

Justin Murphy

From: Ken Hollyoak
Sent: Wednesday, 20 February 2013 9:21 AM
To: Wayne Johnson; Justin Murphy
Subject: FW: UPDATED Trip Generation Analysis - Culburra 3A Development - assumptions for traffic study
Attachments: Hourly Data 2004 07053 Falls Creek Correction.xls; Greenwell Point Rd Annual Analysis based on 2008.xlsx; Forest Rd Annual Analysis based on 2008.xlsx; Culburra Traffic Gen Analysis.xlsx

From: Wells, Scott [mailto:WELLSS@shoalhaven.nsw.gov.au]
Sent: Tuesday, 19 February 2013 6:37 PM
To: Ken Hollyoak
Cc: Britton, John; Williams, Brett; 'MILLET Chris P'
Subject: UPDATED Trip Generation Analysis - Culburra 3A Development - assumptions for traffic study

Hi Ken

The following is summary of our analysis of external traffic generation rates to be applied, and what adjustments are required in our view to the May 2012 base survey data you are intending to use as basis for your analysis. The spreadsheet used to base this analysis summary is attached (Culburra Traffic Gen analysis) and the annual traffic data used to derive AADT and 120th HH factors are also attached (Greenwell Pt Rd and Forest Rd for local adjustment factors, Princes Highway Falls Creek for Highway adjustment factors).

The analysis is detailed, undertaken by our Transport Engineer. I have reviewed and support the findings. The impact of the development is likely to be considerable and we have undertaken the analysis to ensure the analysis of the developments impacts is sufficiently detailed, robust and realistic in order for Council and RMS to better understand the developments likely impacts.

As previously stated this area is objected to significant seasonal fluctuations in traffic levels, thus the request to consider an AADT scenario as well as 120th HH scenario in accordance with RMS guidelines and AUSTROADS.

Peak Hour Development Traffic Generation

To be applied to proposed residential development – these rates are based on detached dwellings, reduction may need to be considered for any proposed non-detached dwellings. Note this is for external regional traffic distribution only. Directional split data obtained from examining local road annual data in equivalent AADT & 120th Highest Annual Hour periods.

Peak Hour Scenario	Factor (vehicles per hour per occupied dwelling)	Directional Split – AADT (eastbound / westbound)	Directional Split – 120th HH (eastbound / westbound)
Friday AM	0.22	22% / 78%	24% / 76%
Friday PM	0.21	65% / 35%	75% / 25%
Saturday MD	0.23	53% / 47%	50% / 50%

Note: The balance of peak hour trips per dwelling (in accordance with RTA's Guide to Traffic Generating Developments) must be assigned to/from Culburra to complete the external distribution analysis.

Survey Data Conversion Rates for Peak Hour Traffic Volumes – NON-HIGHWAY DATA – Based on Local Peaks

These factors convert 1-hour data from the applicants May 2012 surveys to theoretical AADT & Seasonal Peak flows for the intersection analysis. These factors apply to all surveyed local road peak hour flows, including all movements to/from the Highway, but not north-south through movements on the Highway (refer factors below for highway analysis). The additional factors for Friday (3-4pm) & Saturday (8-9am) are provided for separate analysis as the local and highway peaks do not coincide at these times. Note the Friday AM peak (8-9am) for local & Highway traffic coincided, therefore separate analysis is not required. Because of the conflicting peak times our recommendation is for all of the following scenarios to be assessed for worst case in each of the AADT and 120th HH scenarios.

