOS A	1.1	7.7	0.02	0.38	53.5
Approach			1071	3.5	1071	3.5	0.325	3.8	LOS A	1.1	7.7	0.02	0.38	53.5
All Vehicles			2466	3.2	2466	3.2	0.667	6.3	LOS A	2.6	18.4	0.28	0.48	46.7

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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2026 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.308	21.1	LOS C	3.3	24.1	0.74	0.63	0.74	45.5
2	T1	All MCs	426	5.4	426	5.4	0.308	16.3	LOS B	3.3	24.2	0.74	0.62	0.74	39.1
3b	R3	All MCs	128	7.4	128	7.4	* 0.852	48.9	LOS D	3.2	23.7	1.00	1.00	1.50	23.5
Approach			577	5.7	577	5.7	0.852	23.7	LOS C	3.3	24.2	0.80	0.71	0.91	34.5
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	246	4.7	246	4.7	0.229	9.1	LOS A	0.8	6.1	0.22	0.64	0.22	48.2
22	T1	All MCs	140	4.5	140	4.5	* 0.896	39.0	LOS D	10.8	77.0	1.00	1.08	1.30	30.5
23a	R1	All MCs	731	1.7	731	1.7	0.896	43.2	LOS D	10.8	77.0	1.00	1.07	1.30	14.3
Approach			1117	2.7	1117	2.7	0.896	35.1	LOS D	10.8	77.0	0.83	0.98	1.06	24.1
North: Tweed Coast Road (N)															
7a	L1	All MCs	481	4.8	481	4.8	0.587	13.4	LOS B	4.0	29.4	0.80	0.80	0.80	25.0
8	T1	All MCs	455	3.0	455	3.0	* 0.853	34.6	LOS C	7.2	51.9	0.98	0.93	1.19	32.1
9b	R3	All MCs	15	0.0	15	0.0	0.091	39.0	LOS D	0.3	2.1	0.94	0.69	0.94	29.2
Approach			951	3.9	951	3.9	0.853	23.9	LOS C	7.2	51.9	0.89	0.86	0.99	30.3
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	26	0.0	26	0.0	0.251	10.9	LOS B	0.7	4.9	0.90	0.71	0.90	38.3
28	T1	All MCs	125	0.0	125	0.0	* 0.566	30.4	LOS C	2.6	18.3	0.96	0.77	0.98	30.8
29a	R1	All MCs	36	5.9	36	5.9	0.566	38.1	LOS D	2.6	18.3	0.99	0.79	1.02	37.5
Approach			187	1.1	187	1.1	0.566	29.1	LOS C	2.6	18.3	0.96	0.76	0.98	33.5
All Vehicles			2832	3.6	2832	3.6	0.896	28.6	LOS C	10.8	77.0	0.85	0.87	1.00	28.8

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Site Access (Site Folder: 2026 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1047	3.3	1047	3.3	0.772	5.7	LOS A	12.9	93.0	0.66	0.58	49.7
6	R2	All MCs	1	0.0	1	0.0	*0.772	34.7	LOS C	12.9	93.0	0.66	0.58	49.2
Approach			1048	3.3	1048	3.3	0.772	5.7	LOS A	12.9	93.0	0.66	0.58	49.7
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.391	39.5	LOS D	1.5	10.7	0.98	0.76	14.5
9	R2	All MCs	72	0.0	72	0.0	*0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
Approach			73	0.0	73	0.0	0.391	39.4	LOS D	1.5	10.7	0.98	0.76	14.5
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.859	20.7	LOS C	16.6	119.5	0.95	0.99	28.1
11	T1	All MCs	725	3.6	725	3.6	*0.859	25.4	LOS C	16.6	119.5	0.95	0.99	20.0
Approach			747	3.5	747	3.5	0.859	25.3	LOS C	16.6	119.5	0.95	0.99	20.3
All Vehicles			1868	3.3	1868	3.3	0.859	14.9	LOS B	16.6	119.5	0.79	0.75	35.3

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Site Access (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		11	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
6	R2	All MCs	1	0.0	1	0.0	0.002	12.8	LOS B	0.0	0.1	0.53	0.59	39.2
Approach			911	3.8	911	3.8	0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	9.2	LOS A	1.1	7.4	0.96	0.75	10.9
9	R2	All MCs	138	0.0	138	0.0	* 0.455	39.3	LOS D	1.8	12.5	0.98	0.76	10.6
Approach			139	0.0	139	0.0	0.455	39.1	LOS D	1.8	12.5	0.97	0.76	10.6
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.030	11.8	LOS B	0.4	2.7	0.71	0.52	43.0
11	T1	All MCs	686	3.8	686	3.8	0.382	14.7	LOS B	6.4	46.2	0.81	0.56	39.9
Approach			720	3.7	720	3.7	0.382	14.6	LOS B	6.4	46.2	0.81	0.56	40.0
All Vehicles			1769	3.5	1769	3.5	0.656	11.9	LOS B	9.9	71.2	0.70	0.55	40.2

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Valley Hospital (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 4 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	602	3.8	602	3.8	0.783	11.3	LOS B	4.7	34.0	0.95	0.84	1.22	43.3
22	T1	All MCs	54	0.0	54	0.0	0.783	11.4	LOS B	4.7	34.0	0.95	0.84	1.22	49.3
23	R2	All MCs	101	4.2	101	4.2	0.783	16.0	LOS B	4.7	34.0	0.95	0.84	1.22	48.2
23u	U	All MCs	2	0.0	2	0.0	0.783	17.9	LOS B	4.7	34.0	0.95	0.84	1.22	48.6
Approach			759	3.6	759	3.6	0.783	12.0	LOS B	4.7	34.0	0.95	0.84	1.22	45.0
NorthEast: Turnock Street (NE)															
24	L2	All MCs	75	4.2	75	4.2	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	51.4
25	T1	All MCs	307	3.8	307	3.8	0.458	7.9	LOS A	1.5	10.5	0.77	0.64	0.77	47.2
26	R2	All MCs	27	0.0	27	0.0	0.458	12.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.9
26u	U	All MCs	2	0.0	2	0.0	0.458	14.7	LOS B	1.5	10.5	0.77	0.64	0.77	50.8
Approach			412	3.6	412	3.6	0.458	8.2	LOS A	1.5	10.5	0.77	0.64	0.77	48.7
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	106	0.0	106	0.0	0.314	7.0	LOS A	0.6	4.2	0.62	0.69	0.62	52.2
28	T1	All MCs	131	0.0	131	0.0	0.314	6.8	LOS A	0.6	4.2	0.62	0.69	0.62	52.9
29	R2	All MCs	1	0.0	1	0.0	0.314	11.8	LOS B	0.6	4.2	0.62	0.69	0.62	48.9
29u	U	All MCs	1	0.0	1	0.0	0.314	13.8	LOS B	0.6	4.2	0.62	0.69	0.62	51.9
Approach			239	0.0	239	0.0	0.314	6.9	LOS A	0.6	4.2	0.62	0.69	0.62	52.6
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.265	5.4	LOS A	0.6	4.4	0.36	0.50	0.36	51.8
31	T1	All MCs	307	3.8	307	3.8	0.265	5.2	LOS A	0.6	4.4	0.36	0.50	0.36	52.2
32	R2	All MCs	377	3.9	377	3.9	0.280	9.5	LOS A	0.7	5.0	0.35	0.64	0.35	48.4
32u	U	All MCs	2	0.0	2	0.0	0.280	11.4	LOS B	0.7	5.0	0.35	0.64	0.35	42.0
Approach			687	3.8	687	3.8	0.280	7.6	LOS A	0.7	5.0	0.36	0.57	0.36	50.0
All Vehicles			2097	3.3	2097	3.3	0.783	9.2	LOS A	4.7	34.0	0.68	0.70	0.78	48.5

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 5 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	83	3.8	83	3.8	0.076	2.7	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	33	3.2	0.076	2.9	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
3	R2	All MCs	860	4.0	860	4.0	0.465	10.0	LOS A	1.5	11.1	0.51	0.57	0.51	51.0
Approach			976	4.0	976	4.0	0.465	9.1	LOS A	1.5	11.1	0.50	0.54	0.50	51.4
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.322	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.322	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.6
6	R2	All MCs	69	4.5	69	4.5	0.322	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.322	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.053	10.0	LOS B	0.2	1.3	0.91	0.67	0.91	53.0
8	T1	All MCs	83	3.8	83	3.8	0.133	7.3	LOS A	0.5	3.8	0.96	0.67	0.96	46.4
9	R2	All MCs	58	5.5	58	5.5	0.133	14.2	LOS B	0.5	3.8	0.96	0.67	0.96	51.0
Approach			187	4.5	187	4.5	0.133	10.1	LOS B	0.5	3.8	0.95	0.67	0.95	50.0
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.077	5.4	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
11	T1	All MCs	1	0.0	1	0.0	0.077	8.0	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
12	R2	All MCs	153	3.4	153	3.4	0.144	11.7	LOS B	0.4	2.6	0.72	0.71	0.72	45.9
Approach			212	4.0	212	4.0	0.144	9.9	LOS A	0.4	2.6	0.71	0.68	0.71	48.5
All Vehicles			2564	3.9	2564	3.9	0.465	7.0	LOS A	1.5	11.1	0.43	0.44	0.43	52.0

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 5 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	877	4.4	877	4.4	0.483	4.9	LOS A	1.5	11.1	0.28	0.42	0.28	39.7
3	R2	All MCs	91	0.0	91	0.0	0.483	9.7	LOS A	1.5	11.1	0.29	0.43	0.29	44.6
Approach			967	4.0	967	4.0	0.483	5.3	LOS A	1.5	11.1	0.28	0.42	0.28	40.5
East: Site Access (E)															
4	L2	All MCs	21	0.0	21	0.0	0.193	8.3	LOS A	0.4	2.5	0.69	0.82	0.69	33.0
6	R2	All MCs	99	0.0	99	0.0	0.193	13.5	LOS B	0.4	2.5	0.69	0.82	0.69	33.0
Approach			120	0.0	120	0.0	0.193	12.6	LOS B	0.4	2.5	0.69	0.82	0.69	33.0
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.430	4.1	LOS A	1.5	10.6	0.33	0.40	0.33	51.8
8	T1	All MCs	996	5.7	996	5.7	0.430	4.5	LOS A	1.5	10.6	0.33	0.39	0.33	50.8
Approach			1211	4.7	1211	4.7	0.430	4.4	LOS A	1.5	10.6	0.33	0.39	0.33	51.0
All Vehicles			2298	4.2	2298	4.2	0.483	5.2	LOS A	1.5	11.1	0.33	0.43	0.33	47.5

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 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.349	20.4	LOS C	4.0	28.6	0.73	0.62	45.5
2	T1	All MCs	545	2.5	545	2.5	0.349	15.2	LOS B	4.0	28.6	0.73	0.62	40.2
3b	R3	All MCs	143	5.1	143	5.1	* 0.910	53.8	LOS D	3.8	27.6	1.00	1.08	22.2
Approach			696	3.3	696	3.3	0.910	23.2	LOS C	4.0	28.6	0.78	0.71	34.5
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	72	13.2	72	13.2	0.064	8.7	LOS A	0.2	1.9	0.24	0.63	52.0
22	T1	All MCs	76	4.2	76	4.2	0.524	20.8	LOS C	3.8	27.1	0.82	0.73	45.0
23a	R1	All MCs	375	2.5	375	2.5	0.524	25.0	LOS C	3.8	27.1	0.82	0.75	37.5
Approach			522	4.2	522	4.2	0.524	22.2	LOS C	3.8	27.1	0.74	0.73	41.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	691	2.0	691	2.0	* 0.827	19.7	LOS B	8.5	60.2	0.94	0.92	19.5
8	T1	All MCs	306	13.4	306	13.4	0.531	26.8	LOS C	3.9	30.7	0.91	0.74	35.8
9b	R3	All MCs	19	11.1	19	11.1	0.125	39.6	LOS D	0.4	3.0	0.94	0.70	28.9
Approach			1016	5.6	1016	5.6	0.827	22.2	LOS C	8.5	60.2	0.93	0.86	27.8
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	54	0.0	54	0.0	0.172	9.6	LOS A	0.7	5.2	0.76	0.69	40.7
28	T1	All MCs	95	0.0	95	0.0	* 0.389	31.9	LOS C	1.7	12.5	0.92	0.73	31.1
29a	R1	All MCs	13	16.7	13	16.7	0.389	37.1	LOS D	1.7	12.5	0.97	0.75	38.0
Approach			161	1.3	161	1.3	0.389	24.9	LOS C	1.7	12.5	0.87	0.72	34.6
All Vehicles			2395	4.4	2395	4.4	0.910	22.7	LOS C	8.5	60.2	0.84	0.78	34.3

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 5 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	497	4.7	497	4.7	0.360	3.8	LOS A	3.8	27.6	0.40	0.35	51.2
6	R2	All MCs	1	0.0	1	0.0	0.002	12.9	LOS B	0.0	0.1	0.53	0.60	39.2
Approach			498	4.7	498	4.7	0.360	3.8	LOS A	3.8	27.6	0.40	0.35	51.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.053	8.8	LOS A	0.1	1.0	0.90	0.67	15.4
9	R2	All MCs	25	0.0	25	0.0	0.084	33.4	LOS C	0.3	2.2	0.92	0.68	12.2
Approach			26	0.0	26	0.0	0.084	32.4	LOS C	0.3	2.2	0.92	0.68	12.3
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.054	9.7	LOS A	0.5	3.2	0.47	0.65	47.9
11	T1	All MCs	877	4.6	877	4.6	*0.491	10.8	LOS B	6.5	47.3	0.63	0.56	48.0
Approach			937	4.3	937	4.3	0.491	10.7	LOS B	6.5	47.3	0.62	0.56	48.0
All Vehicles			1461	4.3	1461	4.3	0.491	8.7	LOS A	6.5	47.3	0.55	0.49	48.0

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Valley Hospital (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 5 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	379	4.7	379	4.7	0.514	5.2	LOS A	1.8	13.0	0.56	0.54	49.0
22	T1	All MCs	131	0.0	131	0.0	0.514	5.4	LOS A	1.8	13.0	0.56	0.54	52.8
23	R2	All MCs	89	4.7	89	4.7	0.514	9.9	LOS A	1.8	13.0	0.56	0.54	51.6
23u	U	All MCs	8	0.0	8	0.0	0.514	11.9	LOS B	1.8	13.0	0.56	0.54	52.0
Approach			607	3.6	607	3.6	0.514	6.0	LOS A	1.8	13.0	0.56	0.54	50.7
NorthEast: Turnock Street (NE)														
24	L2	All MCs	95	4.4	95	4.4	0.331	8.5	LOS A	1.0	7.1	0.79	0.68	50.7
25	T1	All MCs	119	4.4	119	4.4	0.331	8.5	LOS A	1.0	7.1	0.79	0.68	45.9
26	R2	All MCs	41	0.0	41	0.0	0.331	13.3	LOS B	1.0	7.1	0.79	0.68	50.2
26u	U	All MCs	1	0.0	1	0.0	0.331	15.3	LOS B	1.0	7.1	0.79	0.68	50.1
Approach			256	3.7	256	3.7	0.331	9.3	LOS A	1.0	7.1	0.79	0.68	49.1
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	31	0.0	31	0.0	0.136	7.4	LOS A	0.2	1.7	0.64	0.72	52.0
28	T1	All MCs	56	0.0	56	0.0	0.136	7.2	LOS A	0.2	1.7	0.64	0.72	52.7
29	R2	All MCs	1	0.0	1	0.0	0.136	12.2	LOS B	0.2	1.7	0.64	0.72	48.5
29u	U	All MCs	1	0.0	1	0.0	0.136	14.1	LOS B	0.2	1.7	0.64	0.72	51.7
Approach			88	0.0	88	0.0	0.136	7.4	LOS A	0.2	1.7	0.64	0.72	52.4
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.304	6.1	LOS A	0.7	4.9	0.46	0.56	51.3
31	T1	All MCs	306	4.5	306	4.5	0.304	6.0	LOS A	0.7	4.9	0.46	0.56	51.7
32	R2	All MCs	569	4.6	569	4.6	0.444	10.2	LOS B	1.2	8.7	0.49	0.68	48.0
32u	U	All MCs	1	0.0	1	0.0	0.444	12.1	LOS B	1.2	8.7	0.49	0.68	41.3
Approach			878	4.6	878	4.6	0.444	8.7	LOS A	1.2	8.7	0.48	0.64	49.2
All Vehicles			1829	3.9	1829	3.9	0.514	7.8	LOS A	1.8	13.0	0.56	0.62	49.8

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2026 OPTION 5 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	161	3.3	161	3.3	0.133	2.9	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	40	2.6	0.133	3.1	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1194	3.0	0.652	10.5	LOS B	2.6	18.7	0.63	0.63	0.63	50.6
Approach			1395	3.0	1395	3.0	0.652	9.4	LOS A	2.6	18.7	0.60	0.59	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.102	19.9	LOS B	0.4	2.8	1.00	0.81	1.00	48.8
8	T1	All MCs	67	3.1	67	3.1	0.179	13.3	LOS B	0.8	6.0	1.00	0.81	1.00	42.3
9	R2	All MCs	52	4.1	52	4.1	0.179	20.2	LOS C	0.8	6.0	1.00	0.81	1.00	48.1
Approach			168	3.8	168	3.8	0.179	17.4	LOS B	0.8	6.0	1.00	0.81	1.00	46.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.123	8.6	LOS A	0.3	2.1	0.85	0.77	0.85	52.6
11	T1	All MCs	1	0.0	1	0.0	0.123	10.5	LOS B	0.4	2.6	0.88	0.77	0.88	51.0
12	R2	All MCs	94	3.4	94	3.4	0.123	14.1	LOS B	0.4	2.6	0.90	0.76	0.90	45.0
Approach			158	3.3	158	3.3	0.123	11.8	LOS B	0.4	2.6	0.88	0.77	0.88	48.4
All Vehicles			2887	3.2	2887	3.2	0.652	7.8	LOS A	2.6	18.7	0.48	0.49	0.48	51.6

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2026 OPTION 5 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	%									[Veh. veh
South: Tweed Coast Road (S)															
2	T1	All MCs	1169	3.5	1169	3.5	0.680	7.2	LOS A	2.7	19.6	0.46	0.52	0.46	37.7
3	R2	All MCs	22	0.0	22	0.0	0.680	11.0	LOS B	2.7	19.6	0.49	0.53	0.49	43.4
Approach			1192	3.4	1192	3.4	0.680	7.2	LOS A	2.7	19.6	0.46	0.52	0.46	37.9
East: Site Access (E)															
4	L2	All MCs	72	0.0	72	0.0	0.437	9.6	LOS A	1.0	6.7	0.73	0.89	0.86	31.7
6	R2	All MCs	224	0.0	224	0.0	0.437	14.8	LOS B	1.0	6.7	0.73	0.89	0.86	31.7
Approach			296	0.0	296	0.0	0.437	13.6	LOS B	1.0	6.7	0.73	0.89	0.86	31.7
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.344	3.6	LOS A	1.1	8.2	0.14	0.37	0.14	52.9
8	T1	All MCs	952	4.0	952	4.0	0.344	4.0	LOS A	1.1	8.2	0.14	0.36	0.14	52.4
Approach			1071	3.5	1071	3.5	0.344	4.0	LOS A	1.1	8.2	0.14	0.36	0.14	52.5
All Vehicles			2558	3.1	2558	3.1	0.680	6.6	LOS A	2.7	19.6	0.36	0.49	0.38	45.6

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 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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	0.305	20.4	LOS C	3.3	24.2	0.72	0.62	45.9
2	T1	All MCs	439	5.3	439	5.3	0.305	15.6	LOS B	3.3	24.3	0.72	0.61	39.7
3b	R3	All MCs	117	8.1	117	8.1	*0.883	51.6	LOS D	3.0	22.3	1.00	1.03	22.8
Approach			578	5.6	578	5.6	0.883	23.0	LOS C	3.3	24.3	0.78	0.70	34.9
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	200	5.8	200	5.8	0.191	11.3	LOS B	1.3	9.8	0.43	0.69	50.8
22	T1	All MCs	115	5.5	115	5.5	*0.870	35.8	LOS D	10.2	73.4	1.00	1.06	38.7
23a	R1	All MCs	731	1.7	731	1.7	0.870	40.0	LOS D	10.3	73.4	1.00	1.06	30.5
Approach			1045	2.9	1045	2.9	0.870	34.0	LOS C	10.3	73.4	0.89	0.99	35.6
North: Tweed Coast Road (N)														
7a	L1	All MCs	481	4.8	481	4.8	0.569	12.9	LOS B	4.0	29.4	0.78	0.79	25.5
8	T1	All MCs	501	2.7	501	2.7	*0.871	34.9	LOS C	8.2	58.4	0.97	0.95	31.9
9b	R3	All MCs	40	0.0	40	0.0	0.287	41.4	LOS D	0.9	6.0	0.97	0.73	28.4
Approach			1022	3.6	1022	3.6	0.871	24.8	LOS C	8.2	58.4	0.88	0.87	30.4
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	36	0.0	36	0.0	0.236	11.1	LOS B	0.7	5.0	0.88	0.71	38.8
28	T1	All MCs	116	0.0	116	0.0	*0.533	30.7	LOS C	2.4	17.4	0.95	0.76	30.9
29a	R1	All MCs	36	5.9	36	5.9	0.533	37.7	LOS D	2.4	17.4	0.99	0.77	37.6
Approach			187	1.1	187	1.1	0.533	28.3	LOS C	2.4	17.4	0.94	0.75	33.9
All Vehicles			2833	3.6	2833	3.6	0.883	28.1	LOS C	10.3	73.4	0.87	0.87	33.9

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	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

SouthEast: Cudgen Road (SE)											
P5	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Coast Road (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
NorthWest: Cudgen Road (NW)											
P7	Full	1	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		8	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2026 OPTION 5 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 70 seconds (Network Practical 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]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
East: Cudgen Road (E)														
5	T1	All MCs	909	3.8	909	3.8	* 0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
6	R2	All MCs	1	0.0	1	0.0	0.002	11.5	LOS B	0.0	0.1	0.48	0.59	40.4
Approach			911	3.8	911	3.8	0.656	5.6	LOS A	9.9	71.2	0.56	0.52	48.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	8.4	LOS A	1.1	7.4	0.96	0.75	11.1
9	R2	All MCs	138	0.0	138	0.0	* 0.455	39.1	LOS D	1.8	12.5	0.98	0.76	10.7
Approach			139	0.0	139	0.0	0.455	38.8	LOS D	1.8	12.5	0.97	0.76	10.7
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.031	9.4	LOS A	0.2	1.7	0.44	0.63	48.1
11	T1	All MCs	686	3.8	686	3.8	0.382	9.8	LOS A	4.7	33.8	0.59	0.51	48.7
Approach			720	3.7	720	3.7	0.382	9.8	LOS A	4.7	33.8	0.58	0.51	48.6
All Vehicles			1769	3.5	1769	3.5	0.656	9.9	LOS A	9.9	71.2	0.60	0.54	44.8

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
North: Tweed Valley Hospital (N)											
P3	Full	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09
All Pedestrians		16	29.3	LOS C	0.0	0.0	0.91	0.91	183.1	200.0	1.09