Peak Hour Scenario AADT Analysis	Factor (converts 2012 survey data to theoretical AADT values – <u>LOS C</u> target for intersection analysis)
Friday AM (8-9am)	0.92
Friday PM (2-3pm)	1.10*
Saturday MD (12-1pm)	1.11
Friday PM (3-4pm)	1.10
Saturday AM (8-9am)	1.07

Peak Hour Scenario Seasonal Peak (120th HH) Analysis	Factor (converts 2012 survey data to theoretical Seasonal Peak values i.e. 120 th Highest Annual Hour – <u>LOS D</u> target for intersection analysis)
Friday AM (8-9am)	1.12
Friday PM (2-3pm)	1.41*
Saturday MD (12-1pm)	1.25
Friday PM (3-4pm)	1.41
Saturday MD (8-9am)	1.17

* Note: the Friday PM 1-hour analysis has also been factored to account for the actual local peak which occurred between 2-3pm, rather than the 4-5pm peak reported in the 2012 survey data, which was approx 15% lower than the 2-3pm volume (local roads analysis).

* Note: the above factors are derived from the combined analysis of annual traffic data from the Greenwell Point Road and Forest Road data.

Survey Data Conversion Rates for Peak Hour Traffic Volumes – PRINCES HIGHWAY DATA – Based on Local & Highway Peaks

This converts 1-hour data from May 2012 survey to theoretical AADT & Seasonal Peak flows for intersection analysis. These factors apply only to all surveyed north-south through movements on the Highway for analysis based on either local (Coastal Villages) or Highway peak hour flows. The additional factors for Friday (3-4pm) & Saturday (8-9am) are provided for separate analysis as the local and highway peaks do not coincide at these times. Note the Friday AM peak (8-9am) for local & Highway traffic coincided, therefore separate analysis is not required. Because of the conflicting peak times our recommendation is for all of the following scenarios to be assessed for worst case in each of the AADT and 120th HH scenarios.

Peak Hour Scenario AADT Analysis	Factor (converts 2012 survey data to theoretical AADT values – <u>LOS C</u> target for intersection analysis)
Friday AM (8-9am)	0.88
Friday PM (2-3pm)**	0.89
Saturday MD (12-1pm)[†]	1.27
Friday PM (3-4pm)	0.88
Saturday AM (8-9am)	1.32

Peak Hour Scenario Seasonal Peak (120th HH)	Factor (converts 2012 survey data to theoretical Seasonal Peak values i.e. 120 th Highest Annual Hour – <u>LOS D</u> target for intersection analysis)
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Analysis	Peak values i.e. 120th Highest Annual Hour – LOS D target for intersection analysis)
Friday AM (8-9am)	1.25
Friday PM (2-3pm)**	1.13
Saturday MD (12-1pm)[†]	1.37
Friday PM (3-4pm)	1.15
Saturday MD (8-9am)	1.43

Note: The above factors are based on a permanent count station on the Princes Highway at Falls Creek (ie outside of the Nowra Urban Area) which is subject to AADT volumes of approx 20,000 veh/day. As the Princes Highway through the Nowra Urban Area is subject to volumes approximately twice as high (ie 40,000 veh/day), the influence of these factors can be reduced by half for analysis of the urban Princes Highway intersections (ie at Kalandar Street & Moss Street). This results in the following factors (reading down the page): 0.94, 0.95, 1.14, 0.94, 1.16, 1.13, 1.07, 1.18, 1.07 & 1.21 for urban area intersection analysis, and it is our view that it would be appropriate for the latter factors to be applied to all north-south through movements on the Highway to avoid un-justified increases or decreases to through-flows on the Highway for analysis.

*** Note: the Friday PM peak hour on the Princes Highway at Falls Creek was 3-4pm, differed from both the surveyed peak (4-5pm) and the local peak (2-3pm). Accordingly, separate factors for undertaking a “Highway” peak hour analysis are also provided (the actual likely Friday PM peak hour).*

† Note: the Saturday peak hour on the Princes Highway at Falls Creek occurred between 8-9am, which was different to the local peak (12-1pm). Accordingly, separate factors for undertaking a “Highway” peak hour analysis are also provided (the actual likely Saturday peak hour).

Survey Data Conversion Rates for “Daily” Traffic Volumes – NON-HIGHWAY DATA

These factors convert the applicant's May 2012 survey data to theoretical daily flows from AADT & Seasonal Peak (120th Highest Annual Hour) equivalent peak hour flow levels. This is required to be undertaken to assess road design aspects (cross-section parameters) ie lane widths, clear zones, overtaking lanes etc for all scenarios including BOTH with / without the development.

This analysis is for local roads only, ie cross section assessment is not required to be undertaken on the Princes Highway.

The factors were determined by combining a peak-to-daily factor for each of the 6 scenarios (determined by analysing 2008 AADT & Seasonal peak-to-daily factors separately) with a conversion factor for either Friday or Saturday, which compared the equivalent survey dates in 2008 (based on proximity to School Holidays) to the AADT & Seasonal (120th HH) volumes accordingly.

Because of the conflicting peak times our recommendation is for all of the following scenarios to be assessed for worst case in each of the AADT and 120th HH daily flow scenarios.

AADT Peak-to-Daily Factors (applies to surveyed 1-hour data from May 2012)	Factor (converts 2012 survey data to theoretical Annual Average Daily volume level)
Friday AM (8-9am)	10.22
Saturday MD (12-1pm)	14.06

Seasonal Peak-to-Daily Factors (applies to surveyed 1-hour data from May 2012)	Factor (converts 2012 survey data to theoretical Seasonal Peak (120 th HH) equivalent daily volume level)
Friday AM (8-9am)	14.34
Saturday MD (12-1pm)	16.67

** Note: the actual Friday PM local peak occurred between 2-3pm, rather than the 4-5pm peak reported in the 2012 survey data, which was approx 15% lower than the 2-3pm volume. Accordingly the adjustment has only been applied to the Friday AM data, although only one daily flow calculation is required for the Friday in any case.*

** Note: the above factors are to be applied direct to the base 2012 May survey data (local roads only).*

** Note: the above factors are to calculate base daily flow levels for the AADT and 120th HH equivalent daily flow scenarios. Your assessment will need to take into account the case with / without the development. To estimate the developments external daily traffic generation, refer to the top table for peak hour generation rates and use the same ratio of (external regional peak hour generation / RMS peak hour generation) to the RMS daily traffic generation rates to estimate external regional daily traffic generation. Similar to the peak hour analysis the balance of daily trips (between the RMS daily rate and the external regional daily development traffic) will then be assigned to/from Culburra Village to assess those more local impacts, in addition to the regional road impact analysis.*

I hope all of that makes sense. We have tried to explain it in as simple terms as possible. We don't want to over complicate the assessment, but we do have an obligation to Council and the local community that the assessment has been undertaken correctly.

In regards to the future analysis scenario Council has adopted an ID forecast data set which provides population and dwelling projections in 5 year increments to 2036.

In addition to the above we will review this forecast data to provide our best advice in regards to an appropriate background traffic growth rate to apply for your assessment of future impacts. Ie as previously advised your analysis will need to consider a more realistic future time upon which the development will fully impact the surrounding road network. A ten year assessment is supported as industry practice however the growth rate to be applied needs to be agreed. We will review our ID data and provide advice in the coming days.

We will also provide our advice regarding external traffic distribution when you can clarify some of the points raised in my previous email and accordingly provide the additional information required.

Hope all of this helps, and I apologise for the delay.

I would expect the RMS will now review this advice and indicate whether they concur to this component of the study assumptions, as they will need to do for the distribution assumptions.

**Kind Regards,
Scott Wells**

**Traffic & Transport Unit Manager
Shoalhaven City Council**

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From 2008 Annual Counts on Forest Rd & Greenwell Point Rd

Forest Rd AADT: 2131 (FOREST ROAD 550m EAST OF PRINCES HIGHWAY)
Greenwell Point Rd AADT: 6003 (GREENWELL POINT ROAD 737m WEST OF PYREE LANE)
Combined Data AADT: 8134
Combined Equivalent Census Day: 7576 (occurred on Tuesday 12th Aug 2008 - equivalent day to 2011 Census day on 9th Aug 2011)