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026 OPTION 5 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	602	3.8	602	3.8	0.782	11.3	LOS B	4.7	33.9	0.95	0.84	43.4
22	T1	All MCs	54	0.0	54	0.0	0.782	11.4	LOS B	4.7	33.9	0.95	0.84	49.3
23	R2	All MCs	101	4.2	101	4.2	0.782	16.0	LOS B	4.7	33.9	0.95	0.84	48.2
23u	U	All MCs	2	0.0	2	0.0	0.782	17.9	LOS B	4.7	33.9	0.95	0.84	48.6
Approach			759	3.6	759	3.6	0.782	11.9	LOS B	4.7	33.9	0.95	0.84	45.0
NorthEast: Turnock Street (NE)														
24	L2	All MCs	75	4.2	75	4.2	0.465	7.8	LOS A	1.4	10.2	0.76	0.66	51.5
25	T1	All MCs	307	3.8	307	3.8	0.465	7.8	LOS A	1.4	10.2	0.76	0.66	47.2
26	R2	All MCs	27	0.0	27	0.0	0.465	12.6	LOS B	1.4	10.2	0.76	0.66	51.0
26u	U	All MCs	2	0.0	2	0.0	0.465	14.6	LOS B	1.4	10.2	0.76	0.66	50.8
Approach			412	3.6	412	3.6	0.465	8.2	LOS A	1.4	10.2	0.76	0.66	48.8
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	106	0.0	106	0.0	0.325	7.1	LOS A	0.6	4.2	0.63	0.71	52.2
28	T1	All MCs	131	0.0	131	0.0	0.325	6.9	LOS A	0.6	4.2	0.63	0.71	52.8
29	R2	All MCs	1	0.0	1	0.0	0.325	11.9	LOS B	0.6	4.2	0.63	0.71	48.8
29u	U	All MCs	1	0.0	1	0.0	0.325	13.9	LOS B	0.6	4.2	0.63	0.71	51.8
Approach			239	0.0	239	0.0	0.325	7.0	LOS A	0.6	4.2	0.63	0.71	52.5
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.265	5.4	LOS A	0.6	4.6	0.40	0.50	51.6
31	T1	All MCs	307	3.8	307	3.8	0.265	5.2	LOS A	0.6	4.6	0.40	0.50	52.0
32	R2	All MCs	377	3.9	377	3.9	0.280	9.5	LOS A	0.7	5.1	0.39	0.64	48.3
32u	U	All MCs	2	0.0	2	0.0	0.280	11.4	LOS B	0.7	5.1	0.39	0.64	41.8
Approach			687	3.8	687	3.8	0.280	7.6	LOS A	0.7	5.1	0.40	0.58	49.8
All Vehicles			2097	3.3	2097	3.3	0.782	9.2	LOS A	4.7	33.9	0.70	0.79	48.5

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: 101 [Pacific Motorway/Tweed Coast 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 (NO TVH) AM PEAK (Network Folder: 2026 SCENARIO)]**

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)															
1	L2	All MCs	83	3.8	83	3.8	0.076	2.7	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
2	T1	All MCs	33	3.2	33	3.2	0.076	2.9	LOS A	0.2	1.3	0.40	0.31	0.40	55.5
3	R2	All MCs	860	4.0	860	4.0	0.465	10.0	LOS A	1.5	11.1	0.51	0.57	0.51	51.0
Approach			976	4.0	976	4.0	0.465	9.1	LOS A	1.5	11.1	0.50	0.54	0.50	51.4
East: Pacific Motorway (E)															
4	L2	All MCs	976	3.6	976	3.6	0.322	4.1	LOS A	1.0	6.9	0.19	0.27	0.19	54.3
5	T1	All MCs	144	4.4	144	4.4	0.322	3.0	LOS A	1.0	6.9	0.49	0.35	0.49	54.6
6	R2	All MCs	69	4.5	69	4.5	0.322	9.9	LOS A	1.0	6.9	0.49	0.35	0.49	54.3
Approach			1189	3.7	1189	3.7	0.322	4.3	LOS A	1.0	6.9	0.24	0.29	0.24	54.4
North: Chinderah Road (N)															
7	L2	All MCs	46	4.5	46	4.5	0.053	10.0	LOS B	0.2	1.3	0.91	0.67	0.91	53.0
8	T1	All MCs	83	3.8	83	3.8	0.133	7.3	LOS A	0.5	3.8	0.96	0.67	0.96	46.4
9	R2	All MCs	58	5.5	58	5.5	0.133	14.2	LOS B	0.5	3.8	0.96	0.67	0.96	51.0
Approach			187	4.5	187	4.5	0.133	10.1	LOS B	0.5	3.8	0.95	0.67	0.95	50.0
West: Pacific Motorway (W)															
10	L2	All MCs	58	5.5	58	5.5	0.077	5.4	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
11	T1	All MCs	1	0.0	1	0.0	0.077	8.0	LOS A	0.2	1.2	0.69	0.62	0.69	54.1
12	R2	All MCs	153	3.4	153	3.4	0.144	11.7	LOS B	0.4	2.6	0.72	0.71	0.72	45.9
Approach			212	4.0	212	4.0	0.144	9.9	LOS A	0.4	2.6	0.71	0.68	0.71	48.5
All Vehicles			2564	3.9	2564	3.9	0.465	7.0	LOS A	1.5	11.1	0.43	0.44	0.43	52.0

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.

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 (NO TVH) AM PEAK
(Network Folder: 2026
SCENARIO)]

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]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
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	38.6
3	R2	All MCs	226	0.0	226	0.0	0.548	9.8	LOS A	2.0	14.2	0.32	0.48	43.5
Approach			1103	3.5	1103	3.5	0.548	6.0	LOS A	2.0	14.2	0.31	0.46	40.2
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	33.5
6	R2	All MCs	99	0.0	99	0.0	0.325	13.9	LOS B	0.7	4.6	0.76	0.84	33.5
Approach			188	0.0	188	0.0	0.325	11.5	LOS B	0.7	4.6	0.76	0.84	33.5
North: Tweed Coast Road (N)														
7	L2	All MCs	215	0.0	215	0.0	0.493	5.0	LOS A	1.8	12.9	0.56	0.48	50.5
8	T1	All MCs	996	5.7	996	5.7	0.493	5.6	LOS A	1.8	12.9	0.57	0.48	49.0
Approach			1211	4.7	1211	4.7	0.493	5.5	LOS A	1.8	12.9	0.56	0.48	49.3
All Vehicles			2502	3.8	2502	3.8	0.548	6.2	LOS A	2.0	14.2	0.47	0.50	45.7

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 (NO TVH) AM PEAK (Network Folder: 2026 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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	Aver. Back Of Queue [Veh. veh	Dist] 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	0.340	21.8	LOS C	4.4	31.9	0.71	0.61	0.71	44.7
2	T1	All MCs	545	2.5	545	2.5	0.340	16.7	LOS B	4.5	31.9	0.71	0.61	0.71	39.0
3b	R3	All MCs	143	5.1	143	5.1	* 0.910	59.3	LOS E	4.2	31.0	1.00	1.08	1.62	20.8
Approach			696	3.3	696	3.3	0.910	25.5	LOS C	4.5	31.9	0.77	0.70	0.90	33.1
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	72	13.2	72	13.2	0.063	8.5	LOS A	0.2	1.7	0.19	0.62	0.19	52.1
22	T1	All MCs	76	4.2	76	4.2	0.621	20.2	LOS C	5.4	38.4	0.79	0.74	0.79	45.2
23a	R1	All MCs	511	1.9	511	1.9	0.621	24.4	LOS C	5.4	38.4	0.79	0.75	0.79	37.9
Approach			658	3.4	658	3.4	0.621	22.1	LOS C	5.4	38.4	0.73	0.74	0.73	40.8
North: Tweed Coast Road (N)															
7a	L1	All MCs	759	1.8	759	1.8	* 0.804	17.4	LOS B	8.9	63.5	0.90	0.88	0.96	21.3
8	T1	All MCs	306	13.4	306	13.4	0.455	27.5	LOS C	4.2	33.0	0.87	0.71	0.87	35.4
9b	R3	All MCs	19	11.1	19	11.1	0.125	44.0	LOS D	0.4	3.4	0.94	0.70	0.94	27.4
Approach			1084	5.2	1084	5.2	0.804	20.7	LOS C	8.9	63.5	0.89	0.83	0.93	28.5
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	54	0.0	54	0.0	0.197	10.1	LOS B	0.9	6.1	0.77	0.70	0.77	39.0
28	T1	All MCs	95	0.0	95	0.0	* 0.443	37.7	LOS D	2.0	14.5	0.93	0.74	0.93	28.8
29a	R1	All MCs	13	16.7	13	16.7	0.443	43.0	LOS D	2.0	14.5	0.98	0.76	0.98	35.8
Approach			161	1.3	161	1.3	0.443	28.9	LOS C	2.0	14.5	0.88	0.73	0.88	32.3
All Vehicles			2599	4.0	2599	4.0	0.910	22.9	LOS C	8.9	63.5	0.82	0.77	0.87	34.2

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	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	1.06

SouthEast: Cudgen Road (SE)											
P5	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Coast Road (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
NorthWest: Cudgen Road (NW)											
P7	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	633	3.7	633	3.7	0.443	4.0	LOS A	5.6	40.4	0.40	0.36	50.7
6	R2	All MCs	1	0.0	1	0.0	*0.002	12.8	LOS B	0.0	0.1	0.49	0.60	39.3
Approach			634	3.7	634	3.7	0.443	4.0	LOS A	5.6	40.4	0.40	0.37	50.7
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.053	9.1	LOS A	0.2	1.2	0.91	0.67	14.0
9	R2	All MCs	25	0.0	25	0.0	0.084	37.5	LOS D	0.4	2.5	0.93	0.68	11.2
Approach			26	0.0	26	0.0	0.084	36.4	LOS D	0.4	2.5	0.92	0.68	11.2
West: Cudgen Road (W)														
10	L2	All MCs	60	0.0	60	0.0	*0.051	8.3	LOS A	0.3	2.4	0.32	0.62	49.1
11	T1	All MCs	945	4.2	945	4.2	*0.488	9.5	LOS A	7.0	50.4	0.55	0.49	49.4
Approach			1005	4.0	1005	4.0	0.488	9.4	LOS A	7.0	50.4	0.54	0.50	49.4
All Vehicles			1665	3.8	1665	3.8	0.488	7.8	LOS A	7.0	50.4	0.49	0.45	49.0

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Valley Hospital (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026
OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	482	3.7	482	3.7	0.513	5.2	LOS A	1.8	12.9	0.56	0.54	0.56	49.3
22	T1	All MCs	27	0.0	27	0.0	0.513	5.4	LOS A	1.8	12.9	0.56	0.54	0.56	52.9
23	R2	All MCs	89	4.7	89	4.7	0.513	9.9	LOS A	1.8	12.9	0.56	0.54	0.56	51.8
23u	U	All MCs	8	0.0	8	0.0	0.513	11.9	LOS B	1.8	12.9	0.56	0.54	0.56	52.1
Approach			607	3.6	607	3.6	0.513	6.0	LOS A	1.8	12.9	0.56	0.54	0.56	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	95	4.4	95	4.4	0.324	8.5	LOS A	0.9	6.9	0.78	0.67	0.78	51.1
25	T1	All MCs	152	3.5	152	3.5	0.324	8.5	LOS A	0.9	6.9	0.78	0.67	0.78	46.6
26	R2	All MCs	8	0.0	8	0.0	0.324	13.3	LOS B	0.9	6.9	0.78	0.67	0.78	50.7
26u	U	All MCs	1	0.0	1	0.0	0.324	15.3	LOS B	0.9	6.9	0.78	0.67	0.78	50.5
Approach			256	3.7	256	3.7	0.324	8.7	LOS A	0.9	6.9	0.78	0.67	0.78	49.1
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	6	0.0	6	0.0	0.031	7.3	LOS A	0.1	0.4	0.61	0.69	0.61	51.8
28	T1	All MCs	12	0.0	12	0.0	0.031	7.1	LOS A	0.1	0.4	0.61	0.69	0.61	52.4
29	R2	All MCs	1	0.0	1	0.0	0.031	12.1	LOS B	0.1	0.4	0.61	0.69	0.61	48.1
29u	U	All MCs	1	0.0	1	0.0	0.031	14.1	LOS B	0.1	0.4	0.61	0.69	0.61	51.4
Approach			20	0.0	20	0.0	0.031	7.8	LOS A	0.1	0.4	0.61	0.69	0.61	52.0
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.284	5.2	LOS A	0.7	4.8	0.34	0.47	0.34	51.9
31	T1	All MCs	331	4.1	331	4.1	0.284	5.1	LOS A	0.7	4.8	0.34	0.47	0.34	52.3
32	R2	All MCs	614	4.3	614	4.3	0.421	9.4	LOS A	1.2	8.6	0.36	0.62	0.36	48.4
32u	U	All MCs	1	0.0	1	0.0	0.421	11.3	LOS B	1.2	8.6	0.36	0.62	0.36	42.0
Approach			946	4.2	946	4.2	0.421	7.9	LOS A	1.2	8.6	0.36	0.57	0.36	49.6
All Vehicles			1829	3.9	1829	3.9	0.513	7.4	LOS A	1.8	12.9	0.48	0.58	0.48	49.7

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

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

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
South: Tweed Coast Road (S)															
1	L2	All MCs	161	3.3	161	3.3	0.133	2.9	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
2	T1	All MCs	40	2.6	40	2.6	0.133	3.1	LOS A	0.3	2.3	0.44	0.33	0.44	55.4
3	R2	All MCs	1194	3.0	1194	3.0	0.652	10.5	LOS B	2.6	18.7	0.63	0.63	0.63	50.6
Approach			1395	3.0	1395	3.0	0.652	9.4	LOS A	2.6	18.7	0.60	0.59	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	908	3.2	908	3.2	0.309	3.5	LOS A	0.9	6.6	0.15	0.26	0.15	54.5
5	T1	All MCs	147	3.6	147	3.6	0.309	2.7	LOS A	0.9	6.6	0.42	0.35	0.42	54.7
6	R2	All MCs	111	3.8	111	3.8	0.309	9.6	LOS A	0.9	6.6	0.42	0.35	0.42	54.4
Approach			1166	3.3	1166	3.3	0.309	4.0	LOS A	0.9	6.6	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	49	4.3	49	4.3	0.102	19.9	LOS B	0.4	2.8	1.00	0.81	1.00	48.8
8	T1	All MCs	67	3.1	67	3.1	0.179	13.3	LOS B	0.8	6.0	1.00	0.81	1.00	42.3
9	R2	All MCs	52	4.1	52	4.1	0.179	20.2	LOS C	0.8	6.0	1.00	0.81	1.00	48.1
Approach			168	3.8	168	3.8	0.179	17.4	LOS B	0.8	6.0	1.00	0.81	1.00	46.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	3.3	63	3.3	0.123	8.6	LOS A	0.3	2.1	0.85	0.77	0.85	52.6
11	T1	All MCs	1	0.0	1	0.0	0.123	10.5	LOS B	0.4	2.6	0.88	0.77	0.88	51.0
12	R2	All MCs	94	3.4	94	3.4	0.123	14.1	LOS B	0.4	2.6	0.90	0.76	0.90	45.0
Approach			158	3.3	158	3.3	0.123	11.8	LOS B	0.4	2.6	0.88	0.77	0.88	48.4
All Vehicles			2887	3.2	2887	3.2	0.652	7.8	LOS A	2.6	18.7	0.48	0.49	0.48	51.6

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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\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

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

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]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
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	0.51	36.9
3	R2	All MCs	81	0.0	81	0.0	0.721	11.3	LOS B	3.3	23.7	0.53	0.55	42.7
Approach			1251	3.3	1251	3.3	0.721	7.7	LOS A	3.3	23.7	0.50	0.51	37.5
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	1.35	27.7
6	R2	All MCs	224	0.0	224	0.0	0.719	19.4	LOS B	2.4	16.7	0.86	1.35	27.7
Approach			465	0.0	465	0.0	0.719	16.7	LOS B	2.4	16.7	0.86	1.35	27.7
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	0.31	51.9
8	T1	All MCs	952	4.0	952	4.0	0.378	4.4	LOS A	1.3	9.0	0.31	0.31	50.9
Approach			1071	3.5	1071	3.5	0.378	4.3	LOS A	1.3	9.0	0.31	0.31	51.1
All Vehicles			2786	2.8	2786	2.8	0.721	7.9	LOS A	3.3	23.7	0.49	0.58	42.9

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]				
South: Tweed Coast Road (S)															
1a	L1	All MCs	22	0.0	22	0.0	0.315	23.3	LOS C	3.9	28.2	0.74	0.63	0.74	44.3
2	T1	All MCs	439	5.3	439	5.3	0.315	18.5	LOS B	3.9	28.2	0.74	0.63	0.74	37.4
3b	R3	All MCs	117	8.1	117	8.1	* 0.865	55.5	LOS E	3.3	24.7	1.00	1.00	1.50	21.7
Approach			578	5.6	578	5.6	0.865	26.1	LOS C	3.9	28.2	0.79	0.70	0.89	33.1
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	200	5.8	200	5.8	0.186	11.0	LOS B	1.1	7.9	0.30	0.66	0.30	51.5
22	T1	All MCs	115	5.5	115	5.5	* 0.804	27.4	LOS C	10.2	73.3	0.94	0.90	1.04	42.2
23a	R1	All MCs	788	1.6	788	1.6	0.804	31.1	LOS C	10.4	74.1	0.94	0.90	1.04	34.4
Approach			1103	2.8	1103	2.8	0.804	27.1	LOS C	10.4	74.1	0.82	0.86	0.91	38.6
North: Tweed Coast Road (N)															
7a	L1	All MCs	651	3.6	651	3.6	0.680	13.2	LOS B	6.1	44.1	0.80	0.82	0.80	25.2
8	T1	All MCs	501	2.7	501	2.7	* 0.820	35.6	LOS D	8.6	61.4	0.97	0.90	1.10	31.6
9b	R3	All MCs	40	0.0	40	0.0	0.281	45.9	LOS D	1.0	6.7	0.97	0.73	0.97	27.0
Approach			1192	3.1	1192	3.1	0.820	23.8	LOS C	8.6	61.4	0.88	0.85	0.93	29.7
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	36	0.0	36	0.0	0.270	11.5	LOS B	0.9	6.0	0.89	0.72	0.89	36.8
28	T1	All MCs	116	0.0	116	0.0	* 0.609	36.6	LOS D	2.9	20.4	0.97	0.78	1.01	28.5
29a	R1	All MCs	36	5.9	36	5.9	0.609	44.1	LOS D	2.9	20.4	1.00	0.81	1.06	35.3
Approach			187	1.1	187	1.1	0.609	33.3	LOS C	2.9	20.4	0.96	0.78	1.00	31.6
All Vehicles			3060	3.3	3060	3.3	0.865	26.0	LOS C	10.4	74.1	0.85	0.82	0.92	34.5

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]			sec	m/sec
South: Tweed Coast Road (S)										
P1	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	1.06

SouthEast: Cudgen Road (SE)											
P5 Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
North: Tweed Coast Road (N)											
P3 Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
NorthWest: Cudgen Road (NW)											
P7 Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	
All Pedestrians	8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06	

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2026 OPTION 5 (NO TVH) PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	967	3.6	967	3.6	*0.677	6.1	LOS A	11.6	84.0	0.55	0.51	48.0
6	R2	All MCs	1	0.0	1	0.0	0.002	11.9	LOS B	0.0	0.1	0.45	0.59	40.4
Approach			968	3.6	968	3.6	0.677	6.1	LOS A	11.6	84.0	0.55	0.51	47.4
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.289	8.8	LOS A	1.2	8.5	0.96	0.75	10.1
9	R2	All MCs	138	0.0	138	0.0	*0.455	43.6	LOS D	2.0	14.2	0.98	0.76	9.7
Approach			139	0.0	139	0.0	0.455	43.4	LOS D	2.0	14.2	0.98	0.76	9.7
West: Cudgen Road (W)														
10	L2	All MCs	34	0.0	34	0.0	0.029	7.7	LOS A	0.2	1.1	0.25	0.60	49.6
11	T1	All MCs	856	3.1	856	3.1	0.438	8.3	LOS A	5.7	40.8	0.50	0.44	50.4
Approach			889	3.0	889	3.0	0.438	8.3	LOS A	5.7	40.8	0.49	0.44	50.4
All Vehicles			1997	3.1	1997	3.1	0.677	9.7	LOS A	11.6	84.0	0.55	0.50	45.5

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Valley Hospital (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2026
OPTION 5 (NO TVH) PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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				
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	640	3.6	640	3.6	0.782	11.3	LOS B	4.7	33.8	0.95	0.84	1.22	43.4
22	T1	All MCs	15	0.0	15	0.0	0.782	11.4	LOS B	4.7	33.8	0.95	0.84	1.22	49.3
23	R2	All MCs	101	4.2	101	4.2	0.782	16.0	LOS B	4.7	33.8	0.95	0.84	1.22	48.2
23u	U	All MCs	2	0.0	2	0.0	0.782	17.9	LOS B	4.7	33.8	0.95	0.84	1.22	48.6
Approach			758	3.6	758	3.6	0.782	11.9	LOS B	4.7	33.8	0.95	0.84	1.22	44.6
NorthEast: Turnock Street (NE)															
24	L2	All MCs	75	4.2	75	4.2	0.468	7.9	LOS A	1.4	10.4	0.77	0.66	0.78	51.6
25	T1	All MCs	327	3.5	327	3.5	0.468	7.8	LOS A	1.4	10.4	0.77	0.66	0.78	47.4
26	R2	All MCs	7	0.0	7	0.0	0.468	12.6	LOS B	1.4	10.4	0.77	0.66	0.78	51.1
26u	U	All MCs	2	0.0	2	0.0	0.468	14.6	LOS B	1.4	10.4	0.77	0.66	0.78	51.0
Approach			412	3.6	412	3.6	0.468	8.0	LOS A	1.4	10.4	0.77	0.66	0.78	48.8
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	31	0.0	31	0.0	0.102	7.0	LOS A	0.2	1.1	0.59	0.71	0.59	52.2
28	T1	All MCs	37	0.0	37	0.0	0.102	6.8	LOS A	0.2	1.1	0.59	0.71	0.59	52.8
29	R2	All MCs	1	0.0	1	0.0	0.102	11.8	LOS B	0.2	1.1	0.59	0.71	0.59	48.8
29u	U	All MCs	1	0.0	1	0.0	0.102	13.8	LOS B	0.2	1.1	0.59	0.71	0.59	51.9
Approach			69	0.0	69	0.0	0.102	7.1	LOS A	0.2	1.1	0.59	0.71	0.59	52.5
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.307	5.1	LOS A	0.8	5.9	0.37	0.47	0.37	51.8
31	T1	All MCs	383	3.0	383	3.0	0.307	4.9	LOS A	0.8	5.9	0.37	0.47	0.37	52.2
32	R2	All MCs	471	3.1	471	3.1	0.326	9.3	LOS A	0.9	6.6	0.36	0.61	0.36	48.5
32u	U	All MCs	2	0.0	2	0.0	0.326	11.2	LOS B	0.9	6.6	0.36	0.61	0.36	42.0
Approach			857	3.1	857	3.1	0.326	7.3	LOS A	0.9	6.6	0.36	0.55	0.36	50.0
All Vehicles			2096	3.3	2096	3.3	0.782	9.1	LOS A	4.7	33.8	0.66	0.68	0.76	48.2