Forest Rd 120th HH: 232 2008-04-29 16:00:00 Tuesday
Greenwell Point Rd 120th HH: 669 2008-03-24 13:00:00 Monday
Combined Data 120th HH: 885 2008-01-25 13:00:00 Friday (based on combining hourly data from each site to determine total 120th HH)

Equivalent Census Night Occupied Dwellings: 3324 (based on 2011 Census Enumerated population - where people were on Census night)
Note: see separate tab for methodology to calculate number of "equivalent" dwellings

Equivalent 2011 Combined AADT: 8632 (2% compound growth assumed)
Equivalent 2011 Combined Census Day Volume: 8040 (2% compound growth assumed)

External Traffic Generation: 2.4 Average Daily Trips per Occupied Dwelling
Equivalent 2011 AADT Occupied Dwellings: 3569 Theoretical number of occupied dwellings for AADT traffic rates

Fri AADT AM Peak to Daily Factor: 9.0% (based on Fridays with volumes close to AADT volume of 8,134 veh/day)
Fri AADT PM Peak to Daily Factor: 8.5% (based on Fridays with volumes close to AADT volume of 8,134 veh/day)
Sat AADT MD Peak to Daily Factor: 9.6% (based on Saturdays with volumes close to AADT volume of 8,134 veh/day)

Fri Seasonal Peak AM Peak to Daily Factor: 7.6% (based on Friday 25th Jan - date of 120th HH and 2nd highest Friday observed in 2008)
Fri Seasonal Peak PM Peak to Daily Factor: 7.8% (based on Friday 25th Jan - date of 120th HH and 2nd highest Friday observed in 2008)
Sat Seasonal Peak MD Peak to Daily Factor: 9.6% (based on Saturday 26th Jan - 3rd highest Saturday observed in 2008)

Fri AADT AM External Traffic Generation: 0.22 Vehicles per Hour per Occupied Dwelling
Fri AADT PM External Traffic Generation: 0.21 Vehicles per Hour per Occupied Dwelling
Sat AADT MD External Traffic Generation: 0.23 Vehicles per Hour per Occupied Dwelling

Daily volume Friday 9th May 2008: 8826 Vehicles
9th May 2008 to 2008 AADT Conversion Factor: 0.92 This factor should be applied to the survey data from Fri 4th May 2012
9th May 2008 to Seasonal Peak Conversion Factor: 1.35 This factor should be applied to the survey data from Fri 4th May 2012
Daily volume Saturday 10th May 2008: 7438 Vehicles
10th May 2008 to 2008 AADT Conversion Factor: 1.09 This factor should be applied to the survey data from Sat 5th May 2012
10th May 2008 to Seasonal Peak Conversion Factor: 1.60 This factor should be applied to the survey data from Sat 5th May 2012

AM Peak Friday 9th May 2008: 792 8-9am (equivalent day to date of survey Friday 4th May 2012 - based on proximity to school holidays)
PM Peak Friday 9th May 2008: 741 2-3pm (equivalent day to date of survey Friday 4th May 2012 - based on proximity to school holidays)
MD Peak Saturday 10th May 2008: 706 12-1pm (equivalent day to date of survey Saturday 5th May 2012 - based on proximity to school holidays)

3-4pm volume Fri 9th May 2008: 738 3-4pm **HW1 Peak Hour**
4-5pm volume Fri 9th May 2008: 628 4-5pm (equivalent peak hour to survey data 4-5pm - lower than actual 2-3pm peak)
PM Peak Hour Conversion Factor: 1.18 (converts reported 4-5pm data to actual 2-3pm local peak)

HW1 Peak 8-9am Sat 8th May 2004: 487 8-9am **HW1 Peak Hour**

Fri AM Peak Conversion Factor for AADT Analysis: 0.92 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Fri PM Peak Conversion Factor for AADT Analysis: 1.10 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat MD Peak Conversion Factor for AADT Analysis: 1.11 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Daily volume on Friday 25th January 2008: 11885 (Day that 120th Highest Annual Hour Occurred)
120th Highest Annual Hour to Daily Traffic Ratio: 7.4% Use this figure to convert 2012 120th HH to Daily Volumes for cross-section design analysis