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

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	82	3.8	82	3.8	0.075	2.8	LOS A	0.2	1.1	0.36	0.32	0.36	55.8
2	T1	All MCs	32	3.3	32	3.3	0.075	3.0	LOS A	0.2	1.1	0.36	0.32	0.36	55.8
3	R2	All MCs	843	4.5	843	4.5	0.462	10.1	LOS B	1.4	10.2	0.44	0.60	0.44	51.3
Approach			957	4.4	957	4.4	0.462	9.2	LOS A	1.4	10.2	0.43	0.57	0.43	51.7
East: Pacific Motorway (E)															
4	L2	All MCs	883	4.3	883	4.3	0.302	2.3	LOS A	0.9	6.5	0.17	0.27	0.17	54.4
5	T1	All MCs	156	4.7	156	4.7	0.302	2.9	LOS A	0.9	6.5	0.47	0.35	0.47	54.6
6	R2	All MCs	75	4.2	75	4.2	0.302	9.8	LOS A	0.9	6.5	0.47	0.35	0.47	54.3
Approach			1114	4.3	1114	4.3	0.302	2.9	LOS A	0.9	6.5	0.23	0.28	0.23	54.5
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.058	11.5	LOS B	0.2	1.8	0.98	0.64	0.98	52.3
8	T1	All MCs	75	4.2	75	4.2	0.125	8.8	LOS A	0.6	4.6	1.00	0.63	1.00	45.6
9	R2	All MCs	63	5.0	63	5.0	0.125	15.7	LOS B	0.6	4.6	1.00	0.63	1.00	50.4
Approach			188	4.5	188	4.5	0.125	11.8	LOS B	0.6	4.6	0.99	0.63	0.99	49.5
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.080	5.7	LOS A	0.2	1.4	0.71	0.61	0.71	54.0
11	T1	All MCs	1	0.0	1	0.0	0.080	8.3	LOS A	0.2	1.4	0.71	0.61	0.71	54.0
12	R2	All MCs	138	4.6	138	4.6	0.126	12.1	LOS B	0.4	2.7	0.75	0.67	0.75	45.8
Approach			202	4.7	202	4.7	0.126	10.1	LOS B	0.4	2.7	0.74	0.65	0.74	48.7
All Vehicles			2461	4.4	2461	4.4	0.462	6.6	LOS A	1.4	10.2	0.41	0.45	0.41	52.2

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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\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 BKG AM PEAK (Network Folder: 2036 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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	0.329	21.7	LOS C	4.3	30.7	0.71	0.61	44.8
2	T1	All MCs	525	2.8	525	2.8	0.329	16.6	LOS B	4.3	30.7	0.71	0.60	39.0
3b	R3	All MCs	160	5.3	160	5.3	*0.905	58.2	LOS E	4.7	34.5	1.00	1.07	21.1
Approach			694	3.6	694	3.6	0.905	26.2	LOS C	4.7	34.5	0.78	0.71	32.7
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	86	13.4	86	13.4	0.075	7.7	LOS A	0.2	1.7	0.16	0.62	52.3
22	T1	All MCs	92	4.6	92	4.6	0.609	21.6	LOS C	5.1	36.8	0.81	0.74	44.6
23a	R1	All MCs	453	2.6	453	2.6	0.609	25.8	LOS C	5.1	36.8	0.81	0.75	37.1
Approach			631	4.3	631	4.3	0.609	22.7	LOS C	5.1	36.8	0.72	0.73	40.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	*0.831	19.9	LOS B	10.1	71.8	0.93	0.91	37.1
8	T1	All MCs	320	13.8	320	13.8	0.358	27.2	LOS C	3.2	25.2	0.87	0.71	41.5
9b	R3	All MCs	9	22.2	9	22.2	0.059	42.5	LOS D	0.2	1.8	0.92	0.68	34.2
Approach			1094	5.6	1094	5.6	0.831	22.2	LOS C	10.1	71.8	0.91	0.85	38.9
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	27	0.0	27	0.0	0.230	9.9	LOS A	0.8	5.9	0.89	0.71	35.7
28	T1	All MCs	115	0.0	115	0.0	*0.519	37.9	LOS D	2.4	17.1	0.97	0.75	28.3
29a	R1	All MCs	15	14.3	15	14.3	0.519	43.4	LOS D	2.4	17.1	0.99	0.77	35.7
Approach			157	1.3	157	1.3	0.519	33.5	LOS C	2.4	17.1	0.96	0.75	30.4
All Vehicles			2575	4.5	2575	4.5	0.905	24.1	LOS C	10.1	71.8	0.83	0.78	37.4

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	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	1.06

SouthEast: Cudgen Road (SE)											
P5	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Coast Road (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
NorthWest: Cudgen Road (NW)											
P7	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2036 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 BKG AM PEAK (Network Folder: 2036 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	591	4.6	0.416	3.9	LOS A	5.1	36.9	0.39	0.35	50.9
6	R2	All MCs	1	0.0	1	0.0	*0.003	13.7	LOS B	0.0	0.1	0.51	0.60	38.4
Approach			592	4.6	592	4.6	0.416	3.9	LOS A	5.1	36.9	0.39	0.35	50.9
North: Hospital Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.084	9.9	LOS A	0.3	1.8	0.93	0.69	13.8
9	R2	All MCs	40	0.0	40	0.0	0.133	37.6	LOS D	0.6	3.9	0.94	0.70	11.1
Approach			41	0.0	41	0.0	0.133	36.9	LOS D	0.6	3.9	0.94	0.70	11.1
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	87	0.0	*0.074	8.4	LOS A	0.5	3.7	0.32	0.62	49.0
11	T1	All MCs	1045	4.5	1045	4.5	*0.540	10.5	LOS B	8.3	60.7	0.60	0.53	48.5
Approach			1133	4.2	1133	4.2	0.540	10.4	LOS B	8.3	60.7	0.57	0.54	48.6
All Vehicles			1765	4.2	1765	4.2	0.540	8.8	LOS A	8.3	60.7	0.52	0.48	48.1

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Hospital Access (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 BKG AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	449	4.7	449	4.7	0.512	5.1	LOS A	1.8	13.2	0.56	0.54	49.1
22	T1	All MCs	40	0.0	40	0.0	0.512	5.4	LOS A	1.8	13.2	0.56	0.54	52.8
23	R2	All MCs	106	5.0	106	5.0	0.512	9.9	LOS A	1.8	13.2	0.56	0.54	51.7
23u	U	All MCs	9	0.0	9	0.0	0.512	11.8	LOS B	1.8	13.2	0.56	0.54	52.0
Approach			605	4.3	605	4.3	0.512	6.1	LOS A	1.8	13.2	0.56	0.54	50.2
NorthEast: Turnock Street (NE)														
24	L2	All MCs	113	4.7	113	4.7	0.369	9.5	LOS A	1.2	8.4	0.85	0.70	50.4
25	T1	All MCs	141	4.5	141	4.5	0.369	9.5	LOS A	1.2	8.4	0.85	0.70	45.4
26	R2	All MCs	13	0.0	13	0.0	0.369	14.3	LOS B	1.2	8.4	0.85	0.70	49.9
26u	U	All MCs	1	0.0	1	0.0	0.369	16.3	LOS B	1.2	8.4	0.85	0.70	49.7
Approach			267	4.3	267	4.3	0.369	9.8	LOS A	1.2	8.4	0.85	0.70	48.4
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	9	0.0	9	0.0	0.048	7.8	LOS A	0.1	0.6	0.65	0.73	51.5
28	T1	All MCs	18	0.0	18	0.0	0.048	7.6	LOS A	0.1	0.6	0.65	0.73	52.2
29	R2	All MCs	1	0.0	1	0.0	0.048	12.6	LOS B	0.1	0.6	0.65	0.73	47.7
29u	U	All MCs	1	0.0	1	0.0	0.048	14.6	LOS B	0.1	0.6	0.65	0.73	51.2
Approach			29	0.0	29	0.0	0.048	8.1	LOS A	0.1	0.6	0.65	0.73	51.8
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.325	5.5	LOS A	0.8	5.6	0.39	0.50	51.7
31	T1	All MCs	364	4.6	364	4.6	0.325	5.3	LOS A	0.8	5.6	0.39	0.50	52.0
32	R2	All MCs	677	4.7	677	4.7	0.481	9.7	LOS A	1.4	10.4	0.42	0.64	48.2
32u	U	All MCs	1	0.0	1	0.0	0.481	11.6	LOS B	1.4	10.4	0.42	0.64	41.6
Approach			1043	4.6	1043	4.6	0.481	8.2	LOS A	1.4	10.4	0.41	0.59	49.4
All Vehicles			1945	4.4	1945	4.4	0.512	7.7	LOS A	1.8	13.2	0.52	0.59	49.5

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	148	3.5	148	3.5	0.124	3.0	LOS A	0.3	1.8	0.37	0.34	0.37	55.8
2	T1	All MCs	37	2.9	37	2.9	0.124	3.2	LOS A	0.3	1.8	0.37	0.34	0.37	55.8
3	R2	All MCs	1102	3.4	1102	3.4	0.611	10.5	LOS B	2.3	16.4	0.47	0.62	0.47	51.2
Approach			1287	3.4	1287	3.4	0.611	9.4	LOS A	2.3	16.4	0.46	0.58	0.46	51.7
East: Pacific Motorway (E)															
4	L2	All MCs	885	3.7	885	3.7	0.310	2.2	LOS A	0.9	6.7	0.15	0.26	0.15	54.5
5	T1	All MCs	160	3.9	160	3.9	0.310	2.7	LOS A	0.9	6.7	0.42	0.35	0.42	54.6
6	R2	All MCs	120	3.5	120	3.5	0.310	9.6	LOS A	0.9	6.7	0.42	0.35	0.42	54.3
Approach			1165	3.7	1165	3.7	0.310	3.0	LOS A	0.9	6.7	0.21	0.28	0.21	54.5
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.090	23.0	LOS C	0.5	3.9	1.00	0.75	1.00	46.2
8	T1	All MCs	65	3.2	65	3.2	0.148	17.7	LOS B	1.1	8.1	1.00	0.76	1.00	39.2
9	R2	All MCs	56	3.8	56	3.8	0.148	24.6	LOS C	1.1	8.1	1.00	0.76	1.00	45.7
Approach			175	3.6	175	3.6	0.148	21.5	LOS C	1.1	8.1	1.00	0.75	1.00	44.0
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.109	9.3	LOS A	0.3	2.5	0.90	0.69	0.90	52.1
11	T1	All MCs	1	0.0	1	0.0	0.103	8.2	LOS A	0.4	2.9	0.96	0.67	0.96	49.6
12	R2	All MCs	91	3.5	91	3.5	0.103	15.1	LOS B	0.4	2.9	0.96	0.67	0.96	44.7
Approach			160	3.3	160	3.3	0.109	12.6	LOS B	0.4	2.9	0.93	0.68	0.93	48.2
All Vehicles			2787	3.5	2787	3.5	0.611	7.7	LOS A	2.3	16.4	0.42	0.47	0.42	51.8

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 BKG PM PEAK (Network Folder: 2036 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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	0.382	26.7	LOS C	4.5	32.6	0.81	0.69	42.5
2	T1	All MCs	462	5.5	462	5.5	0.382	21.9	LOS C	4.5	32.7	0.81	0.68	35.0
3b	R3	All MCs	127	8.3	127	8.3	*0.944	65.4	LOS E	4.0	30.0	1.00	1.12	19.5
Approach			614	5.8	614	5.8	0.944	31.1	LOS C	4.5	32.7	0.85	0.77	30.5
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	243	6.1	243	6.1	0.215	12.9	LOS B	1.7	12.3	0.40	0.69	51.1
22	T1	All MCs	139	5.3	139	5.3	*0.805	32.6	LOS C	11.9	84.9	0.96	0.93	41.2
23a	R1	All MCs	889	1.8	889	1.8	0.805	34.7	LOS C	12.6	89.9	0.97	0.93	33.2
Approach			1272	3.0	1272	3.0	0.805	30.3	LOS C	12.6	89.9	0.86	0.89	37.1
North: Tweed Coast Road (N)														
7a	L1	All MCs	533	4.7	533	4.7	*0.562	12.6	LOS B	4.5	33.1	0.73	0.78	43.2
8	T1	All MCs	492	3.0	492	3.0	0.791	39.4	LOS D	6.3	45.0	1.00	0.94	36.4
9b	R3	All MCs	16	0.0	16	0.0	0.111	44.8	LOS D	0.4	2.6	0.95	0.69	33.8
Approach			1040	3.8	1040	3.8	0.791	25.8	LOS C	6.3	45.0	0.86	0.86	38.5
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	31	0.0	31	0.0	0.317	12.4	LOS B	0.9	6.3	0.93	0.73	36.3
28	T1	All MCs	138	0.0	138	0.0	*0.714	37.2	LOS D	3.5	24.6	0.98	0.83	28.0
29a	R1	All MCs	42	5.0	42	5.0	0.714	45.6	LOS D	3.5	24.6	1.00	0.87	34.8
Approach			211	1.0	211	1.0	0.714	35.3	LOS D	3.5	24.6	0.97	0.82	30.8
All Vehicles			3136	3.7	3136	3.7	0.944	29.3	LOS C	12.6	89.9	0.86	0.85	36.0

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	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

SouthEast: Cudgen Road (SE)											
P5	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Coast Road (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
NorthWest: Cudgen Road (NW)											
P7	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2036 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

 Network: N101 [2036 BKG PM PEAK (Network Folder: 2036 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.757	8.6	LOS A	14.8	106.9	0.63	0.58	46.7
6	R2	All MCs	1	0.0	1	0.0	0.002	13.5	LOS B	0.0	0.1	0.46	0.59	40.1
Approach			1080	3.8	1080	3.8	0.757	8.6	LOS A	14.8	106.9	0.63	0.58	44.2
North: Hospital Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.401	9.0	LOS A	1.7	12.2	0.98	0.77	9.6
9	R2	All MCs	192	0.0	192	0.0	* 0.632	45.6	LOS D	2.9	20.4	0.99	0.80	9.4
Approach			193	0.0	193	0.0	0.632	45.4	LOS D	2.9	20.4	0.99	0.80	9.4
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.043	9.0	LOS A	0.4	2.5	0.39	0.63	48.5
11	T1	All MCs	817	3.7	817	3.7	0.420	9.8	LOS A	6.1	44.0	0.56	0.49	48.8
Approach			866	3.5	866	3.5	0.420	9.7	LOS A	6.1	44.0	0.55	0.50	48.8
All Vehicles			2139	3.3	2139	3.3	0.757	12.4	LOS B	14.8	106.9	0.63	0.57	42.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Hospital Access (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 BKG PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	715	3.8	715	3.8	0.924	22.3	LOS C	9.5	68.7	1.00	1.29	1.88	34.5
22	T1	All MCs	22	0.0	22	0.0	0.924	22.4	LOS C	9.5	68.7	1.00	1.29	1.88	42.9
23	R2	All MCs	119	3.5	119	3.5	0.924	27.0	LOS C	9.5	68.7	1.00	1.29	1.88	42.0
23u	U	All MCs	3	0.0	3	0.0	0.924	28.9	LOS C	9.5	68.7	1.00	1.29	1.88	42.4
Approach			859	3.7	859	3.7	0.924	23.0	LOS C	9.5	68.7	1.00	1.29	1.88	36.3
NorthEast: Turnock Street (NE)															
24	L2	All MCs	88	3.6	88	3.6	0.527	8.6	LOS A	1.9	13.4	0.80	0.70	0.87	51.1
25	T1	All MCs	364	3.8	364	3.8	0.527	8.7	LOS A	1.9	13.4	0.80	0.70	0.87	46.6
26	R2	All MCs	9	0.0	9	0.0	0.527	13.4	LOS B	1.9	13.4	0.80	0.70	0.87	50.6
26u	U	All MCs	3	0.0	3	0.0	0.527	15.4	LOS B	1.9	13.4	0.80	0.70	0.87	50.4
Approach			465	3.6	465	3.6	0.527	8.8	LOS A	1.9	13.4	0.80	0.70	0.87	48.1
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	43	0.0	43	0.0	0.142	7.1	LOS A	0.2	1.7	0.60	0.71	0.60	52.2
28	T1	All MCs	53	0.0	53	0.0	0.142	6.9	LOS A	0.2	1.7	0.60	0.71	0.60	52.8
29	R2	All MCs	1	0.0	1	0.0	0.142	11.9	LOS B	0.2	1.7	0.60	0.71	0.60	48.8
29u	U	All MCs	1	0.0	1	0.0	0.142	13.9	LOS B	0.2	1.7	0.60	0.71	0.60	51.9
Approach			98	0.0	98	0.0	0.142	7.1	LOS A	0.2	1.7	0.60	0.71	0.60	52.5
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.304	5.3	LOS A	0.8	5.7	0.40	0.49	0.40	51.6
31	T1	All MCs	364	3.8	364	3.8	0.304	5.1	LOS A	0.8	5.7	0.40	0.49	0.40	52.0
32	R2	All MCs	447	3.8	447	3.8	0.322	9.4	LOS A	0.9	6.4	0.39	0.63	0.39	48.3
32u	U	All MCs	2	0.0	2	0.0	0.322	11.3	LOS B	0.9	6.4	0.39	0.63	0.39	41.8
Approach			815	3.7	815	3.7	0.322	7.5	LOS A	0.9	6.4	0.39	0.57	0.39	49.9
All Vehicles			2237	3.5	2237	3.5	0.924	13.7	LOS B	9.5	68.7	0.72	0.88	1.07	44.4

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 1 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	91	3.5	91	3.5	0.084	2.8	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
2	T1	All MCs	36	2.9	36	2.9	0.084	3.0	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
3	R2	All MCs	931	4.1	931	4.1	0.510	10.1	LOS B	1.8	12.8	0.56	0.59	0.56	50.8
Approach			1057	4.0	1057	4.0	0.510	9.3	LOS A	1.8	12.8	0.54	0.56	0.54	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.064	11.8	LOS B	0.2	1.7	0.98	0.70	0.98	52.5
8	T1	All MCs	89	3.5	89	3.5	0.161	8.6	LOS A	0.7	4.9	1.00	0.71	1.00	45.7
9	R2	All MCs	63	5.0	63	5.0	0.161	15.5	LOS B	0.7	4.9	1.00	0.71	1.00	50.5
Approach			203	4.1	203	4.1	0.161	11.6	LOS B	0.7	4.9	0.99	0.71	0.99	49.4
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.089	5.8	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
11	T1	All MCs	1	0.0	1	0.0	0.089	8.9	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
12	R2	All MCs	165	3.8	165	3.8	0.167	12.1	LOS B	0.4	3.2	0.77	0.72	0.77	45.6
Approach			229	4.1	229	4.1	0.167	10.4	LOS B	0.4	3.2	0.76	0.71	0.76	48.2
All Vehicles			2776	3.9	2776	3.9	0.510	6.6	LOS A	1.8	12.8	0.46	0.46	0.46	51.8

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

\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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	1057	4.1	1057	4.1	0.278	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			1057	4.1	1057	4.1	0.278	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.248	5.7	LOS A	0.0	0.0	0.00	0.31	0.00	53.4
8	T1	All MCs	1095	5.6	1095	5.6	0.248	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	58.9
Approach			1309	4.7	1309	4.7	0.248	1.0	NA	0.0	0.0	0.00	0.09	0.00	57.6
All Vehicles			2366	4.4	2366	4.4	0.278	0.6	NA	0.0	0.0	0.00	0.05	0.00	58.0

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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 (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.

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network Practical 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	0.324	31.1	LOS C	6.7	48.6	0.71	0.61	40.2
2	T1	All MCs	525	2.8	525	2.8	0.324	26.0	LOS C	6.8	48.6	0.71	0.61	32.6
3b	R3	All MCs	221	3.8	221	3.8	* 1.142	217.1	LOS F	16.5	119.5	1.00	1.41	7.6
Approach			755	3.3	755	3.3	1.142	82.0	LOS F	16.5	119.5	0.79	0.84	16.6
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	97	12.0	97	12.0	0.080	19.7	LOS B	0.5	4.2	0.21	0.63	48.0
22	T1	All MCs	102	4.1	102	4.1	* 0.913	81.9	LOS F	13.6	97.7	1.00	1.05	22.3
23a	R1	All MCs	552	2.1	552	2.1	0.913	78.5	LOS E	15.0	107.0	1.00	1.04	9.2
Approach			751	3.6	750	3.6	0.913	71.3	LOS E	15.0	107.0	0.90	0.99	13.8
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	* 0.823	23.3	LOS C	16.6	118.2	0.92	0.88	17.7
8	T1	All MCs	320	13.8	320	13.8	0.306	38.3	LOS D	4.8	37.7	0.82	0.68	30.4
9b	R3	All MCs	9	22.2	9	22.2	0.029	48.1	LOS D	0.3	2.4	0.80	0.68	26.0
Approach			1094	5.6	1094	5.6	0.823	27.9	LOS C	16.6	118.2	0.89	0.82	24.2
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	27	0.0	27	0.0	0.467	12.6	LOS B	2.0	14.1	0.98	0.76	27.9
28	T1	All MCs	145	0.0	145	0.0	* 1.052	107.7	LOS F	6.4	45.5	0.99	1.04	14.0
29a	R1	All MCs	15	14.3	15	14.3	1.052	147.1	LOS F	6.4	45.5	1.00	1.21	17.8
Approach			187	1.1	187	1.1	1.052	96.9	LOS F	6.4	45.5	0.99	1.02	15.5
All Vehicles			2786	4.2	2786	4.2	1.142	58.9	LOS E	16.6	119.5	0.87	0.88	17.3

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	59.1	LOS E	0.0	0.0	0.95	0.95	213.0	0.94

SouthEast: Cudgen Road (SE)											
P5	Full	1	59.1	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
North: Tweed Coast Road (N)											
P3	Full	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
NorthWest: Cudgen Road (NW)											
P7	Full	1	59.1	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
All Pedestrians		8	59.1	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	631	4.3	630	4.3	0.407	2.7	LOS A	5.8	41.8	0.27	0.24	54.6
6	R2	All MCs	1	0.0	1	0.0	*0.407	34.4	LOS C	5.8	41.8	0.27	0.24	52.5
Approach			632	4.3	632	4.3	0.407	2.7	LOS A	5.8	41.8	0.27	0.24	54.6
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.950	92.0	LOS F	5.8	40.3	1.00	1.01	7.2
9	R2	All MCs	121	0.0	121	0.0	*0.950	91.9	LOS F	5.8	40.3	1.00	1.01	7.2
Approach			122	0.0	122	0.0	0.950	91.9	LOS F	5.8	40.3	1.00	1.01	7.2
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	88	0.0	0.851	8.0	LOS A	26.8	193.9	0.64	0.62	41.7
11	T1	All MCs	1145	4.1	1116	4.2	*0.851	8.1	LOS A	26.8	193.9	0.64	0.62	36.5
Approach			1236	3.8	1204	3.8	0.851	8.1	LOS A	26.8	193.9	0.64	0.62	37.1
All Vehicles			1989	3.8	1957	3.8	0.950	11.6	LOS B	26.8	193.9	0.54	0.52	36.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
North: Site Access (N)											
P3	Full	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
All Pedestrians		11	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	590	4.6	0.386	3.7	LOS A	6.2	45.5	0.30	0.28	51.3
6	R2	All MCs	1	0.0	1	0.0	*0.003	13.0	LOS B	0.0	0.1	0.38	0.60	39.1
Approach			592	4.6	592	4.6	0.386	3.7	LOS A	6.2	45.5	0.30	0.28	51.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.085	9.5	LOS A	0.5	3.2	0.93	0.70	9.4
9	R2	All MCs	40	0.0	40	0.0	0.134	58.0	LOS E	0.9	6.3	0.94	0.71	7.7
Approach			41	0.0	41	0.0	0.134	56.8	LOS E	0.9	6.3	0.94	0.71	7.7
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	85	0.0	*0.064	7.6	LOS A	0.4	2.6	0.15	0.59	47.8
11	T1	All MCs	1045	4.5	1018	4.5	*0.442	9.3	LOS A	9.2	67.2	0.43	0.39	46.9
Approach			1133	4.2	1103	4.2	0.442	9.2	LOS A	9.2	67.2	0.41	0.40	46.4
All Vehicles			1765	4.2	1736	4.3	0.442	8.4	LOS A	9.2	67.2	0.39	0.37	45.9

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
North: Tweed Valley Hospital (N)											
P3	Full	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94
All Pedestrians		16	59.2	LOS E	0.0	0.0	0.95	0.95	213.0	200.0	0.94

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036
OPTION 1 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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/h	%	veh/h	%	v/c	sec		veh	Dist]			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	449	4.7	449	4.7	0.619	5.6	LOS A	2.5	17.8	0.68	0.57	0.68	48.4
22	T1	All MCs	143	0.0	143	0.0	0.619	5.8	LOS A	2.5	17.8	0.68	0.57	0.68	52.4
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.8	0.68	0.57	0.68	51.2
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.8	0.68	0.57	0.68	51.6
Approach			708	3.7	708	3.7	0.619	6.5	LOS A	2.5	17.8	0.68	0.57	0.68	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.449	10.5	LOS B	1.5	10.5	0.89	0.78	0.96	49.4
25	T1	All MCs	141	4.5	141	4.5	0.449	10.5	LOS B	1.5	10.5	0.89	0.78	0.96	43.8
26	R2	All MCs	45	0.0	45	0.0	0.449	15.2	LOS B	1.5	10.5	0.89	0.78	0.96	48.9
26u	U	All MCs	1	0.0	1	0.0	0.449	17.2	LOS B	1.5	10.5	0.89	0.78	0.96	48.8
Approach			300	3.9	300	3.9	0.449	11.2	LOS B	1.5	10.5	0.89	0.78	0.96	47.4
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	34	0.0	34	0.0	0.174	8.0	LOS A	0.3	2.2	0.70	0.78	0.70	51.6
28	T1	All MCs	62	0.0	62	0.0	0.174	7.9	LOS A	0.3	2.2	0.70	0.78	0.70	52.2
29	R2	All MCs	1	0.0	1	0.0	0.174	12.8	LOS B	0.3	2.2	0.70	0.78	0.70	47.8
29u	U	All MCs	1	0.0	1	0.0	0.174	14.8	LOS B	0.3	2.2	0.70	0.78	0.70	51.2
Approach			98	0.0	98	0.0	0.174	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.9
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.366	6.5	LOS A	0.9	6.8	0.56	0.58	0.56	50.9
31	T1	All MCs	364	4.6	355	4.6	0.366	6.4	LOS A	0.9	6.8	0.56	0.58	0.56	51.2
32	R2	All MCs	677	4.7	659	4.7	0.532	10.6	LOS B	1.7	12.3	0.62	0.68	0.62	47.6
32u	U	All MCs	1	0.0	1	0.0	0.532	12.4	LOS B	1.7	12.3	0.62	0.68	0.62	40.6
Approach			1043	4.6	1016	4.7	0.532	9.1	LOS A	1.7	12.3	0.60	0.65	0.60	48.8
All Vehicles			2149	4.0	2123	4.1	0.619	8.5	LOS A	2.5	17.8	0.67	0.65	0.68	49.2

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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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	175	3.0	140	3.5	0.117	3.0	LOS A	0.3	2.0	0.46	0.34	0.46	55.3
2	T1	All MCs	43	2.4	35	2.9	0.117	3.2	LOS A	0.3	2.0	0.46	0.34	0.46	55.3
3	R2	All MCs	1294	2.9	1035	3.4	0.576	10.4	LOS B	2.1	15.1	0.62	0.62	0.62	50.6
Approach			1512	2.9	1210	3.4	0.576	9.3	LOS A	2.1	15.1	0.60	0.58	0.60	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.087	13.9	LOS B	0.3	2.2	1.00	0.74	1.00	51.5
8	T1	All MCs	73	2.9	73	2.9	0.149	9.2	LOS A	0.6	4.7	1.00	0.74	1.00	45.5
9	R2	All MCs	56	3.8	56	3.8	0.149	16.1	LOS B	0.6	4.7	1.00	0.74	1.00	50.4
Approach			182	3.5	182	3.5	0.149	12.7	LOS B	0.6	4.7	1.00	0.74	1.00	49.2
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.113	6.8	LOS A	0.3	1.9	0.79	0.72	0.79	53.6
11	T1	All MCs	1	0.0	1	0.0	0.113	10.7	LOS B	0.3	1.9	0.79	0.72	0.79	53.6
12	R2	All MCs	101	3.1	101	3.1	0.114	12.6	LOS B	0.3	2.2	0.82	0.74	0.82	45.4
Approach			171	3.1	171	3.1	0.114	10.3	LOS B	0.3	2.2	0.81	0.73	0.81	49.1
All Vehicles			3129	3.2	2828	3.5	0.576	6.8	LOS A	2.1	15.1	0.47	0.47	0.47	51.9

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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				
South: Tweed Coast Road (S)															
2	T1	All MCs	1512	2.9	1212	3.4	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach			1512	2.9	1212	3.4	0.318	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.219	5.7	LOS A	0.0	0.0	0.00	0.20	0.00	54.7
8	T1	All MCs	1041	3.9	1041	3.9	0.219	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.1
Approach			1160	3.5	1160	3.5	0.219	0.6	NA	0.0	0.0	0.00	0.06	0.00	58.4
All Vehicles			2672	3.2	2372	3.6	0.318	0.3	NA	0.0	0.0	0.00	0.03	0.00	58.7

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network Practical 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	0.358	42.3	LOS D	7.9	57.7	0.78	0.68	0.78	36.0
2	T1	All MCs	462	5.5	462	5.5	0.358	37.4	LOS D	7.9	57.9	0.78	0.67	0.78	27.0
3b	R3	All MCs	140	7.5	140	7.5	*0.904	95.8	LOS F	7.7	57.1	1.00	1.03	1.38	14.8
Approach			626	5.7	626	5.7	0.904	50.7	LOS D	7.9	57.9	0.83	0.75	0.92	23.3
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	289	5.1	210	5.8	0.177	31.4	LOS C	1.6	11.4	0.21	0.64	0.21	47.3
22	T1	All MCs	164	4.5	119	5.2	*0.909	89.4	LOS F	20.8	148.9	1.00	1.02	1.20	22.9
23a	R1	All MCs	1114	1.4	803	1.6	0.909	80.4	LOS F	24.4	172.9	1.00	1.01	1.18	9.7
Approach			1567	2.4	1132	2.8	0.909	72.3	LOS E	24.4	172.9	0.85	0.94	1.00	14.0
North: Tweed Coast Road (N)															
7a	L1	All MCs	533	4.7	533	4.7	*0.561	19.0	LOS B	13.8	100.6	0.73	0.79	0.73	19.9
8	T1	All MCs	492	3.0	492	3.0	0.669	65.9	LOS E	10.4	74.3	0.98	0.83	0.98	23.6
9b	R3	All MCs	16	0.0	16	0.0	0.049	68.6	LOS E	0.6	4.0	0.84	0.70	0.84	23.7
Approach			1040	3.8	1040	3.8	0.669	41.9	LOS D	13.8	100.6	0.85	0.81	0.85	21.9
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	31	0.0	31	0.0	0.402	20.2	LOS C	2.5	17.8	0.95	0.79	0.95	23.9
28	T1	All MCs	148	0.0	148	0.0	*0.907	78.9	LOS E	6.9	49.3	0.98	0.94	1.21	17.9
29a	R1	All MCs	42	5.0	42	5.0	0.907	94.3	LOS F	6.9	49.3	1.00	1.04	1.38	23.8
Approach			221	1.0	221	1.0	0.907	73.7	LOS E	6.9	49.3	0.98	0.94	1.21	20.0
All Vehicles			3455	3.4	3019	3.8	0.909	57.4	LOS E	24.4	172.9	0.86	0.85	0.95	18.6

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	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0

SouthEast: Cudgen Road (SE)											
P5	Full	1	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
North: Tweed Coast Road (N)											
P3	Full	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
NorthWest: Cudgen Road (NW)											
P7	Full	1	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		8	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1271	3.2	1271	3.2	1.164	174.3	LOS F	63.7	458.0	1.00	1.73	8.1
6	R2	All MCs	1	0.0	1	0.0	* 1.164	293.0	LOS F	63.7	458.0	1.00	1.73	10.8
Approach			1272	3.2	1272	3.2	1.164	174.4	LOS F	63.7	458.0	1.00	1.73	8.1
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	3.938	2735.0	LOS F	59.1	413.7	1.00	2.41	0.3
9	R2	All MCs	296	0.0	296	0.0	* 3.938	2734.9	LOS F	59.1	413.7	1.00	2.41	0.3
Approach			297	0.0	297	0.0	3.938	2734.9	LOS F	59.1	413.7	1.00	2.41	0.3
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.965	56.1	LOS E	27.8	200.0	1.00	1.12	16.2
11	T1	All MCs	873	3.5	873	3.5	* 0.965	63.9	LOS E	27.8	200.0	1.00	1.12	9.9
Approach			895	3.4	895	3.4	0.965	63.8	LOS E	27.8	200.0	1.00	1.12	10.1
All Vehicles			2463	2.9	2463	2.9	3.938	442.8	LOS F	63.7	458.0	1.00	1.59	2.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
North: Site Access (N)											
P3	Full	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		11	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.754	18.0	LOS B	26.9	194.6	0.62	0.57	39.7
6	R2	All MCs	1	0.0	1	0.0	0.002	17.2	LOS B	0.0	0.1	0.30	0.59	41.1
Approach			1080	3.8	1080	3.8	0.754	18.0	LOS B	26.9	194.6	0.62	0.57	33.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.467	25.9	LOS C	4.0	28.2	0.95	0.79	6.7
9	R2	All MCs	192	0.0	192	0.0	* 0.734	89.3	LOS F	4.2	29.4	0.96	0.83	6.4
Approach			193	0.0	193	0.0	0.734	89.0	LOS F	4.2	29.4	0.96	0.83	5.2
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.037	5.8	LOS A	0.0	0.2	0.02	0.55	49.1
11	T1	All MCs	817	3.7	816	3.7	0.370	1.1	LOS A	0.6	4.6	0.03	0.03	58.9
Approach			866	3.5	866	3.5	0.370	1.3	LOS A	0.6	4.6	0.03	0.06	58.1
All Vehicles			2139	3.3	2138	3.3	0.754	17.6	LOS B	26.9	194.6	0.41	0.39	34.6

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
North: Tweed Valley Hospital (N)											
P3	Full	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90
All Pedestrians		16	69.1	LOS F	0.0	0.0	0.96	0.96	223.0	200.0	0.90

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.

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MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036
OPTION 1 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	715	3.8	715	3.8	0.992	41.2	LOS D	15.4	111.1	1.00	1.83	25.6
22	T1	All MCs	60	0.0	60	0.0	0.992	41.3	LOS D	15.4	111.1	1.00	1.83	35.1
23	R2	All MCs	119	3.5	119	3.5	0.992	45.9	LOS D	15.4	111.1	1.00	1.83	34.4
23u	U	All MCs	3	0.0	3	0.0	0.992	47.7	LOS D	15.4	111.1	1.00	1.83	34.8
Approach			897	3.5	897	3.5	0.992	41.9	LOS D	15.4	111.1	1.00	1.83	28.0
NorthEast: Turnock Street (NE)														
24	L2	All MCs	88	3.6	88	3.6	0.610	11.3	LOS B	2.4	17.3	0.87	0.84	49.1
25	T1	All MCs	364	3.8	364	3.8	0.610	11.3	LOS B	2.4	17.3	0.87	0.84	43.4
26	R2	All MCs	31	0.0	31	0.0	0.610	16.1	LOS B	2.4	17.3	0.87	0.84	48.7
26u	U	All MCs	3	0.0	3	0.0	0.610	18.1	LOS B	2.4	17.3	0.87	0.84	48.5
Approach			486	3.5	486	3.5	0.610	11.7	LOS B	2.4	17.3	0.87	0.84	45.5
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	119	0.0	119	0.0	0.413	8.4	LOS A	0.8	5.8	0.70	0.82	51.3
28	T1	All MCs	145	0.0	145	0.0	0.413	8.2	LOS A	0.8	5.8	0.70	0.82	52.0
29	R2	All MCs	1	0.0	1	0.0	0.413	13.2	LOS B	0.8	5.8	0.70	0.82	47.4
29u	U	All MCs	1	0.0	1	0.0	0.413	15.2	LOS B	0.8	5.8	0.70	0.82	51.0
Approach			266	0.0	266	0.0	0.413	8.3	LOS A	0.8	5.8	0.70	0.82	51.7
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.323	5.7	LOS A	0.9	6.6	0.52	0.50	51.1
31	T1	All MCs	364	3.8	364	3.8	0.323	5.5	LOS A	0.9	6.6	0.52	0.50	51.4
32	R2	All MCs	447	3.8	447	3.8	0.341	9.7	LOS A	1.0	7.4	0.51	0.61	48.0
32u	U	All MCs	2	0.0	2	0.0	0.341	11.6	LOS B	1.0	7.4	0.51	0.61	41.2
Approach			815	3.7	814	3.8	0.341	7.8	LOS A	1.0	7.4	0.51	0.56	49.4
All Vehicles			2464	3.2	2463	3.2	0.992	21.0	LOS C	15.4	111.1	0.78	1.11	39.9

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	91	3.5	84	3.8	0.078	2.8	LOS A	0.2	1.3	0.42	0.32	0.42	55.4
2	T1	All MCs	36	2.9	33	3.2	0.078	3.0	LOS A	0.2	1.3	0.42	0.32	0.42	55.4
3	R2	All MCs	931	4.1	864	4.4	0.475	10.1	LOS B	1.6	11.5	0.54	0.58	0.54	50.9
Approach			1057	4.0	981	4.3	0.475	9.2	LOS A	1.6	11.5	0.53	0.55	0.53	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.060	10.3	LOS B	0.2	1.5	0.93	0.68	0.93	52.9
8	T1	All MCs	89	3.5	89	3.5	0.148	7.6	LOS A	0.6	4.3	0.98	0.68	0.98	46.2
9	R2	All MCs	63	5.0	63	5.0	0.148	14.5	LOS B	0.6	4.3	0.98	0.68	0.98	50.9
Approach			203	4.1	203	4.1	0.148	10.4	LOS B	0.6	4.3	0.97	0.68	0.97	49.8
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.084	5.4	LOS A	0.2	1.3	0.70	0.62	0.70	54.0
11	T1	All MCs	1	0.0	1	0.0	0.084	8.0	LOS A	0.2	1.3	0.70	0.62	0.70	54.1
12	R2	All MCs	165	3.8	165	3.8	0.158	11.7	LOS B	0.4	2.9	0.73	0.71	0.73	45.8
Approach			229	4.1	229	4.1	0.158	10.0	LOS A	0.4	2.9	0.72	0.69	0.72	48.4
All Vehicles			2776	3.9	2700	4.0	0.475	6.4	LOS A	1.6	11.5	0.45	0.45	0.45	51.9

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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				
South: Tweed Coast Road (S)															
2	T1	All MCs	958	4.5	958	4.5	0.256	0.1	LOS A	0.0	0.4	0.01	0.01	0.01	59.1
3	R2	All MCs	1	0.0	1	0.0	0.256	21.6	LOS C	0.0	0.4	0.01	0.02	0.01	53.4
Approach			959	4.5	959	4.5	0.256	0.1	NA	0.0	0.4	0.01	0.01	0.01	59.0
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	4.195	2892.0	LOS F	20.1	140.7	1.00	2.14	6.29	0.3
6	R2	All MCs	99	0.0	99	0.0	4.195	3036.5	LOS F	20.1	140.7	1.00	2.14	6.29	0.3
Approach			100	0.0	100	0.0	4.195	3035.0	LOS F	20.1	140.7	1.00	2.14	6.29	0.3
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.256	5.6	LOS A	0.0	0.0	0.00	0.37	0.00	52.3
8	T1	All MCs	1095	5.6	1095	5.6	0.256	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.0
Approach			1309	4.7	1309	4.7	0.256	1.0	NA	0.0	0.0	0.00	0.10	0.00	57.5
All Vehicles			2368	4.4	2368	4.4	4.195	128.7	NA	20.1	140.7	0.05	0.15	0.27	8.8

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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	0.322	28.9	LOS C	6.2	44.8	0.70	0.61	41.2
2	T1	All MCs	525	2.8	525	2.8	0.322	23.8	LOS C	6.2	44.8	0.70	0.60	33.9
3b	R3	All MCs	221	3.8	221	3.8	* 1.115	191.0	LOS F	15.2	110.1	1.00	1.40	8.5
Approach			755	3.3	755	3.3	1.115	72.8	LOS E	15.2	110.1	0.79	0.84	18.1
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	97	12.0	97	12.0	0.081	10.5	LOS B	0.3	2.6	0.14	0.62	48.4
22	T1	All MCs	102	4.1	102	4.1	* 0.902	69.8	LOS E	11.2	80.7	1.00	1.06	23.0
23a	R1	All MCs	453	2.6	453	2.6	0.902	72.1	LOS E	11.6	83.2	1.00	1.06	9.6
Approach			652	4.2	652	4.2	0.902	62.6	LOS E	11.6	83.2	0.87	0.99	15.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	* 0.900	34.8	LOS C	19.7	140.0	0.99	0.96	12.9
8	T1	All MCs	320	13.8	320	13.8	0.315	36.4	LOS D	4.5	35.4	0.83	0.69	31.1
9b	R3	All MCs	9	22.2	9	22.2	0.027	43.0	LOS D	0.3	2.1	0.78	0.68	27.5
Approach			1094	5.6	1093	5.6	0.900	35.4	LOS D	19.7	140.0	0.95	0.88	20.8
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	27	0.0	27	0.0	0.444	11.3	LOS B	2.0	13.9	0.97	0.76	28.8
28	T1	All MCs	145	0.0	145	0.0	* 1.000	83.2	LOS F	5.4	38.4	0.99	1.00	17.0
29a	R1	All MCs	15	14.3	15	14.3	1.000	111.2	LOS F	5.4	38.4	1.00	1.16	21.5
Approach			187	1.1	187	1.1	1.000	74.9	LOS E	5.4	38.4	0.99	0.98	18.6
All Vehicles			2687	4.3	2687	4.3	1.115	55.3	LOS E	19.7	140.0	0.89	0.90	18.3

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	631	4.3	631	4.3	0.410	2.6	LOS A	5.5	40.0	0.28	0.25	54.7
6	R2	All MCs	1	0.0	1	0.0	*0.410	37.0	LOS D	5.5	40.0	0.28	0.25	52.5
Approach			632	4.3	632	4.3	0.410	2.7	LOS A	5.5	40.0	0.28	0.25	54.7
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.179	65.1	LOS E	0.8	5.5	0.98	0.71	9.8
9	R2	All MCs	21	0.0	21	0.0	*0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
Approach			22	0.0	22	0.0	0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	89	0.0	0.872	9.5	LOS A	27.7	200.0	0.71	0.69	39.6
11	T1	All MCs	1145	4.1	1124	4.1	*0.872	10.0	LOS B	27.7	200.0	0.71	0.69	33.5
Approach			1236	3.8	1212	3.8	0.872	10.0	LOS A	27.7	200.0	0.71	0.69	34.2
All Vehicles			1889	4.0	1866	4.0	0.872	8.2	LOS A	27.7	200.0	0.57	0.54	41.3

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]			sec	m	m/sec
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Site Access (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		11	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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	591	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
6	R2	All MCs	1	0.0	1	0.0	*0.003	13.3	LOS B	0.0	0.1	0.40	0.60	38.9
Approach			592	4.6	592	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.085	9.6	LOS A	0.4	2.9	0.93	0.70	10.1
9	R2	All MCs	40	0.0	40	0.0	0.133	53.8	LOS D	0.8	5.8	0.94	0.71	8.2
Approach			41	0.0	41	0.0	0.133	52.6	LOS D	0.8	5.8	0.94	0.71	8.2
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	86	0.0	*0.066	7.9	LOS A	0.4	2.8	0.17	0.59	47.7
11	T1	All MCs	1045	4.5	1025	4.5	*0.455	9.9	LOS A	9.3	67.6	0.47	0.42	46.3
Approach			1133	4.2	1111	4.2	0.455	9.7	LOS A	9.3	67.6	0.44	0.43	45.8
All Vehicles			1765	4.2	1744	4.3	0.455	8.7	LOS A	9.3	67.6	0.41	0.39	45.6

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Valley Hospital (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		16	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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036
OPTION 2 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	449	4.7	449	4.7	0.619	5.6	LOS A	2.5	17.8	0.68	0.57	0.68	48.4
22	T1	All MCs	143	0.0	143	0.0	0.619	5.8	LOS A	2.5	17.8	0.68	0.57	0.68	52.4
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.8	0.68	0.57	0.68	51.2
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.8	0.68	0.57	0.68	51.6
Approach			708	3.7	708	3.7	0.619	6.5	LOS A	2.5	17.8	0.68	0.57	0.68	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.449	10.6	LOS B	1.5	10.6	0.89	0.78	0.96	49.3
25	T1	All MCs	141	4.5	141	4.5	0.449	10.6	LOS B	1.5	10.6	0.89	0.78	0.96	43.7
26	R2	All MCs	45	0.0	45	0.0	0.449	15.3	LOS B	1.5	10.6	0.89	0.78	0.96	48.9
26u	U	All MCs	1	0.0	1	0.0	0.449	17.3	LOS B	1.5	10.6	0.89	0.78	0.96	48.7
Approach			300	3.9	300	3.9	0.449	11.3	LOS B	1.5	10.6	0.89	0.78	0.96	47.4
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	34	0.0	34	0.0	0.174	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.5
28	T1	All MCs	62	0.0	62	0.0	0.174	7.9	LOS A	0.3	2.2	0.70	0.78	0.70	52.2
29	R2	All MCs	1	0.0	1	0.0	0.174	12.9	LOS B	0.3	2.2	0.70	0.78	0.70	47.7
29u	U	All MCs	1	0.0	1	0.0	0.174	14.9	LOS B	0.3	2.2	0.70	0.78	0.70	51.2
Approach			98	0.0	98	0.0	0.174	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.9
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.369	6.5	LOS A	0.9	6.8	0.55	0.59	0.55	50.9
31	T1	All MCs	364	4.6	357	4.6	0.369	6.4	LOS A	0.9	6.8	0.55	0.59	0.55	51.2
32	R2	All MCs	677	4.7	664	4.7	0.536	10.6	LOS B	1.7	12.2	0.61	0.69	0.61	47.6
32u	U	All MCs	1	0.0	1	0.0	0.536	12.5	LOS B	1.7	12.2	0.61	0.69	0.61	40.7
Approach			1043	4.6	1023	4.6	0.536	9.1	LOS A	1.7	12.2	0.59	0.65	0.59	48.8
All Vehicles			2149	4.0	2130	4.1	0.619	8.5	LOS A	2.5	17.8	0.67	0.65	0.68	49.2

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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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	175	3.0	150	3.5	0.126	3.0	LOS A	0.3	2.2	0.46	0.34	0.46	55.2
2	T1	All MCs	43	2.4	37	2.8	0.126	3.2	LOS A	0.3	2.2	0.46	0.34	0.46	55.2
3	R2	All MCs	1294	2.9	1114	3.4	0.619	10.5	LOS B	2.3	16.9	0.64	0.63	0.64	50.5
Approach			1512	2.9	1301	3.4	0.619	9.4	LOS A	2.3	16.9	0.61	0.59	0.61	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.098	16.6	LOS B	0.4	2.6	1.00	0.78	1.00	50.2
8	T1	All MCs	73	2.9	73	2.9	0.171	11.1	LOS B	0.8	5.5	1.00	0.78	1.00	44.1
9	R2	All MCs	56	3.8	56	3.8	0.171	18.0	LOS B	0.8	5.5	1.00	0.78	1.00	49.4
Approach			182	3.5	182	3.5	0.171	14.8	LOS B	0.8	5.5	1.00	0.78	1.00	48.0
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.124	7.6	LOS A	0.3	2.1	0.83	0.75	0.83	53.3
11	T1	All MCs	1	0.0	1	0.0	0.124	10.7	LOS B	0.4	2.5	0.84	0.75	0.84	52.3
12	R2	All MCs	101	3.1	101	3.1	0.124	13.3	LOS B	0.4	2.5	0.86	0.75	0.86	45.2
Approach			171	3.1	171	3.1	0.124	11.0	LOS B	0.4	2.5	0.85	0.75	0.85	48.8
All Vehicles			3129	3.2	2919	3.4	0.619	7.1	LOS A	2.3	16.9	0.48	0.48	0.48	51.7

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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\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101 [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Give-Way (Two-Way)

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	0.340	0.0	LOS A	0.0	0.2	0.00	0.00	59.6
3	R2	All MCs	1	0.0	1	0.0	0.340	12.3	LOS B	0.0	0.2	0.01	0.01	53.8
Approach			1288	3.4	1288	3.4	0.340	0.1	NA	0.0	0.2	0.00	0.00	59.6
East: Site Access (E)														
4	L2	All MCs	1	0.0	1	0.0	15.876	13398.1	LOS F	53.8	376.4	1.00	1.84	0.1
6	R2	All MCs	224	0.0	224	0.0	15.876	13631.1	LOS F	53.8	376.4	1.00	1.84	0.1
Approach			225	0.0	225	0.0	15.876	13630.0	LOS F	53.8	376.4	1.00	1.84	0.1
North: Tweed Coast Road (N)														
7	L2	All MCs	119	0.0	119	0.0	0.204	5.6	LOS A	0.0	0.0	0.00	0.18	54.3
8	T1	All MCs	1041	3.9	1041	3.9	0.204	0.1	LOS A	0.0	0.0	0.00	0.05	59.0
Approach			1160	3.5	1160	3.5	0.204	0.6	NA	0.0	0.0	0.00	0.06	58.3
All Vehicles			2674	3.2	2674	3.2	15.876	1148.6	NA	53.8	376.4	0.09	0.18	1.0

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.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control 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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.387	29.7	LOS C	5.0	36.8	0.81	0.69	41.1
2	T1	All MCs	462	5.5	462	5.5	0.387	24.9	LOS C	5.0	36.9	0.81	0.69	33.1
3b	R3	All MCs	140	7.5	140	7.5	*0.904	63.9	LOS E	4.6	34.1	1.00	1.06	19.8
Approach			626	5.7	626	5.7	0.904	33.8	LOS C	5.0	36.9	0.85	0.77	29.2
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	289	5.1	289	5.1	0.250	12.3	LOS B	1.1	8.1	0.19	0.64	48.3
22	T1	All MCs	164	4.5	164	4.5	*0.804	31.2	LOS C	12.3	87.7	0.91	0.88	35.5
23a	R1	All MCs	889	1.8	889	1.8	0.804	32.6	LOS C	13.8	98.0	0.92	0.89	18.3
Approach			1343	2.8	1343	2.8	0.804	28.0	LOS C	13.8	98.0	0.76	0.83	27.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	533	4.7	532	4.7	*0.528	12.5	LOS B	4.9	35.6	0.68	0.77	26.2
8	T1	All MCs	492	3.0	491	3.0	0.722	40.2	LOS D	6.6	47.5	1.00	0.88	29.7
9b	R3	All MCs	16	0.0	16	0.0	0.097	47.8	LOS D	0.4	2.8	0.94	0.70	26.4
Approach			1040	3.8	1039	3.8	0.722	26.1	LOS C	6.6	47.5	0.84	0.82	28.8
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	31	0.0	31	0.0	0.376	12.8	LOS B	1.1	7.4	0.95	0.75	34.2
28	T1	All MCs	148	0.0	148	0.0	*0.847	45.4	LOS D	4.4	31.1	0.98	0.90	25.0
29a	R1	All MCs	42	5.0	42	5.0	0.847	55.7	LOS E	4.4	31.1	1.00	0.97	31.8
Approach			221	1.0	221	1.0	0.847	42.8	LOS D	4.4	31.1	0.98	0.90	27.8
All Vehicles			3231	3.6	3230	3.6	0.904	29.5	LOS C	13.8	98.0	0.82	0.82	28.2

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1271	3.2	1271	3.2	0.972	40.6	LOS D	41.7	299.9	0.98	1.19	24.5
6	R2	All MCs	1	0.0	1	0.0	*0.972	101.5	LOS F	41.7	299.9	0.98	1.19	28.7
Approach			1272	3.2	1272	3.2	0.972	40.6	LOS D	41.7	299.9	0.98	1.19	24.5
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.490	50.5	LOS D	2.0	13.9	0.99	0.76	12.0
9	R2	All MCs	72	0.0	72	0.0	*0.490	50.4	LOS D	2.0	13.9	0.99	0.76	12.0
Approach			73	0.0	73	0.0	0.490	50.4	LOS D	2.0	13.9	0.99	0.76	12.0
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.845	17.6	LOS B	22.0	158.4	0.90	0.89	29.8
11	T1	All MCs	873	3.5	872	3.5	*0.845	22.3	LOS C	22.0	158.4	0.90	0.89	21.7
Approach			895	3.4	894	3.4	0.845	22.2	LOS C	22.0	158.4	0.90	0.89	22.0
All Vehicles			2239	3.2	2238	3.2	0.972	33.6	LOS C	41.7	299.9	0.95	1.06	23.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.730	7.7	LOS A	14.7	106.4	0.56	0.51	48.0
6	R2	All MCs	1	0.0	1	0.0	0.002	12.5	LOS B	0.0	0.1	0.41	0.59	40.8
Approach			1080	3.8	1080	3.8	0.730	7.7	LOS A	14.7	106.4	0.56	0.51	45.6
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.452	8.8	LOS A	2.0	13.9	0.99	0.77	8.7
9	R2	All MCs	192	0.0	192	0.0	* 0.711	52.0	LOS D	3.4	23.5	1.00	0.83	8.4
Approach			193	0.0	193	0.0	0.711	51.8	LOS D	3.4	23.5	1.00	0.83	8.4
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.041	8.8	LOS A	0.4	2.7	0.38	0.62	45.7
11	T1	All MCs	817	3.7	816	3.7	0.390	8.4	LOS A	5.9	42.4	0.49	0.43	47.0
Approach			866	3.5	866	3.5	0.390	8.4	LOS A	5.9	42.4	0.48	0.44	46.9
All Vehicles			2139	3.3	2138	3.3	0.730	12.0	LOS B	14.7	106.4	0.57	0.51	40.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036
OPTION 2 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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/h	%	veh/h	%	v/c	sec		veh	Dist]			km/h
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	715	3.8	715	3.8	0.996	43.0	LOS D	15.9	114.5	1.00	1.88	24.9
22	T1	All MCs	60	0.0	60	0.0	0.996	43.1	LOS D	15.9	114.5	1.00	1.88	34.5
23	R2	All MCs	119	3.5	119	3.5	0.996	47.7	LOS D	15.9	114.5	1.00	1.88	33.8
23u	U	All MCs	3	0.0	3	0.0	0.996	49.6	LOS D	15.9	114.5	1.00	1.88	34.2
Approach			897	3.5	897	3.5	0.996	43.7	LOS D	15.9	114.5	1.00	1.88	27.4
NorthEast: Turnock Street (NE)														
24	L2	All MCs	88	3.6	88	3.6	0.600	11.3	LOS B	2.4	17.6	0.88	0.82	49.1
25	T1	All MCs	364	3.8	364	3.8	0.600	11.3	LOS B	2.4	17.6	0.88	0.82	43.4
26	R2	All MCs	31	0.0	31	0.0	0.600	16.1	LOS B	2.4	17.6	0.88	0.82	48.6
26u	U	All MCs	3	0.0	3	0.0	0.600	18.1	LOS B	2.4	17.6	0.88	0.82	48.5
Approach			486	3.5	486	3.5	0.600	11.7	LOS B	2.4	17.6	0.88	0.82	45.5
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	119	0.0	119	0.0	0.400	8.2	LOS A	0.8	5.6	0.70	0.80	51.5
28	T1	All MCs	145	0.0	145	0.0	0.400	8.0	LOS A	0.8	5.6	0.70	0.80	52.1
29	R2	All MCs	1	0.0	1	0.0	0.400	13.0	LOS B	0.8	5.6	0.70	0.80	47.6
29u	U	All MCs	1	0.0	1	0.0	0.400	15.0	LOS B	0.8	5.6	0.70	0.80	51.2
Approach			266	0.0	266	0.0	0.400	8.1	LOS A	0.8	5.6	0.70	0.80	51.8
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.324	5.7	LOS A	0.8	6.1	0.47	0.52	51.3
31	T1	All MCs	364	3.8	364	3.8	0.324	5.5	LOS A	0.8	6.1	0.47	0.52	51.6
32	R2	All MCs	447	3.8	447	3.8	0.341	9.7	LOS A	0.9	6.9	0.46	0.64	48.1
32u	U	All MCs	2	0.0	2	0.0	0.341	11.6	LOS B	0.9	6.9	0.46	0.64	41.4
Approach			815	3.7	814	3.7	0.341	7.8	LOS A	0.9	6.9	0.47	0.59	49.6
All Vehicles			2464	3.2	2464	3.2	0.996	21.7	LOS C	15.9	114.5	0.77	1.13	39.6

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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MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 3 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	91	3.5	91	3.5	0.084	2.8	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
2	T1	All MCs	36	2.9	36	2.9	0.084	3.0	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
3	R2	All MCs	931	4.1	931	4.1	0.510	10.1	LOS B	1.8	12.8	0.56	0.59	0.56	50.8
Approach			1057	4.0	1057	4.0	0.510	9.3	LOS A	1.8	12.8	0.54	0.56	0.54	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.064	11.8	LOS B	0.2	1.7	0.98	0.70	0.98	52.5
8	T1	All MCs	89	3.5	89	3.5	0.161	8.6	LOS A	0.7	4.9	1.00	0.71	1.00	45.7
9	R2	All MCs	63	5.0	63	5.0	0.161	15.5	LOS B	0.7	4.9	1.00	0.71	1.00	50.5
Approach			203	4.1	203	4.1	0.161	11.6	LOS B	0.7	4.9	0.99	0.71	0.99	49.4
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.089	5.8	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
11	T1	All MCs	1	0.0	1	0.0	0.089	8.9	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
12	R2	All MCs	165	3.8	165	3.8	0.167	12.1	LOS B	0.4	3.2	0.77	0.72	0.77	45.6
Approach			229	4.1	229	4.1	0.167	10.4	LOS B	0.4	3.2	0.76	0.71	0.76	48.2
All Vehicles			2776	3.9	2776	3.9	0.510	6.6	LOS A	1.8	12.8	0.46	0.46	0.46	51.8

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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MOVEMENT SUMMARY

Site: 101v [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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] veh/h	%	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Tweed Coast Road (S)															
2	T1	All MCs	958	4.5	958	4.5	0.304	1.0	LOS A	2.5	18.2	0.13	0.11	0.13	53.8
3	R2	All MCs	1	0.0	1	0.0	* 0.304	12.0	LOS B	1.4	10.3	0.09	0.08	0.09	52.4
Approach			959	4.5	959	4.5	0.304	1.0	LOS A	2.5	18.2	0.13	0.11	0.13	53.8
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.933	83.6	LOS F	4.3	30.1	1.00	1.02	1.55	8.2
6	R2	All MCs	99	0.0	99	0.0	* 0.933	83.7	LOS F	4.3	30.1	1.00	1.02	1.55	8.2
Approach			100	0.0	100	0.0	0.933	83.7	LOS F	4.3	30.1	1.00	1.02	1.55	8.2
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.898	89.6	LOS F	12.9	91.7	1.00	1.04	1.31	23.6
8	T1	All MCs	1095	5.6	1095	5.6	* 0.898	61.7	LOS E	25.7	188.2	1.00	1.04	1.21	22.2
Approach			1309	4.7	1309	4.7	0.898	66.3	LOS E	25.7	188.2	1.00	1.04	1.22	19.7
All Vehicles			2368	4.4	2368	4.4	0.933	40.6	LOS D	25.7	188.2	0.65	0.66	0.79	21.2

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)

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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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	0.322	28.9	LOS C	6.2	44.8	0.70	0.61	41.2
2	T1	All MCs	525	2.8	525	2.8	0.322	23.8	LOS C	6.2	44.8	0.70	0.60	33.9
3b	R3	All MCs	221	3.8	221	3.8	* 1.072	158.2	LOS F	14.0	101.2	1.00	1.32	10.0
Approach			755	3.3	755	3.3	1.072	63.2	LOS E	14.0	101.2	0.79	0.81	19.9
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	97	12.0	97	12.0	0.082	10.6	LOS B	0.3	2.6	0.14	0.62	48.3
22	T1	All MCs	102	4.1	102	4.1	* 0.902	69.7	LOS E	11.2	80.7	1.00	1.06	23.0
23a	R1	All MCs	453	2.6	453	2.6	0.902	72.0	LOS E	11.6	83.1	1.00	1.06	9.6
Approach			652	4.2	652	4.2	0.902	62.6	LOS E	11.6	83.1	0.87	0.99	15.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	* 0.900	42.8	LOS D	19.7	140.0	1.00	0.90	10.9
8	T1	All MCs	320	13.8	320	13.8	0.316	49.1	LOS D	5.6	43.9	1.00	0.79	26.7
9b	R3	All MCs	9	22.2	9	22.2	0.027	20.9	LOS C	0.1	0.8	0.31	0.63	37.1
Approach			1094	5.6	1094	5.6	0.900	44.5	LOS D	19.7	140.0	0.99	0.86	17.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	27	0.0	27	0.0	0.434	11.3	LOS B	1.9	13.6	0.97	0.76	28.9
28	T1	All MCs	145	0.0	145	0.0	* 0.979	77.8	LOS E	5.2	37.0	0.99	0.99	17.9
29a	R1	All MCs	15	14.3	15	14.3	0.979	101.2	LOS F	5.2	37.0	1.00	1.13	22.8
Approach			187	1.1	187	1.1	0.979	69.9	LOS E	5.2	37.0	0.99	0.97	19.5
All Vehicles			2687	4.3	2687	4.3	1.072	55.9	LOS E	19.7	140.0	0.91	0.89	18.1

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	631	4.3	631	4.3	0.410	2.4	LOS A	5.3	38.3	0.27	0.24	55.1
6	R2	All MCs	1	0.0	1	0.0	*0.410	32.6	LOS C	5.3	38.3	0.27	0.24	52.8
Approach			632	4.3	632	4.3	0.410	2.5	LOS A	5.3	38.3	0.27	0.24	55.1
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.179	65.1	LOS E	0.8	5.5	0.98	0.71	9.8
9	R2	All MCs	21	0.0	21	0.0	*0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
Approach			22	0.0	22	0.0	0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	89	0.0	0.878	9.4	LOS A	27.1	195.7	0.67	0.65	40.8
11	T1	All MCs	1145	4.1	1132	4.1	*0.878	8.9	LOS A	27.1	195.7	0.67	0.65	35.2
Approach			1236	3.8	1221	3.8	0.878	8.9	LOS A	27.1	195.7	0.67	0.65	35.8
All Vehicles			1889	4.0	1875	4.0	0.878	7.4	LOS A	27.1	195.7	0.54	0.51	42.5

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Site Access (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		11	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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	591	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
6	R2	All MCs	1	0.0	1	0.0	*0.003	12.9	LOS B	0.0	0.1	0.39	0.60	39.2
Approach			592	4.6	592	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.085	9.5	LOS A	0.4	2.9	0.93	0.70	10.0
9	R2	All MCs	40	0.0	40	0.0	0.133	53.9	LOS D	0.8	5.8	0.94	0.71	8.2
Approach			41	0.0	41	0.0	0.133	52.8	LOS D	0.8	5.8	0.94	0.71	8.2
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	86	0.0	*0.066	7.6	LOS A	0.4	2.6	0.16	0.59	47.8
11	T1	All MCs	1045	4.5	1033	4.5	*0.458	9.4	LOS A	9.1	66.2	0.45	0.41	46.8
Approach			1133	4.2	1119	4.2	0.458	9.2	LOS A	9.1	66.2	0.43	0.42	46.3
All Vehicles			1765	4.2	1752	4.3	0.458	8.4	LOS A	9.1	66.2	0.40	0.38	46.0

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Valley Hospital (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		16	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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036
OPTION 3 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]				
			veh/h	%	veh/h	%	v/c	sec			m			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	449	4.7	449	4.7	0.619	5.6	LOS A	2.5	17.9	0.68	0.57	0.68	48.4
22	T1	All MCs	143	0.0	143	0.0	0.619	5.8	LOS A	2.5	17.9	0.68	0.57	0.68	52.4
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.9	0.68	0.57	0.68	51.2
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.9	0.68	0.57	0.68	51.6
Approach			708	3.7	708	3.7	0.619	6.5	LOS A	2.5	17.9	0.68	0.57	0.68	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.453	10.7	LOS B	1.5	10.7	0.90	0.78	0.97	49.2
25	T1	All MCs	141	4.5	141	4.5	0.453	10.7	LOS B	1.5	10.7	0.90	0.78	0.97	43.6
26	R2	All MCs	45	0.0	45	0.0	0.453	15.4	LOS B	1.5	10.7	0.90	0.78	0.97	48.8
26u	U	All MCs	1	0.0	1	0.0	0.453	17.4	LOS B	1.5	10.7	0.90	0.78	0.97	48.6
Approach			300	3.9	300	3.9	0.453	11.4	LOS B	1.5	10.7	0.90	0.78	0.97	47.3
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	34	0.0	34	0.0	0.175	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.5
28	T1	All MCs	62	0.0	62	0.0	0.175	7.9	LOS A	0.3	2.2	0.70	0.78	0.70	52.1
29	R2	All MCs	1	0.0	1	0.0	0.175	12.9	LOS B	0.3	2.2	0.70	0.78	0.70	47.7
29u	U	All MCs	1	0.0	1	0.0	0.175	14.9	LOS B	0.3	2.2	0.70	0.78	0.70	51.2
Approach			98	0.0	98	0.0	0.175	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.9
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.371	6.5	LOS A	0.9	6.8	0.56	0.59	0.56	50.9
31	T1	All MCs	364	4.6	360	4.6	0.371	6.4	LOS A	0.9	6.8	0.56	0.59	0.56	51.2
32	R2	All MCs	677	4.7	669	4.7	0.540	10.6	LOS B	1.7	12.4	0.61	0.69	0.61	47.6
32u	U	All MCs	1	0.0	1	0.0	0.540	12.5	LOS B	1.7	12.4	0.61	0.69	0.61	40.6
Approach			1043	4.6	1031	4.6	0.540	9.1	LOS A	1.7	12.4	0.59	0.65	0.59	48.8
All Vehicles			2149	4.0	2137	4.0	0.619	8.5	LOS A	2.5	17.9	0.67	0.65	0.68	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.

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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 3 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	175	3.0	175	3.0	0.146	3.0	LOS A	0.3	2.5	0.45	0.34	0.45	55.3
2	T1	All MCs	43	2.4	43	2.4	0.146	3.2	LOS A	0.3	2.5	0.45	0.34	0.45	55.3
3	R2	All MCs	1294	2.9	1294	2.9	0.717	11.1	LOS B	3.4	24.7	0.65	0.67	0.68	50.5
Approach			1512	2.9	1512	2.9	0.717	9.9	LOS A	3.4	24.7	0.62	0.62	0.65	51.1
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.139	28.5	LOS C	0.6	4.4	1.00	0.86	1.00	44.8
8	T1	All MCs	73	2.9	73	2.9	0.248	20.3	LOS C	1.3	9.7	1.00	0.87	1.00	37.5
9	R2	All MCs	56	3.8	56	3.8	0.248	27.2	LOS C	1.3	9.7	1.00	0.87	1.00	44.5
Approach			182	3.5	182	3.5	0.248	24.8	LOS C	1.3	9.7	1.00	0.87	1.00	42.4
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.152	10.6	LOS B	0.4	2.9	0.91	0.80	0.91	51.2
11	T1	All MCs	1	0.0	1	0.0	0.152	12.3	LOS B	0.5	3.6	0.95	0.78	0.95	50.0
12	R2	All MCs	101	3.1	101	3.1	0.152	15.9	LOS B	0.5	3.6	0.98	0.77	0.98	44.4
Approach			171	3.1	171	3.1	0.152	13.7	LOS B	0.5	3.6	0.95	0.78	0.95	47.5
All Vehicles			3129	3.2	3129	3.2	0.717	8.2	LOS A	3.4	24.7	0.50	0.51	0.51	51.2

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

Site: 101v [Tweed Coast Road/Site Access (Site Folder: 2036
OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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] veh/h	%	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Tweed Coast Road (S)															
2	T1	All MCs	1287	3.4	1287	3.4	0.465	3.9	LOS A	5.9	42.4	0.37	0.32	0.37	41.8
3	R2	All MCs	1	0.0	1	0.0	* 0.465	21.0	LOS C	5.7	40.8	0.36	0.31	0.36	46.3
Approach			1288	3.4	1288	3.4	0.465	3.9	LOS A	5.9	42.4	0.37	0.32	0.37	41.8
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.910	60.8	LOS E	7.3	51.1	1.00	1.06	1.46	10.8
6	R2	All MCs	224	0.0	224	0.0	* 0.910	60.9	LOS E	7.3	51.1	1.00	1.06	1.46	10.8
Approach			225	0.0	225	0.0	0.910	60.9	LOS E	7.3	51.1	1.00	1.06	1.46	10.8
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.909	77.8	LOS E	10.5	75.3	1.00	1.12	1.43	25.7
8	T1	All MCs	1041	3.9	1041	3.9	* 0.909	59.0	LOS E	17.3	124.9	1.00	1.12	1.36	22.9
Approach			1160	3.5	1160	3.5	0.909	60.9	LOS E	17.3	124.9	1.00	1.12	1.37	20.5
All Vehicles			2674	3.2	2674	3.2	0.910	33.4	LOS C	17.3	124.9	0.69	0.73	0.89	21.9

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 (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)

MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.375	28.8	LOS C	4.9	36.1	0.80	0.68	0.80	41.5
2	T1	All MCs	462	5.5	462	5.5	0.375	24.0	LOS C	4.9	36.2	0.80	0.68	0.80	33.6
3b	R3	All MCs	140	7.5	140	7.5	* 0.994	91.7	LOS F	5.8	43.0	1.00	1.23	1.93	15.3
Approach			626	5.7	626	5.7	0.994	39.3	LOS D	5.8	43.0	0.84	0.80	1.05	27.0
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	289	5.1	289	5.1	0.254	14.1	LOS B	1.1	8.3	0.20	0.64	0.20	48.3
22	T1	All MCs	164	4.5	164	4.5	0.897	44.4	LOS D	14.5	103.8	0.99	1.02	1.21	30.7
23a	R1	All MCs	889	1.8	889	1.8	* 0.897	44.2	LOS D	16.8	119.2	0.99	1.01	1.21	14.6
Approach			1343	2.8	1343	2.8	0.897	37.7	LOS D	16.8	119.2	0.82	0.93	0.99	22.9
North: Tweed Coast Road (N)															
7a	L1	All MCs	533	4.7	533	4.7	* 0.551	20.1	LOS C	7.5	55.0	1.00	0.66	1.00	19.2
8	T1	All MCs	492	3.0	492	3.0	0.680	43.4	LOS D	6.7	48.1	1.00	0.87	1.02	28.5
9b	R3	All MCs	16	0.0	16	0.0	0.079	31.8	LOS C	0.3	1.8	0.61	0.67	0.61	32.1
Approach			1040	3.8	1040	3.8	0.680	31.3	LOS C	7.5	55.0	0.99	0.76	1.00	26.1
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	31	0.0	31	0.0	0.437	13.8	LOS B	1.3	9.0	0.97	0.76	0.97	33.7
28	T1	All MCs	148	0.0	148	0.0	* 0.985	60.3	LOS E	5.2	37.0	0.99	1.02	1.54	20.9
29a	R1	All MCs	42	5.0	42	5.0	0.985	81.6	LOS F	5.2	37.0	1.00	1.18	1.88	25.9
Approach			221	1.0	221	1.0	0.985	57.9	LOS E	5.2	37.0	0.99	1.01	1.53	23.4
All Vehicles			3231	3.6	3231	3.6	0.994	37.3	LOS D	16.8	119.2	0.89	0.86	1.04	24.7

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1271	3.2	1271	3.2	0.893	14.5	LOS B	27.9	200.7	0.77	0.79	39.5
6	R2	All MCs	1	0.0	1	0.0	*0.893	46.8	LOS D	27.9	200.7	0.77	0.79	41.7
Approach			1272	3.2	1272	3.2	0.893	14.5	LOS B	27.9	200.7	0.77	0.79	39.5
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.451	50.1	LOS D	2.0	13.8	0.99	0.76	12.1
9	R2	All MCs	72	0.0	72	0.0	*0.451	50.0	LOS D	2.0	13.8	0.99	0.76	12.1
Approach			73	0.0	73	0.0	0.451	50.0	LOS D	2.0	13.8	0.99	0.76	12.1
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.783	8.7	LOS A	14.3	103.2	0.65	0.60	41.4
11	T1	All MCs	873	3.5	873	3.5	*0.783	8.4	LOS A	14.3	103.2	0.65	0.60	36.0
Approach			895	3.4	895	3.4	0.783	8.4	LOS A	14.3	103.2	0.65	0.60	36.2
All Vehicles			2239	3.2	2239	3.2	0.893	13.2	LOS B	27.9	200.7	0.73	0.72	37.1

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 3 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.730	7.7	LOS A	14.7	106.4	0.56	0.51	48.0
6	R2	All MCs	1	0.0	1	0.0	0.002	12.5	LOS B	0.0	0.1	0.41	0.59	40.8
Approach			1080	3.8	1080	3.8	0.730	7.7	LOS A	14.7	106.4	0.56	0.51	45.6
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.452	8.8	LOS A	2.0	13.9	0.99	0.77	8.7
9	R2	All MCs	192	0.0	192	0.0	* 0.711	52.0	LOS D	3.4	23.5	1.00	0.83	8.4
Approach			193	0.0	193	0.0	0.711	51.8	LOS D	3.4	23.5	1.00	0.83	8.4
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.041	8.7	LOS A	0.4	2.6	0.36	0.62	45.9
11	T1	All MCs	817	3.7	817	3.7	0.390	8.0	LOS A	5.7	41.0	0.47	0.41	47.5
Approach			866	3.5	866	3.5	0.390	8.0	LOS A	5.7	41.0	0.46	0.43	47.4
All Vehicles			2139	3.3	2139	3.3	0.730	11.8	LOS B	14.7	106.4	0.56	0.51	40.6

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]			sec	m	m/sec
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 3 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	715	3.8	715	3.8	0.996	43.0	LOS D	15.9	114.5	1.00	1.88	2.92	24.9
22	T1	All MCs	60	0.0	60	0.0	0.996	43.1	LOS D	15.9	114.5	1.00	1.88	2.92	34.5
23	R2	All MCs	119	3.5	119	3.5	0.996	47.7	LOS D	15.9	114.5	1.00	1.88	2.92	33.8
23u	U	All MCs	3	0.0	3	0.0	0.996	49.6	LOS D	15.9	114.5	1.00	1.88	2.92	34.2
Approach			897	3.5	897	3.5	0.996	43.7	LOS D	15.9	114.5	1.00	1.88	2.92	27.4
NorthEast: Turnock Street (NE)															
24	L2	All MCs	88	3.6	88	3.6	0.601	11.3	LOS B	2.4	17.6	0.88	0.82	1.10	49.1
25	T1	All MCs	364	3.8	364	3.8	0.601	11.4	LOS B	2.4	17.6	0.88	0.82	1.10	43.4
26	R2	All MCs	31	0.0	31	0.0	0.601	16.1	LOS B	2.4	17.6	0.88	0.82	1.10	48.6
26u	U	All MCs	3	0.0	3	0.0	0.601	18.1	LOS B	2.4	17.6	0.88	0.82	1.10	48.4
Approach			486	3.5	486	3.5	0.601	11.7	LOS B	2.4	17.6	0.88	0.82	1.10	45.5
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	119	0.0	119	0.0	0.401	8.2	LOS A	0.8	5.7	0.70	0.80	0.77	51.5
28	T1	All MCs	145	0.0	145	0.0	0.401	8.0	LOS A	0.8	5.7	0.70	0.80	0.77	52.1
29	R2	All MCs	1	0.0	1	0.0	0.401	13.0	LOS B	0.8	5.7	0.70	0.80	0.77	47.6
29u	U	All MCs	1	0.0	1	0.0	0.401	15.0	LOS B	0.8	5.7	0.70	0.80	0.77	51.1
Approach			266	0.0	266	0.0	0.401	8.2	LOS A	0.8	5.7	0.70	0.80	0.77	51.8
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.324	5.7	LOS A	0.9	6.2	0.48	0.52	0.48	51.3
31	T1	All MCs	364	3.8	364	3.8	0.324	5.5	LOS A	0.9	6.2	0.48	0.52	0.48	51.6
32	R2	All MCs	447	3.8	447	3.8	0.342	9.7	LOS A	1.0	6.9	0.47	0.64	0.47	48.1
32u	U	All MCs	2	0.0	2	0.0	0.342	11.6	LOS B	1.0	6.9	0.47	0.64	0.47	41.4
Approach			815	3.7	815	3.7	0.342	7.8	LOS A	1.0	6.9	0.47	0.59	0.47	49.6
All Vehicles			2464	3.2	2464	3.2	0.996	21.7	LOS C	15.9	114.5	0.77	1.13	1.52	39.6

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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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 4 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	91	3.5	91	3.5	0.084	2.8	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
2	T1	All MCs	36	2.9	36	2.9	0.084	3.0	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
3	R2	All MCs	931	4.1	931	4.1	0.510	10.1	LOS B	1.8	12.8	0.56	0.59	0.56	50.8
Approach			1057	4.0	1057	4.0	0.510	9.3	LOS A	1.8	12.8	0.54	0.56	0.54	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.064	11.8	LOS B	0.2	1.7	0.98	0.70	0.98	52.5
8	T1	All MCs	89	3.5	89	3.5	0.161	8.6	LOS A	0.7	4.9	1.00	0.71	1.00	45.7
9	R2	All MCs	63	5.0	63	5.0	0.161	15.5	LOS B	0.7	4.9	1.00	0.71	1.00	50.5
Approach			203	4.1	203	4.1	0.161	11.6	LOS B	0.7	4.9	0.99	0.71	0.99	49.4
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.089	5.8	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
11	T1	All MCs	1	0.0	1	0.0	0.089	8.9	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
12	R2	All MCs	165	3.8	165	3.8	0.167	12.1	LOS B	0.4	3.2	0.77	0.72	0.77	45.6
Approach			229	4.1	229	4.1	0.167	10.4	LOS B	0.4	3.2	0.76	0.71	0.76	48.2
All Vehicles			2776	3.9	2776	3.9	0.510	6.6	LOS A	1.8	12.8	0.46	0.46	0.46	51.8

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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MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	958	4.5	958	4.5	0.352	4.1	LOS A	0.9	6.7	0.25	0.39	0.25	41.0
3	R2	All MCs	1	0.0	1	0.0	0.352	9.8	LOS A	0.9	6.5	0.26	0.39	0.26	45.7
Approach			959	4.5	959	4.5	0.352	4.1	LOS A	0.9	6.7	0.25	0.39	0.25	41.0
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.164	9.8	LOS A	0.3	2.1	0.70	0.83	0.70	31.0
6	R2	All MCs	99	0.0	99	0.0	0.164	14.9	LOS B	0.3	2.1	0.70	0.83	0.70	31.0
Approach			100	0.0	100	0.0	0.164	14.9	LOS B	0.3	2.1	0.70	0.83	0.70	31.0
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.486	3.6	LOS A	1.3	9.1	0.03	0.39	0.03	53.7
8	T1	All MCs	1095	5.6	1095	5.6	0.486	3.9	LOS A	1.9	13.8	0.03	0.37	0.03	53.4
Approach			1309	4.7	1309	4.7	0.486	3.8	LOS A	1.9	13.8	0.03	0.38	0.03	53.5
All Vehicles			2368	4.4	2368	4.4	0.486	4.4	LOS A	1.9	13.8	0.15	0.40	0.15	49.6

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 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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	0.322	28.9	LOS C	6.2	44.8	0.70	0.61	41.2
2	T1	All MCs	525	2.8	525	2.8	0.322	23.8	LOS C	6.2	44.8	0.70	0.60	33.9
3b	R3	All MCs	221	3.8	221	3.8	* 1.115	191.0	LOS F	15.2	110.1	1.00	1.40	8.5
Approach			755	3.3	755	3.3	1.115	72.8	LOS E	15.2	110.1	0.79	0.84	18.1
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	97	12.0	97	12.0	0.081	10.5	LOS B	0.3	2.6	0.14	0.62	48.4
22	T1	All MCs	102	4.1	102	4.1	* 0.902	69.8	LOS E	11.2	80.7	1.00	1.06	23.0
23a	R1	All MCs	453	2.6	453	2.6	0.902	72.1	LOS E	11.6	83.2	1.00	1.06	9.6
Approach			652	4.2	652	4.2	0.902	62.6	LOS E	11.6	83.2	0.87	0.99	15.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	* 0.900	35.0	LOS C	19.7	140.0	1.00	0.96	12.8
8	T1	All MCs	320	13.8	320	13.8	0.316	36.4	LOS D	4.5	35.4	0.83	0.69	31.1
9b	R3	All MCs	9	22.2	9	22.2	0.027	43.0	LOS D	0.3	2.1	0.78	0.68	27.5
Approach			1094	5.6	1094	5.6	0.900	35.5	LOS D	19.7	140.0	0.95	0.88	20.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	27	0.0	27	0.0	0.444	11.3	LOS B	2.0	13.9	0.97	0.76	28.8
28	T1	All MCs	145	0.0	145	0.0	* 1.000	83.2	LOS F	5.4	38.4	0.99	1.00	17.0
29a	R1	All MCs	15	14.3	15	14.3	1.000	111.2	LOS F	5.4	38.4	1.00	1.16	21.5
Approach			187	1.1	187	1.1	1.000	74.9	LOS E	5.4	38.4	0.99	0.98	18.6
All Vehicles			2687	4.3	2687	4.3	1.115	55.3	LOS E	19.7	140.0	0.89	0.90	18.3

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	631	4.3	631	4.3	0.410	2.6	LOS A	5.5	40.0	0.28	0.25	54.7
6	R2	All MCs	1	0.0	1	0.0	*0.410	37.0	LOS D	5.5	40.0	0.28	0.25	52.5
Approach			632	4.3	632	4.3	0.410	2.7	LOS A	5.5	40.0	0.28	0.25	54.7
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.179	65.1	LOS E	0.8	5.5	0.98	0.71	9.8
9	R2	All MCs	21	0.0	21	0.0	*0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
Approach			22	0.0	22	0.0	0.179	65.0	LOS E	0.8	5.5	0.98	0.71	9.8
West: Cudgen Road (W)														
10	L2	All MCs	91	0.0	89	0.0	0.872	9.6	LOS A	27.7	200.0	0.71	0.69	39.6
11	T1	All MCs	1145	4.1	1124	4.1	*0.872	10.1	LOS B	27.7	200.0	0.71	0.69	33.4
Approach			1236	3.8	1213	3.8	0.872	10.0	LOS B	27.7	200.0	0.71	0.69	34.1
All Vehicles			1889	4.0	1867	4.0	0.872	8.2	LOS A	27.7	200.0	0.57	0.54	41.3

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Site Access (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		11	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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 4 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	591	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
6	R2	All MCs	1	0.0	1	0.0	*0.003	13.3	LOS B	0.0	0.1	0.40	0.60	38.9
Approach			592	4.6	592	4.6	0.390	3.7	LOS A	6.0	43.7	0.31	0.29	51.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.085	9.6	LOS A	0.4	2.9	0.93	0.70	10.1
9	R2	All MCs	40	0.0	40	0.0	0.133	53.8	LOS D	0.8	5.8	0.94	0.71	8.2
Approach			41	0.0	41	0.0	0.133	52.6	LOS D	0.8	5.8	0.94	0.71	8.2
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	86	0.0	*0.066	7.9	LOS A	0.4	2.8	0.17	0.59	47.7
11	T1	All MCs	1045	4.5	1026	4.5	*0.455	9.9	LOS A	9.3	67.6	0.47	0.42	46.3
Approach			1133	4.2	1112	4.2	0.455	9.7	LOS A	9.3	67.6	0.44	0.43	45.8
All Vehicles			1765	4.2	1744	4.3	0.455	8.7	LOS A	9.3	67.6	0.41	0.39	45.6

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
North: Tweed Valley Hospital (N)											
P3	Full	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	54.2	LOS E	0.0	0.0	0.95	0.95	208.0	200.0	0.96
All Pedestrians		16	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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 4 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]				
			veh/h	%	veh/h	%	v/c	sec			m			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	449	4.7	449	4.7	0.619	5.6	LOS A	2.5	17.8	0.68	0.57	0.68	48.4
22	T1	All MCs	143	0.0	143	0.0	0.619	5.8	LOS A	2.5	17.8	0.68	0.57	0.68	52.4
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.8	0.68	0.57	0.68	51.2
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.8	0.68	0.57	0.68	51.6
Approach			708	3.7	708	3.7	0.619	6.5	LOS A	2.5	17.8	0.68	0.57	0.68	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.450	10.6	LOS B	1.5	10.6	0.89	0.78	0.96	49.3
25	T1	All MCs	141	4.5	141	4.5	0.450	10.6	LOS B	1.5	10.6	0.89	0.78	0.96	43.7
26	R2	All MCs	45	0.0	45	0.0	0.450	15.3	LOS B	1.5	10.6	0.89	0.78	0.96	48.9
26u	U	All MCs	1	0.0	1	0.0	0.450	17.3	LOS B	1.5	10.6	0.89	0.78	0.96	48.7
Approach			300	3.9	300	3.9	0.450	11.3	LOS B	1.5	10.6	0.89	0.78	0.96	47.4
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	34	0.0	34	0.0	0.174	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.5
28	T1	All MCs	62	0.0	62	0.0	0.174	7.9	LOS A	0.3	2.2	0.70	0.78	0.70	52.2
29	R2	All MCs	1	0.0	1	0.0	0.174	12.9	LOS B	0.3	2.2	0.70	0.78	0.70	47.7
29u	U	All MCs	1	0.0	1	0.0	0.174	14.9	LOS B	0.3	2.2	0.70	0.78	0.70	51.2
Approach			98	0.0	98	0.0	0.174	8.1	LOS A	0.3	2.2	0.70	0.78	0.70	51.9
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.369	6.5	LOS A	0.9	6.8	0.55	0.59	0.55	50.9
31	T1	All MCs	364	4.6	358	4.6	0.369	6.4	LOS A	0.9	6.8	0.55	0.59	0.55	51.2
32	R2	All MCs	677	4.7	664	4.7	0.536	10.6	LOS B	1.7	12.2	0.61	0.69	0.61	47.6
32u	U	All MCs	1	0.0	1	0.0	0.536	12.5	LOS B	1.7	12.2	0.61	0.69	0.61	40.7
Approach			1043	4.6	1024	4.6	0.536	9.1	LOS A	1.7	12.2	0.59	0.65	0.59	48.8
All Vehicles			2149	4.0	2130	4.1	0.619	8.5	LOS A	2.5	17.8	0.67	0.65	0.68	49.2

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 4 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	175	3.0	175	3.0	0.146	3.0	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
2	T1	All MCs	43	2.4	43	2.4	0.146	3.2	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
3	R2	All MCs	1294	2.9	1294	2.9	0.717	11.1	LOS B	3.5	24.8	0.69	0.67	0.72	50.4
Approach			1512	2.9	1512	2.9	0.717	10.0	LOS A	3.5	24.8	0.65	0.63	0.68	50.9
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.142	26.9	LOS C	0.6	4.1	1.00	0.87	1.00	45.7
8	T1	All MCs	73	2.9	73	2.9	0.252	18.6	LOS B	1.3	9.1	1.00	0.87	1.00	38.6
9	R2	All MCs	56	3.8	56	3.8	0.252	25.5	LOS C	1.3	9.1	1.00	0.87	1.00	45.3
Approach			182	3.5	182	3.5	0.252	23.2	LOS C	1.3	9.1	1.00	0.87	1.00	43.3
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.155	10.2	LOS B	0.4	2.8	0.90	0.81	0.90	51.5
11	T1	All MCs	1	0.0	1	0.0	0.155	9.6	LOS A	0.5	3.4	0.95	0.79	0.95	49.8
12	R2	All MCs	101	3.1	101	3.1	0.155	15.5	LOS B	0.5	3.4	0.96	0.78	0.96	44.7
Approach			171	3.1	171	3.1	0.155	13.3	LOS B	0.5	3.4	0.94	0.79	0.94	47.8
All Vehicles			3129	3.2	3129	3.2	0.717	8.1	LOS A	3.5	24.8	0.52	0.51	0.53	51.2

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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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	0.535	5.1	LOS A	1.7	12.0	0.41	0.49	0.41	38.5
3	R2	All MCs	1	0.0	1	0.0	0.535	10.8	LOS B	1.6	11.5	0.42	0.50	0.42	44.2
Approach			1288	3.4	1288	3.4	0.535	5.1	LOS A	1.7	12.0	0.41	0.49	0.41	38.5
East: Site Access (E)															
4	L2	All MCs	1	0.0	1	0.0	0.335	9.0	LOS A	0.6	4.3	0.69	0.86	0.73	31.7
6	R2	All MCs	224	0.0	224	0.0	0.335	14.2	LOS B	0.6	4.3	0.69	0.86	0.73	31.7
Approach			225	0.0	225	0.0	0.335	14.2	LOS B	0.6	4.3	0.69	0.86	0.73	31.7
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.352	3.6	LOS A	1.2	8.6	0.02	0.38	0.02	53.6
8	T1	All MCs	1041	3.9	1041	3.9	0.352	3.9	LOS A	1.2	8.6	0.02	0.38	0.02	53.5
Approach			1160	3.5	1160	3.5	0.352	3.8	LOS A	1.2	8.6	0.02	0.38	0.02	53.5
All Vehicles			2674	3.2	2674	3.2	0.535	5.3	LOS A	1.7	12.0	0.27	0.47	0.27	46.8

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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	0.387	29.7	LOS C	5.0	36.8	0.81	0.69	41.1
2	T1	All MCs	462	5.5	462	5.5	0.387	24.9	LOS C	5.0	36.9	0.81	0.69	33.1
3b	R3	All MCs	140	7.5	140	7.5	*0.904	63.9	LOS E	4.6	34.1	1.00	1.06	19.8
Approach			626	5.7	626	5.7	0.904	33.8	LOS C	5.0	36.9	0.85	0.77	29.2
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	289	5.1	289	5.1	0.250	12.3	LOS B	1.1	8.1	0.19	0.64	48.3
22	T1	All MCs	164	4.5	164	4.5	*0.804	31.2	LOS C	12.3	87.7	0.91	0.88	35.5
23a	R1	All MCs	889	1.8	889	1.8	0.804	32.6	LOS C	13.8	98.0	0.92	0.89	18.3
Approach			1343	2.8	1343	2.8	0.804	28.0	LOS C	13.8	98.0	0.76	0.83	27.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	533	4.7	533	4.7	*0.529	12.5	LOS B	4.9	35.7	0.68	0.77	26.2
8	T1	All MCs	492	3.0	492	3.0	0.723	40.2	LOS D	6.6	47.6	1.00	0.88	29.7
9b	R3	All MCs	16	0.0	16	0.0	0.097	47.8	LOS D	0.4	2.8	0.94	0.70	26.4
Approach			1040	3.8	1040	3.8	0.723	26.1	LOS C	6.6	47.6	0.84	0.82	28.8
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	31	0.0	31	0.0	0.376	12.8	LOS B	1.1	7.4	0.95	0.75	34.2
28	T1	All MCs	148	0.0	148	0.0	*0.847	45.4	LOS D	4.4	31.1	0.98	0.90	25.0
29a	R1	All MCs	42	5.0	42	5.0	0.847	55.7	LOS E	4.4	31.1	1.00	0.97	31.8
Approach			221	1.0	221	1.0	0.847	42.8	LOS D	4.4	31.1	0.98	0.90	27.8
All Vehicles			3231	3.6	3231	3.6	0.904	29.5	LOS C	13.8	98.0	0.82	0.82	28.2

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Site Access (Site Folder: 2036 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1271	3.2	1271	3.2	0.972	40.7	LOS D	41.7	300.1	0.99	1.19	24.5
6	R2	All MCs	1	0.0	1	0.0	*0.972	101.6	LOS F	41.7	300.1	0.99	1.19	28.7
Approach			1272	3.2	1272	3.2	0.972	40.7	LOS D	41.7	300.1	0.99	1.19	24.5
North: Site Access (N)														
7	L2	All MCs	1	0.0	1	0.0	0.490	50.5	LOS D	2.0	13.9	0.99	0.76	12.0
9	R2	All MCs	72	0.0	72	0.0	*0.490	50.4	LOS D	2.0	13.9	0.99	0.76	12.0
Approach			73	0.0	73	0.0	0.490	50.4	LOS D	2.0	13.9	0.99	0.76	12.0
West: Cudgen Road (W)														
10	L2	All MCs	22	0.0	22	0.0	0.845	17.6	LOS B	22.0	158.7	0.90	0.89	29.8
11	T1	All MCs	873	3.5	873	3.5	*0.845	22.4	LOS C	22.0	158.7	0.90	0.89	21.7
Approach			895	3.4	895	3.4	0.845	22.3	LOS C	22.0	158.7	0.90	0.89	22.0
All Vehicles			2239	3.2	2239	3.2	0.972	33.7	LOS C	41.7	300.1	0.95	1.06	23.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Site Access (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		11	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 Site: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 4 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.730	7.7	LOS A	14.7	106.4	0.56	0.51	48.0
6	R2	All MCs	1	0.0	1	0.0	0.002	12.5	LOS B	0.0	0.1	0.41	0.59	40.8
Approach			1080	3.8	1080	3.8	0.730	7.7	LOS A	14.7	106.4	0.56	0.51	45.6
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.452	8.8	LOS A	2.0	13.9	0.99	0.77	8.7
9	R2	All MCs	192	0.0	192	0.0	* 0.711	52.0	LOS D	3.4	23.5	1.00	0.83	8.4
Approach			193	0.0	193	0.0	0.711	51.8	LOS D	3.4	23.5	1.00	0.83	8.4
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.041	8.8	LOS A	0.4	2.7	0.37	0.62	45.8
11	T1	All MCs	817	3.7	817	3.7	0.390	8.4	LOS A	5.9	42.4	0.49	0.43	47.0
Approach			866	3.5	866	3.5	0.390	8.4	LOS A	5.9	42.4	0.48	0.44	46.9
All Vehicles			2139	3.3	2139	3.3	0.730	12.0	LOS B	14.7	106.4	0.57	0.51	40.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 4 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	715	3.8	715	3.8	0.996	43.1	LOS D	15.9	114.5	1.00	1.88	24.9
22	T1	All MCs	60	0.0	60	0.0	0.996	43.1	LOS D	15.9	114.5	1.00	1.88	34.5
23	R2	All MCs	119	3.5	119	3.5	0.996	47.8	LOS D	15.9	114.5	1.00	1.88	33.8
23u	U	All MCs	3	0.0	3	0.0	0.996	49.6	LOS D	15.9	114.5	1.00	1.88	34.2
Approach			897	3.5	897	3.5	0.996	43.7	LOS D	15.9	114.5	1.00	1.88	27.4
NorthEast: Turnock Street (NE)														
24	L2	All MCs	88	3.6	88	3.6	0.600	11.3	LOS B	2.4	17.6	0.88	0.82	49.1
25	T1	All MCs	364	3.8	364	3.8	0.600	11.4	LOS B	2.4	17.6	0.88	0.82	43.4
26	R2	All MCs	31	0.0	31	0.0	0.600	16.1	LOS B	2.4	17.6	0.88	0.82	48.6
26u	U	All MCs	3	0.0	3	0.0	0.600	18.1	LOS B	2.4	17.6	0.88	0.82	48.5
Approach			486	3.5	486	3.5	0.600	11.7	LOS B	2.4	17.6	0.88	0.82	45.5
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	119	0.0	119	0.0	0.400	8.2	LOS A	0.8	5.7	0.70	0.80	51.5
28	T1	All MCs	145	0.0	145	0.0	0.400	8.0	LOS A	0.8	5.7	0.70	0.80	52.1
29	R2	All MCs	1	0.0	1	0.0	0.400	13.0	LOS B	0.8	5.7	0.70	0.80	47.6
29u	U	All MCs	1	0.0	1	0.0	0.400	15.0	LOS B	0.8	5.7	0.70	0.80	51.2
Approach			266	0.0	266	0.0	0.400	8.1	LOS A	0.8	5.7	0.70	0.80	51.8
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.324	5.7	LOS A	0.8	6.1	0.47	0.52	51.3
31	T1	All MCs	364	3.8	364	3.8	0.324	5.5	LOS A	0.8	6.1	0.47	0.52	51.6
32	R2	All MCs	447	3.8	447	3.8	0.342	9.7	LOS A	0.9	6.9	0.46	0.64	48.1
32u	U	All MCs	2	0.0	2	0.0	0.342	11.6	LOS B	0.9	6.9	0.46	0.64	41.4
Approach			815	3.7	815	3.7	0.342	7.8	LOS A	0.9	6.9	0.47	0.59	49.6
All Vehicles			2464	3.2	2464	3.2	0.996	21.7	LOS C	15.9	114.5	0.77	1.13	39.6

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: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 5 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	91	3.5	91	3.5	0.084	2.8	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
2	T1	All MCs	36	2.9	36	2.9	0.084	3.0	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
3	R2	All MCs	931	4.1	931	4.1	0.510	10.1	LOS B	1.8	12.8	0.56	0.59	0.56	50.8
Approach			1057	4.0	1057	4.0	0.510	9.3	LOS A	1.8	12.8	0.54	0.56	0.54	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.064	11.8	LOS B	0.2	1.7	0.98	0.70	0.98	52.5
8	T1	All MCs	89	3.5	89	3.5	0.161	8.6	LOS A	0.7	4.9	1.00	0.71	1.00	45.7
9	R2	All MCs	63	5.0	63	5.0	0.161	15.5	LOS B	0.7	4.9	1.00	0.71	1.00	50.5
Approach			203	4.1	203	4.1	0.161	11.6	LOS B	0.7	4.9	0.99	0.71	0.99	49.4
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.089	5.8	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
11	T1	All MCs	1	0.0	1	0.0	0.089	8.9	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
12	R2	All MCs	165	3.8	165	3.8	0.167	12.1	LOS B	0.4	3.2	0.77	0.72	0.77	45.6
Approach			229	4.1	229	4.1	0.167	10.4	LOS B	0.4	3.2	0.76	0.71	0.76	48.2
All Vehicles			2776	3.9	2776	3.9	0.510	6.6	LOS A	1.8	12.8	0.46	0.46	0.46	51.8

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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MOVEMENT SUMMARY

 **Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 5 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	958	4.5	958	4.5	0.383	4.1	LOS A	1.1	7.7	0.27	0.41	0.27	40.0
3	R2	All MCs	91	0.0	91	0.0	0.383	9.8	LOS A	1.0	7.4	0.28	0.45	0.28	44.4
Approach			1048	4.1	1048	4.1	0.383	4.6	LOS A	1.1	7.7	0.27	0.42	0.27	40.7
East: Site Access (E)															
4	L2	All MCs	21	0.0	21	0.0	0.203	8.7	LOS A	0.4	2.6	0.71	0.84	0.71	32.5
6	R2	All MCs	99	0.0	99	0.0	0.203	13.9	LOS B	0.4	2.6	0.71	0.84	0.71	32.5
Approach			120	0.0	120	0.0	0.203	13.0	LOS B	0.4	2.6	0.71	0.84	0.71	32.5
North: Tweed Coast Road (N)															
7	L2	All MCs	215	0.0	215	0.0	0.464	4.1	LOS A	1.7	12.0	0.34	0.40	0.34	51.7
8	T1	All MCs	1095	5.6	1095	5.6	0.464	4.5	LOS A	1.7	12.0	0.35	0.39	0.35	50.7
Approach			1309	4.7	1309	4.7	0.464	4.4	LOS A	1.7	12.0	0.35	0.39	0.35	50.9
All Vehicles			2478	4.2	2478	4.2	0.464	4.9	LOS A	1.7	12.0	0.33	0.42	0.33	47.5

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 AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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	0.366	22.0	LOS C	4.8	34.8	0.72	0.62	44.6
2	T1	All MCs	586	2.5	586	2.5	0.366	16.9	LOS B	4.9	34.8	0.72	0.62	38.8
3b	R3	All MCs	160	5.3	160	5.3	* 0.905	58.2	LOS E	4.7	34.5	1.00	1.07	21.1
Approach			755	3.3	755	3.3	0.905	25.7	LOS C	4.9	34.8	0.78	0.72	33.0
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	86	13.4	86	13.4	0.075	7.7	LOS A	0.2	1.7	0.16	0.62	52.3
22	T1	All MCs	92	4.6	92	4.6	0.609	21.6	LOS C	5.1	36.8	0.81	0.74	44.6
23a	R1	All MCs	453	2.6	453	2.6	0.609	25.8	LOS C	5.1	36.8	0.81	0.75	37.1
Approach			631	4.3	631	4.3	0.609	22.7	LOS C	5.1	36.8	0.72	0.73	40.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	764	1.9	764	1.9	* 0.831	20.0	LOS C	10.1	71.8	0.93	0.91	19.5
8	T1	All MCs	331	13.4	331	13.4	0.368	27.3	LOS C	3.3	26.0	0.87	0.71	35.4
9b	R3	All MCs	20	10.5	20	10.5	0.117	42.7	LOS D	0.5	3.5	0.93	0.71	27.8
Approach			1115	5.5	1115	5.5	0.831	22.6	LOS C	10.1	71.8	0.91	0.85	27.6
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	58	0.0	58	0.0	0.236	10.4	LOS B	1.0	7.1	0.81	0.71	38.3
28	T1	All MCs	115	0.0	115	0.0	* 0.532	38.2	LOS D	2.5	17.6	0.95	0.76	28.5
29a	R1	All MCs	15	14.3	15	14.3	0.532	43.5	LOS D	2.5	17.6	0.99	0.77	35.7
Approach			187	1.1	187	1.1	0.532	30.0	LOS C	2.5	17.6	0.91	0.75	31.8
All Vehicles			2687	4.3	2687	4.3	0.905	24.0	LOS C	10.1	71.8	0.83	0.78	33.7

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	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	1.06

SouthEast: Cudgen Road (SE)											
P5	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Coast Road (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
NorthWest: Cudgen Road (NW)											
P7	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 5 AM PEAK)

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	591	4.6	591	4.6	0.416	3.9	LOS A	5.1	36.9	0.39	0.35	50.9
6	R2	All MCs	1	0.0	1	0.0	*0.003	13.7	LOS B	0.0	0.1	0.51	0.60	38.4
Approach			592	4.6	592	4.6	0.416	3.9	LOS A	5.1	36.9	0.39	0.35	50.9
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.084	9.9	LOS A	0.3	1.8	0.93	0.69	13.8
9	R2	All MCs	40	0.0	40	0.0	0.133	37.6	LOS D	0.6	3.9	0.94	0.70	11.1
Approach			41	0.0	41	0.0	0.133	36.9	LOS D	0.6	3.9	0.94	0.70	11.1
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	87	0.0	*0.074	8.4	LOS A	0.5	3.7	0.32	0.62	49.0
11	T1	All MCs	1045	4.5	1045	4.5	*0.540	10.5	LOS B	8.3	60.5	0.59	0.53	48.6
Approach			1133	4.2	1133	4.2	0.540	10.3	LOS B	8.3	60.5	0.57	0.54	48.6
All Vehicles			1765	4.2	1765	4.2	0.540	8.8	LOS A	8.3	60.5	0.52	0.48	48.2

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Valley Hospital (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 5 AM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]				
			veh/h	%	veh/h	%	v/c	sec			m			km/h	
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	449	4.7	449	4.7	0.619	5.6	LOS A	2.5	17.9	0.69	0.57	0.69	48.4
22	T1	All MCs	143	0.0	143	0.0	0.619	5.8	LOS A	2.5	17.9	0.69	0.57	0.69	52.4
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.9	0.69	0.57	0.69	51.2
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.9	0.69	0.57	0.69	51.6
Approach			708	3.7	708	3.7	0.619	6.5	LOS A	2.5	17.9	0.69	0.57	0.69	50.2
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.449	10.8	LOS B	1.5	11.0	0.91	0.77	0.97	49.2
25	T1	All MCs	141	4.5	141	4.5	0.449	10.8	LOS B	1.5	11.0	0.91	0.77	0.97	43.5
26	R2	All MCs	45	0.0	45	0.0	0.449	15.5	LOS B	1.5	11.0	0.91	0.77	0.97	48.7
26u	U	All MCs	1	0.0	1	0.0	0.449	17.5	LOS B	1.5	11.0	0.91	0.77	0.97	48.5
Approach			300	3.9	300	3.9	0.449	11.5	LOS B	1.5	11.0	0.91	0.77	0.97	47.2
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	34	0.0	34	0.0	0.171	8.1	LOS A	0.3	2.2	0.70	0.77	0.70	51.5
28	T1	All MCs	62	0.0	62	0.0	0.171	8.0	LOS A	0.3	2.2	0.70	0.77	0.70	52.1
29	R2	All MCs	1	0.0	1	0.0	0.171	12.9	LOS B	0.3	2.2	0.70	0.77	0.70	47.6
29u	U	All MCs	1	0.0	1	0.0	0.171	14.9	LOS B	0.3	2.2	0.70	0.77	0.70	51.2
Approach			98	0.0	98	0.0	0.171	8.2	LOS A	0.3	2.2	0.70	0.77	0.70	51.9
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.376	6.5	LOS A	0.9	6.6	0.53	0.60	0.53	51.0
31	T1	All MCs	364	4.6	364	4.6	0.376	6.4	LOS A	0.9	6.6	0.53	0.60	0.53	51.3
32	R2	All MCs	677	4.7	677	4.7	0.546	10.6	LOS B	1.7	12.2	0.58	0.71	0.58	47.7
32u	U	All MCs	1	0.0	1	0.0	0.546	12.5	LOS B	1.7	12.2	0.58	0.71	0.58	40.8
Approach			1043	4.6	1043	4.6	0.546	9.1	LOS A	1.7	12.2	0.56	0.67	0.56	48.9
All Vehicles			2149	4.0	2149	4.0	0.619	8.5	LOS A	2.5	17.9	0.66	0.66	0.67	49.2

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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MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast Road (Site Folder: 2036 OPTION 5 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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)															
1	L2	All MCs	175	3.0	175	3.0	0.146	3.0	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
2	T1	All MCs	43	2.4	43	2.4	0.146	3.2	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
3	R2	All MCs	1294	2.9	1294	2.9	0.717	11.1	LOS B	3.5	24.8	0.69	0.67	0.72	50.4
Approach			1512	2.9	1512	2.9	0.717	10.0	LOS A	3.5	24.8	0.65	0.63	0.68	50.9
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.142	26.9	LOS C	0.6	4.1	1.00	0.87	1.00	45.7
8	T1	All MCs	73	2.9	73	2.9	0.252	18.6	LOS B	1.3	9.1	1.00	0.87	1.00	38.6
9	R2	All MCs	56	3.8	56	3.8	0.252	25.5	LOS C	1.3	9.1	1.00	0.87	1.00	45.3
Approach			182	3.5	182	3.5	0.252	23.2	LOS C	1.3	9.1	1.00	0.87	1.00	43.3
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.155	10.2	LOS B	0.4	2.8	0.90	0.81	0.90	51.5
11	T1	All MCs	1	0.0	1	0.0	0.155	9.6	LOS A	0.5	3.4	0.95	0.79	0.95	49.8
12	R2	All MCs	101	3.1	101	3.1	0.155	15.5	LOS B	0.5	3.4	0.96	0.78	0.96	44.7
Approach			171	3.1	171	3.1	0.155	13.3	LOS B	0.5	3.4	0.94	0.79	0.94	47.8
All Vehicles			3129	3.2	3129	3.2	0.717	8.1	LOS A	3.5	24.8	0.52	0.51	0.53	51.2

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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MOVEMENT SUMMARY

 Site: 101vv [Tweed Coast Road/Site Access (Site Folder: 2036 OPTION 5 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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	0.545	5.1	LOS A	1.7	12.6	0.43	0.50	0.43	38.2
3	R2	All MCs	22	0.0	22	0.0	0.545	10.8	LOS B	1.7	12.0	0.43	0.51	0.43	43.8
Approach			1309	3.4	1309	3.4	0.545	5.2	LOS A	1.7	12.6	0.43	0.50	0.43	38.4
East: Site Access (E)															
4	L2	All MCs	72	0.0	72	0.0	0.454	10.3	LOS B	1.0	7.0	0.74	0.91	0.91	31.0
6	R2	All MCs	224	0.0	224	0.0	0.454	15.4	LOS B	1.0	7.0	0.74	0.91	0.91	31.0
Approach			296	0.0	296	0.0	0.454	14.2	LOS B	1.0	7.0	0.74	0.91	0.91	31.0
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.372	3.7	LOS A	1.3	9.1	0.14	0.36	0.14	52.9
8	T1	All MCs	1041	3.9	1041	3.9	0.372	4.0	LOS A	1.3	9.1	0.15	0.36	0.15	52.4
Approach			1160	3.5	1160	3.5	0.372	4.0	LOS A	1.3	9.1	0.15	0.36	0.15	52.4
All Vehicles			2765	3.1	2765	3.1	0.545	5.7	LOS A	1.7	12.6	0.34	0.49	0.36	45.7

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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MOVEMENT SUMMARY

 Site: 103 [Tweed Coast Road/Cudgen Road (Site Folder: 2036 OPTION 5 PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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	0.377	26.0	LOS C	4.5	32.8	0.79	0.68	0.79	42.9
2	T1	All MCs	474	5.3	474	5.3	0.377	21.1	LOS C	4.5	32.9	0.79	0.67	0.79	35.5
3b	R3	All MCs	127	8.3	127	8.3	* 0.944	65.4	LOS E	4.0	30.0	1.00	1.12	1.78	19.5
Approach			625	5.7	625	5.7	0.944	30.3	LOS C	4.5	32.9	0.84	0.76	1.00	30.8
SouthEast: Cudgen Road (SE)															
21b	L3	All MCs	243	6.1	243	6.1	0.218	13.6	LOS B	1.8	13.0	0.41	0.69	0.41	51.0
22	T1	All MCs	139	5.3	139	5.3	* 0.837	35.6	LOS D	12.4	89.2	0.98	0.98	1.15	40.1
23a	R1	All MCs	889	1.8	889	1.8	0.837	37.5	LOS D	13.4	95.0	0.98	0.97	1.15	32.1
Approach			1272	3.0	1272	3.0	0.837	32.7	LOS C	13.4	95.0	0.87	0.92	1.01	36.1
North: Tweed Coast Road (N)															
7a	L1	All MCs	533	4.7	533	4.7	0.562	12.6	LOS B	4.5	33.1	0.73	0.78	0.73	26.0
8	T1	All MCs	539	2.7	539	2.7	* 0.804	39.3	LOS D	6.9	49.5	1.00	0.96	1.20	30.0
9b	R3	All MCs	41	0.0	41	0.0	0.289	45.9	LOS D	1.0	6.9	0.97	0.74	0.97	27.0
Approach			1113	3.6	1113	3.6	0.804	26.7	LOS C	6.9	49.5	0.87	0.87	0.97	29.0
NorthWest: Cudgen Road (NW)															
27b	L3	All MCs	41	0.0	41	0.0	0.320	12.6	LOS B	1.0	6.8	0.90	0.73	0.90	36.9
28	T1	All MCs	138	0.0	138	0.0	* 0.722	37.4	LOS D	3.5	25.0	0.97	0.83	1.09	28.0
29a	R1	All MCs	42	5.0	42	5.0	0.722	45.8	LOS D	3.5	25.0	1.00	0.88	1.17	34.7
Approach			221	1.0	221	1.0	0.722	34.4	LOS C	3.5	25.0	0.96	0.82	1.07	31.1
All Vehicles			3231	3.6	3231	3.6	0.944	30.3	LOS C	13.4	95.0	0.87	0.86	1.00	32.9

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	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	1.06

SouthEast: Cudgen Road (SE)											
P5	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Coast Road (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
NorthWest: Cudgen Road (NW)											
P7	Full	1	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		8	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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: 104 [Cudgen Road/Tweed Valley Hospital] (Site Folder: 2036 OPTION 5 PM PEAK)

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 80 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1079	3.8	1079	3.8	* 0.757	8.6	LOS A	14.8	106.9	0.63	0.58	46.7
6	R2	All MCs	1	0.0	1	0.0	0.002	13.4	LOS B	0.0	0.1	0.46	0.59	40.1
Approach			1080	3.8	1080	3.8	0.757	8.6	LOS A	14.8	106.9	0.63	0.58	44.2
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.401	9.0	LOS A	1.7	12.2	0.98	0.77	9.6
9	R2	All MCs	192	0.0	192	0.0	* 0.632	45.6	LOS D	2.9	20.4	0.99	0.80	9.4
Approach			193	0.0	193	0.0	0.632	45.4	LOS D	2.9	20.4	0.99	0.80	9.4
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.043	8.6	LOS A	0.3	2.2	0.35	0.62	48.8
11	T1	All MCs	817	3.7	817	3.7	0.420	9.3	LOS A	5.9	42.5	0.54	0.48	49.3
Approach			866	3.5	866	3.5	0.420	9.3	LOS A	5.9	42.5	0.53	0.49	49.2
All Vehicles			2139	3.3	2139	3.3	0.757	12.2	LOS B	14.8	106.9	0.62	0.56	42.6

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
North: Tweed Valley Hospital (N)											
P3	Full	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06
All Pedestrians		16	34.2	LOS D	0.0	0.0	0.93	0.93	188.1	200.0	1.06

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.

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MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 5 PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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]			
			veh/h	%	veh/h	%	v/c	sec			m			km/h
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	715	3.8	715	3.8	0.996	43.1	LOS D	15.9	114.7	1.00	1.88	24.9
22	T1	All MCs	60	0.0	60	0.0	0.996	43.2	LOS D	15.9	114.7	1.00	1.88	34.5
23	R2	All MCs	119	3.5	119	3.5	0.996	47.8	LOS D	15.9	114.7	1.00	1.88	33.8
23u	U	All MCs	3	0.0	3	0.0	0.996	49.7	LOS D	15.9	114.7	1.00	1.88	34.1
Approach			897	3.5	897	3.5	0.996	43.8	LOS D	15.9	114.7	1.00	1.88	27.3
NorthEast: Turnock Street (NE)														
24	L2	All MCs	88	3.6	88	3.6	0.598	11.3	LOS B	2.5	17.7	0.88	0.81	49.1
25	T1	All MCs	364	3.8	364	3.8	0.598	11.3	LOS B	2.5	17.7	0.88	0.81	43.4
26	R2	All MCs	31	0.0	31	0.0	0.598	16.1	LOS B	2.5	17.7	0.88	0.81	48.6
26u	U	All MCs	3	0.0	3	0.0	0.598	18.1	LOS B	2.5	17.7	0.88	0.81	48.5
Approach			486	3.5	486	3.5	0.598	11.7	LOS B	2.5	17.7	0.88	0.81	45.5
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	119	0.0	119	0.0	0.397	8.1	LOS A	0.8	5.6	0.70	0.79	51.5
28	T1	All MCs	145	0.0	145	0.0	0.397	8.0	LOS A	0.8	5.6	0.70	0.79	52.2
29	R2	All MCs	1	0.0	1	0.0	0.397	12.9	LOS B	0.8	5.6	0.70	0.79	47.7
29u	U	All MCs	1	0.0	1	0.0	0.397	14.9	LOS B	0.8	5.6	0.70	0.79	51.2
Approach			266	0.0	266	0.0	0.397	8.1	LOS A	0.8	5.6	0.70	0.79	51.9
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.324	5.7	LOS A	0.8	6.0	0.46	0.53	51.3
31	T1	All MCs	364	3.8	364	3.8	0.324	5.5	LOS A	0.8	6.0	0.46	0.53	51.7
32	R2	All MCs	447	3.8	447	3.8	0.342	9.7	LOS A	0.9	6.7	0.45	0.65	48.1
32u	U	All MCs	2	0.0	2	0.0	0.342	11.6	LOS B	0.9	6.7	0.45	0.65	41.5
Approach			815	3.7	815	3.7	0.342	7.8	LOS A	0.9	6.7	0.46	0.59	49.6
All Vehicles			2464	3.2	2464	3.2	0.996	21.7	LOS C	15.9	114.7	0.76	1.13	39.6

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: 101 [Pacific Motorway/Tweed Coast 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 (NO TVH) AM PEAK
(Network Folder: 2036
SCENARIO)]

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)															
1	L2	All MCs	91	3.5	91	3.5	0.084	2.8	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
2	T1	All MCs	36	2.9	36	2.9	0.084	3.0	LOS A	0.2	1.4	0.43	0.32	0.43	55.4
3	R2	All MCs	931	4.1	931	4.1	0.510	10.1	LOS B	1.8	12.8	0.56	0.59	0.56	50.8
Approach			1057	4.0	1057	4.0	0.510	9.3	LOS A	1.8	12.8	0.54	0.56	0.54	51.3
East: Pacific Motorway (E)															
4	L2	All MCs	1056	3.6	1056	3.6	0.350	2.4	LOS A	1.1	7.8	0.20	0.27	0.20	54.2
5	T1	All MCs	156	4.7	156	4.7	0.350	3.1	LOS A	1.1	7.8	0.52	0.37	0.52	54.5
6	R2	All MCs	75	4.2	75	4.2	0.350	10.0	LOS A	1.1	7.8	0.52	0.37	0.52	54.1
Approach			1286	3.8	1286	3.8	0.350	2.9	LOS A	1.1	7.8	0.26	0.29	0.26	54.3
North: Chinderah Road (N)															
7	L2	All MCs	51	4.2	51	4.2	0.064	11.8	LOS B	0.2	1.7	0.98	0.70	0.98	52.5
8	T1	All MCs	89	3.5	89	3.5	0.161	8.6	LOS A	0.7	4.9	1.00	0.71	1.00	45.7
9	R2	All MCs	63	5.0	63	5.0	0.161	15.5	LOS B	0.7	4.9	1.00	0.71	1.00	50.5
Approach			203	4.1	203	4.1	0.161	11.6	LOS B	0.7	4.9	0.99	0.71	0.99	49.4
West: Pacific Motorway (W)															
10	L2	All MCs	63	5.0	63	5.0	0.089	5.8	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
11	T1	All MCs	1	0.0	1	0.0	0.089	8.9	LOS A	0.2	1.4	0.73	0.67	0.73	53.9
12	R2	All MCs	165	3.8	165	3.8	0.167	12.1	LOS B	0.4	3.2	0.77	0.72	0.77	45.6
Approach			229	4.1	229	4.1	0.167	10.4	LOS B	0.4	3.2	0.76	0.71	0.76	48.2
All Vehicles			2776	3.9	2776	3.9	0.510	6.6	LOS A	1.8	12.8	0.46	0.46	0.46	51.8

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: 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 (NO TVH) AM PEAK
(Network Folder: 2036
SCENARIO)]

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]			km/h
			veh/h	%	veh/h	%	v/c	sec			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	39.2
3	R2	All MCs	226	0.0	226	0.0	0.432	9.8	LOS A	1.3	9.0	0.29	0.51	43.1
Approach			1184	3.6	1184	3.6	0.432	5.2	LOS A	1.3	9.4	0.28	0.45	40.4
East: Site Access (E)														
4	L2	All MCs	89	0.0	89	0.0	0.349	9.5	LOS A	0.7	5.1	0.78	0.87	32.6
6	R2	All MCs	99	0.0	99	0.0	0.349	14.6	LOS B	0.7	5.1	0.78	0.87	32.6
Approach			188	0.0	188	0.0	0.349	12.2	LOS B	0.7	5.1	0.78	0.87	32.6
North: Tweed Coast Road (N)														
7	L2	All MCs	215	0.0	215	0.0	0.531	5.1	LOS A	2.0	14.7	0.58	0.48	50.4
8	T1	All MCs	1095	5.6	1095	5.6	0.531	5.7	LOS A	2.0	14.7	0.59	0.48	48.8
Approach			1309	4.7	1309	4.7	0.531	5.6	LOS A	2.0	14.7	0.59	0.48	49.1
All Vehicles			2682	3.9	2682	3.9	0.531	5.9	LOS A	2.0	14.7	0.47	0.49	45.6

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) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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	Aver. Back Of Queue [Veh. veh	Prop. Que Dist] m	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Tweed Coast Road (S)														
1a	L1	All MCs	8	25.0	8	25.0	0.359	23.5	LOS C	5.3	38.4	0.71	0.62	43.8
2	T1	All MCs	586	2.5	586	2.5	0.359	18.4	LOS B	5.4	38.4	0.71	0.61	37.6
3b	R3	All MCs	160	5.3	160	5.3	* 0.916	65.2	LOS E	5.3	38.9	1.00	1.07	19.6
Approach			755	3.3	755	3.3	0.916	28.3	LOS C	5.4	38.9	0.78	0.71	31.5
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	86	13.4	86	13.4	0.074	8.2	LOS A	0.4	2.9	0.25	0.64	51.9
22	T1	All MCs	92	4.6	92	4.6	0.705	26.5	LOS C	7.8	56.0	0.88	0.80	42.3
23a	R1	All MCs	588	2.0	588	2.0	0.705	30.7	LOS C	7.8	56.0	0.88	0.81	34.5
Approach			766	3.6	766	3.6	0.705	27.6	LOS C	7.8	56.0	0.81	0.79	37.9
North: Tweed Coast Road (N)														
7a	L1	All MCs	833	1.8	833	1.8	* 0.827	18.8	LOS B	11.5	81.5	0.90	0.89	20.5
8	T1	All MCs	331	13.4	331	13.4	0.332	28.2	LOS C	3.6	27.9	0.84	0.69	35.0
9b	R3	All MCs	20	10.5	20	10.5	0.118	47.1	LOS D	0.5	3.9	0.93	0.71	26.5
Approach			1183	5.2	1183	5.2	0.827	21.9	LOS C	11.5	81.5	0.88	0.83	27.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	58	0.0	58	0.0	0.266	11.6	LOS B	1.2	8.1	0.84	0.73	36.3
28	T1	All MCs	115	0.0	115	0.0	* 0.599	44.5	LOS D	2.8	20.1	0.96	0.78	26.4
29a	R1	All MCs	15	14.3	15	14.3	0.599	49.7	LOS D	2.8	20.1	1.00	0.80	33.6
Approach			187	1.1	187	1.1	0.599	34.7	LOS C	2.8	20.1	0.93	0.77	29.6
All Vehicles			2892	4.0	2892	4.0	0.916	25.9	LOS C	11.5	81.5	0.84	0.78	32.6

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	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	1.04

SouthEast: Cudgen Road (SE)											
P5	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
North: Tweed Coast Road (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
NorthWest: Cudgen Road (NW)											
P7	Full	1	39.2	LOS D	0.0	0.0	0.93	0.93	193.0	200.0	1.04
All Pedestrians		8	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2036 OPTION 5 (NO TVH) AM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 90 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	726	3.8	726	3.8	0.491	3.9	LOS A	6.9	50.0	0.39	0.36	51.1
6	R2	All MCs	1	0.0	1	0.0	*0.003	12.8	LOS B	0.0	0.1	0.46	0.60	39.2
Approach			727	3.8	727	3.8	0.491	3.9	LOS A	6.9	50.0	0.39	0.36	51.0
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.095	10.3	LOS B	0.3	2.2	0.93	0.69	12.4
9	R2	All MCs	40	0.0	40	0.0	0.149	42.7	LOS D	0.6	4.5	0.95	0.70	10.0
Approach			41	0.0	41	0.0	0.149	41.9	LOS D	0.6	4.5	0.95	0.70	10.0
West: Cudgen Road (W)														
10	L2	All MCs	87	0.0	87	0.0	*0.072	7.6	LOS A	0.4	3.0	0.24	0.60	49.7
11	T1	All MCs	1145	4.1	1145	4.1	*0.548	7.7	LOS A	8.0	57.7	0.46	0.41	51.7
Approach			1233	3.8	1233	3.8	0.548	7.7	LOS A	8.0	57.7	0.44	0.43	51.5
All Vehicles			2001	3.7	2001	3.7	0.548	7.0	LOS A	8.0	57.7	0.43	0.41	50.3

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]			sec	m	m/sec
East: Cudgen Road (E)											
P2	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
North: Tweed Valley Hospital (N)											
P3	Full	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
West: Cudgen Road (W)											
P4B	Slip/Bypass	5	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04
All Pedestrians		16	39.2	LOS D	0.0	0.0	0.93	0.93	193.1	200.0	1.04

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street** (Site Folder:
2036 OPTION 5 (NO TVH) AM PEAK])

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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				
SouthEast: Cudgen Road (SE)															
21	L2	All MCs	553	3.8	553	3.8	0.619	5.6	LOS A	2.5	17.8	0.68	0.57	0.68	48.6
22	T1	All MCs	40	0.0	40	0.0	0.619	5.8	LOS A	2.5	17.8	0.68	0.57	0.68	52.6
23	R2	All MCs	106	5.0	106	5.0	0.619	10.4	LOS B	2.5	17.8	0.68	0.57	0.68	51.4
23u	U	All MCs	9	0.0	9	0.0	0.619	12.3	LOS B	2.5	17.8	0.68	0.57	0.68	51.8
Approach			708	3.7	708	3.7	0.619	6.4	LOS A	2.5	17.8	0.68	0.57	0.68	49.7
NorthEast: Turnock Street (NE)															
24	L2	All MCs	113	4.7	113	4.7	0.442	10.7	LOS B	1.4	10.4	0.89	0.76	0.95	49.6
25	T1	All MCs	174	3.6	174	3.6	0.442	10.6	LOS B	1.4	10.4	0.89	0.76	0.95	44.2
26	R2	All MCs	13	0.0	13	0.0	0.442	15.4	LOS B	1.4	10.4	0.89	0.76	0.95	49.1
26u	U	All MCs	1	0.0	1	0.0	0.442	17.4	LOS B	1.4	10.4	0.89	0.76	0.95	49.0
Approach			300	3.9	300	3.9	0.442	10.9	LOS B	1.4	10.4	0.89	0.76	0.95	47.2
NorthWest: Tweed Valley Hospital Access (NW)															
27	L2	All MCs	9	0.0	9	0.0	0.052	8.1	LOS A	0.1	0.6	0.67	0.76	0.67	51.3
28	T1	All MCs	18	0.0	18	0.0	0.052	7.9	LOS A	0.1	0.6	0.67	0.76	0.67	51.9
29	R2	All MCs	1	0.0	1	0.0	0.052	12.9	LOS B	0.1	0.6	0.67	0.76	0.67	47.4
29u	U	All MCs	1	0.0	1	0.0	0.052	14.9	LOS B	0.1	0.6	0.67	0.76	0.67	51.0
Approach			29	0.0	29	0.0	0.052	8.4	LOS A	0.1	0.6	0.67	0.76	0.67	51.6
SouthWest: Cudgen Road (SW)															
30	L2	All MCs	1	0.0	1	0.0	0.348	5.5	LOS A	0.9	6.6	0.43	0.50	0.43	51.5
31	T1	All MCs	388	4.3	388	4.3	0.348	5.4	LOS A	0.9	6.6	0.43	0.50	0.43	51.8
32	R2	All MCs	721	4.4	721	4.4	0.513	9.7	LOS A	1.7	12.2	0.48	0.63	0.48	48.0
32u	U	All MCs	1	0.0	1	0.0	0.513	11.6	LOS B	1.7	12.2	0.48	0.63	0.48	41.4
Approach			1112	4.4	1112	4.4	0.513	8.2	LOS A	1.7	12.2	0.46	0.58	0.46	49.3
All Vehicles			2149	4.0	2149	4.0	0.619	8.0	LOS A	2.5	17.8	0.60	0.61	0.60	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.

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13_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 101 [Pacific Motorway/Tweed Coast 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 (NO TVH) PM PEAK (Network Folder: 2036 SCENARIO)]

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
South: Tweed Coast Road (S)															
1	L2	All MCs	175	3.0	175	3.0	0.146	3.0	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
2	T1	All MCs	43	2.4	43	2.4	0.146	3.2	LOS A	0.4	2.6	0.47	0.34	0.47	55.2
3	R2	All MCs	1294	2.9	1294	2.9	0.717	11.1	LOS B	3.5	24.8	0.69	0.67	0.72	50.4
Approach			1512	2.9	1512	2.9	0.717	10.0	LOS A	3.5	24.8	0.65	0.63	0.68	50.9
East: Pacific Motorway (E)															
4	L2	All MCs	985	3.3	985	3.3	0.337	2.2	LOS A	1.0	7.4	0.16	0.27	0.16	54.4
5	T1	All MCs	160	3.9	160	3.9	0.337	2.8	LOS A	1.0	7.4	0.45	0.35	0.45	54.6
6	R2	All MCs	120	3.5	120	3.5	0.337	9.7	LOS A	1.0	7.4	0.45	0.35	0.45	54.2
Approach			1265	3.4	1265	3.4	0.337	3.0	LOS A	1.0	7.4	0.22	0.29	0.22	54.4
North: Chinderah Road (N)															
7	L2	All MCs	54	3.9	54	3.9	0.142	26.9	LOS C	0.6	4.1	1.00	0.87	1.00	45.7
8	T1	All MCs	73	2.9	73	2.9	0.252	18.6	LOS B	1.3	9.1	1.00	0.87	1.00	38.6
9	R2	All MCs	56	3.8	56	3.8	0.252	25.5	LOS C	1.3	9.1	1.00	0.87	1.00	45.3
Approach			182	3.5	182	3.5	0.252	23.2	LOS C	1.3	9.1	1.00	0.87	1.00	43.3
West: Pacific Motorway (W)															
10	L2	All MCs	68	3.1	68	3.1	0.155	10.2	LOS B	0.4	2.8	0.90	0.81	0.90	51.5
11	T1	All MCs	1	0.0	1	0.0	0.155	9.6	LOS A	0.5	3.4	0.95	0.79	0.95	49.8
12	R2	All MCs	101	3.1	101	3.1	0.155	15.5	LOS B	0.5	3.4	0.96	0.78	0.96	44.7
Approach			171	3.1	171	3.1	0.155	13.3	LOS B	0.5	3.4	0.94	0.79	0.94	47.8
All Vehicles			3129	3.2	3129	3.2	0.717	8.1	LOS A	3.5	24.8	0.52	0.51	0.53	51.2

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-data\1\Working\PSA Projects\1831 Cudgen Connection_Updated TIA\3 Research\October_2024_Analysis
\\3_Sidra\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

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 (NO TVH) PM PEAK
(Network Folder: 2036
SCENARIO)]

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	0.46	0.52	0.46	37.5
3	R2	All MCs	81	0.0	81	0.0	0.574	10.9	LOS B	1.9	13.4	0.47	0.55	0.47	43.1
Approach			1368	3.2	1368	3.2	0.574	5.5	LOS A	2.0	14.1	0.46	0.52	0.46	38.1
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	26.3
Approach			465	0.0	465	0.0	0.753	18.4	LOS B	2.6	18.2	0.88	1.11	1.48	26.3
North: Tweed Coast Road (N)															
7	L2	All MCs	119	0.0	119	0.0	0.408	4.0	LOS A	1.4	10.1	0.31	0.39	0.31	51.8
8	T1	All MCs	1041	3.9	1041	3.9	0.408	4.4	LOS A	1.4	10.1	0.32	0.38	0.32	50.9
Approach			1160	3.5	1160	3.5	0.408	4.3	LOS A	1.4	10.1	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	42.8

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 (NO TVH) PM PEAK (Network Folder: 2036 SCENARIO)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Practical 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	0.357	29.4	LOS C	5.4	39.3	0.77	0.66	41.3
2	T1	All MCs	474	5.3	474	5.3	0.357	24.6	LOS C	5.4	39.4	0.77	0.66	33.3
3b	R3	All MCs	127	8.3	127	8.3	*0.918	71.6	LOS E	4.6	34.8	1.00	1.06	18.3
Approach			625	5.7	625	5.7	0.918	34.3	LOS C	5.4	39.4	0.82	0.74	29.0
SouthEast: Cudgen Road (SE)														
21b	L3	All MCs	243	6.1	243	6.1	0.213	15.6	LOS B	1.3	9.7	0.24	0.65	51.8
22	T1	All MCs	139	5.3	139	5.3	*0.859	39.3	LOS D	14.5	103.9	0.92	0.92	40.0
23a	R1	All MCs	947	1.7	947	1.7	0.859	38.7	LOS D	17.1	121.7	0.94	0.93	32.0
Approach			1329	2.9	1329	2.9	0.859	34.6	LOS C	17.1	121.7	0.81	0.88	35.2
North: Tweed Coast Road (N)														
7a	L1	All MCs	701	3.6	701	3.6	*0.648	13.2	LOS B	7.3	52.4	0.72	0.79	25.6
8	T1	All MCs	539	2.7	539	2.7	0.639	38.8	LOS D	7.4	53.4	0.96	0.81	30.2
9b	R3	All MCs	41	0.0	41	0.0	0.281	54.7	LOS D	1.2	8.5	0.97	0.74	24.5
Approach			1281	3.1	1281	3.1	0.648	25.3	LOS C	7.4	53.4	0.83	0.80	28.7
NorthWest: Cudgen Road (NW)														
27b	L3	All MCs	41	0.0	41	0.0	0.361	15.0	LOS B	1.3	8.8	0.93	0.75	33.2
28	T1	All MCs	138	0.0	138	0.0	*0.813	49.7	LOS D	4.6	32.6	0.98	0.88	23.9
29a	R1	All MCs	42	5.0	42	5.0	0.813	58.9	LOS E	4.6	32.6	1.00	0.94	30.9
Approach			221	1.0	221	1.0	0.813	45.0	LOS D	4.6	32.6	0.98	0.87	27.0
All Vehicles			3457	3.3	3457	3.3	0.918	31.7	LOS C	17.1	121.7	0.83	0.82	31.7

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	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Tweed Coast Road (S)											
P1	Full	1	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01

SouthEast: Cudgen Road (SE)											
P5	Full	1	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
North: Tweed Coast Road (N)											
P3	Full	5	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
NorthWest: Cudgen Road (NW)											
P7	Full	1	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
All Pedestrians		8	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01

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: 104 [Cudgen Road/Tweed Valley Hospital (Site Folder: 2036 OPTION 5 (NO TVH) PM PEAK)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Practical 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]					[Veh. veh	Dist]			km/h
			veh/h	%	veh/h	%	v/c	sec			m			
East: Cudgen Road (E)														
5	T1	All MCs	1138	3.6	1138	3.6	* 0.747	7.9	LOS A	16.6	120.1	0.54	0.50	48.3
6	R2	All MCs	1	0.0	1	0.0	0.003	14.1	LOS B	0.0	0.1	0.42	0.60	39.6
Approach			1139	3.6	1139	3.6	0.747	7.9	LOS A	16.6	120.1	0.54	0.50	45.3
North: Tweed Valley Hospital (N)														
7	L2	All MCs	1	0.0	1	0.0	0.591	13.1	LOS B	2.7	18.9	1.00	0.80	7.7
9	R2	All MCs	192	0.0	192	0.0	* 0.931	69.1	LOS E	3.9	27.0	1.00	0.94	6.7
Approach			193	0.0	193	0.0	0.931	68.8	LOS E	3.9	27.0	1.00	0.94	6.5
West: Cudgen Road (W)														
10	L2	All MCs	49	0.0	49	0.0	0.040	8.2	LOS A	0.3	2.0	0.25	0.60	49.6
11	T1	All MCs	986	3.1	986	3.1	0.444	10.0	LOS A	8.6	62.0	0.54	0.45	49.2
Approach			1036	2.9	1036	2.9	0.444	9.9	LOS A	8.6	62.0	0.52	0.46	48.9
All Vehicles			2367	3.0	2367	3.0	0.931	13.8	LOS B	16.6	120.1	0.57	0.52	41.4

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]			sec	m	m/sec
						m					
East: Cudgen Road (E)											
P2	Full	5	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
North: Tweed Valley Hospital (N)											
P3	Full	5	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
West: Cudgen Road (W)											
P4B	Slip/ Bypass	5	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01
All Pedestrians		16	44.2	LOS E	0.0	0.0	0.94	0.94	198.0	200.0	1.01

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.

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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\1831_Cudgen Connection_Updated TIA_241212_V3.sip9

MOVEMENT SUMMARY

 **Site: 105 [Cudgen Road/Turnock Street (Site Folder: 2036 OPTION 5 (NO TVH) PM PEAK)]**

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

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

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
SouthEast: Cudgen Road (SE)														
21	L2	All MCs	753	3.6	753	3.6	0.999	44.3	LOS D	16.2	116.9	1.00	1.91	24.5
22	T1	All MCs	22	0.0	22	0.0	0.999	44.4	LOS D	16.2	116.9	1.00	1.91	34.1
23	R2	All MCs	119	3.5	119	3.5	0.999	49.0	LOS D	16.2	116.9	1.00	1.91	29.7
23u	U	All MCs	3	0.0	3	0.0	0.999	50.9	LOS E	16.2	116.9	1.00	1.91	33.8
Approach			897	3.5	897	3.5	0.999	45.0	LOS D	16.2	116.9	1.00	1.91	26.4
NorthEast: Turnock Street (NE)														
24	L2	All MCs	88	3.6	88	3.6	0.601	11.4	LOS B	2.5	18.3	0.89	0.81	49.2
25	T1	All MCs	384	3.6	384	3.6	0.601	11.5	LOS B	2.5	18.3	0.89	0.81	43.4
26	R2	All MCs	12	0.0	12	0.0	0.601	16.2	LOS B	2.5	18.3	0.89	0.81	48.7
26u	U	All MCs	3	0.0	3	0.0	0.601	18.2	LOS B	2.5	18.3	0.89	0.81	48.5
Approach			487	3.5	487	3.5	0.601	11.6	LOS B	2.5	18.3	0.89	0.81	45.3
NorthWest: Tweed Valley Hospital Access (NW)														
27	L2	All MCs	43	0.0	43	0.0	0.155	7.6	LOS A	0.3	1.8	0.65	0.75	51.9
28	T1	All MCs	53	0.0	53	0.0	0.155	7.4	LOS A	0.3	1.8	0.65	0.75	52.5
29	R2	All MCs	1	0.0	1	0.0	0.155	12.4	LOS B	0.3	1.8	0.65	0.75	48.3
29u	U	All MCs	1	0.0	1	0.0	0.155	14.3	LOS B	0.3	1.8	0.65	0.75	51.6
Approach			98	0.0	98	0.0	0.155	7.6	LOS A	0.3	1.8	0.65	0.75	52.2
SouthWest: Cudgen Road (SW)														
30	L2	All MCs	1	0.0	1	0.0	0.366	5.4	LOS A	1.0	7.3	0.43	0.50	51.5
31	T1	All MCs	440	3.1	440	3.1	0.366	5.2	LOS A	1.0	7.3	0.43	0.50	51.9
32	R2	All MCs	540	3.1	540	3.1	0.387	9.5	LOS A	1.1	8.2	0.42	0.63	48.3
32u	U	All MCs	2	0.0	2	0.0	0.387	11.4	LOS B	1.1	8.2	0.42	0.63	41.7
Approach			983	3.1	983	3.1	0.387	7.5	LOS A	1.1	8.2	0.42	0.57	49.8
All Vehicles			2465	3.2	2465	3.2	0.999	22.0	LOS C	16.2	116.9	0.73	1.11	39.0

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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