Fri AM Peak Conversion Factor for Seasonal Peak Analysis: 1.12 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Fri PM Peak Conversion Factor for Seasonal Peak Analysis: 1.41 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Sat MD Peak Conversion Factor for Seasonal Peak Analysis: 1.25 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)

HW1 Analysis

Falls Creek 2004 Data
2004 AADT: 18845 (Count Station 07053 at Falls Creek North of Jervis Bay Road)
2004 Average Fridays: 22373 (Better comparison due to wide daily variation)
2004 Average Saturdays: 17181 (Better comparison due to wide daily variation)

Falls Creek 120th HH: 1965 Thursday 8th Jan, 2004 12pm-1pm

HW1 Fri AADT AM Peak to Daily Factor: 7.3% (based on Fridays with volumes close to the Average Friday volume of 22,373 veh/day)
HW1 Fri AADT PM Peak to Daily Factor: 8.2% (based on Fridays with volumes close to the Average Friday volume of 22,373 veh/day)
HW1 Sat AADT MD Peak to Daily Factor: 9.7% (based on Saturdays with volumes close to Average Saturday volume of 17,181 veh/day)

Daily Volume Friday 7th May 2004: 21007 Vehicles (equivalent day to Friday 4th May 2012 survey date)
7th May 2004 to 2004 AADT Conversion Factor: 0.90 This factor should be applied to the survey data from Fri 4th May 2012
Daily volume Saturday 8th May 2004: 16561 Vehicles
8th May 2004 to 2004 AADT Conversion Factor: 1.14 This factor should be applied to the survey data from Sat 5th May 2012

AM Local Culburra Peak Friday 7th May 2004: 1567 8-9am (Same as **HW1 peak**)
PM Local Culburra Peak Friday 7th May 2004: 1603 2-3pm (HW1 peak occurred 3-4pm - see below)
MD Local Culburra Peak Saturday 8th May 2004: 1436 12-1pm (HW1 peak occurred 8-9am - see below)

HW1 Peak 3-4pm Fri 7th May 2004: 1759 3-4pm **HW1 Peak Hour**
HW1 4-5pm volume Fri 7th May 2004: 1732 4-5pm (To compare to collected data)
PM Peak Hour Conversion Factor: 0.93 (converts reported 4-5pm data to actual 2-3pm local peak)

HW1 Peak 8-9am Sat 8th May 2004: 1671 8-9am **HW1 Peak** Hour

Fri AM Peak Conversion Factor for AADT Analysis: 0.88 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Fri PM Peak Conversion Factor for AADT Analysis: 0.89 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat MD Peak Conversion Factor for AADT Analysis: 1.27 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Daily volume on Thursday 8th January 2004: 23295 (Day that 120th Highest Annual Hour Occurred)
120th Highest Annual Hour to Daily Traffic Ratio: 8.4% Use this figure to convert 2012 120th HH to Daily Volumes for cross-section design analysis

Fri AM Peak Conversion Factor for Seasonal Peak Analysis: 1.25 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Fri PM Peak Conversion Factor for Seasonal Peak Analysis: 1.13 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Sat MD Peak Conversion Factor for Seasonal Peak Analysis: 1.37 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)

HW1 Analysis - factors for Different Highway Peaks

Local Road (i.e. Non-Highway) Flows

Fri PM Highway 3-4pm Conversion Factor for AADT Analysis: 1.10 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat AM Highway 8-9am Conversion Factor for AADT Analysis: 1.07 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Fri PM Highway 3-4pm Conversion Factor for 120th HH Analysis: 1.41 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat AM Highway 8-9am Conversion Factor for 120th HH Analysis: 1.17 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Highway North-South Flows

Fri PM Highway 3-4pm Conversion Factor for AADT Analysis: 0.88 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat AM Highway 8-9am Conversion Factor for AADT Analysis: 1.32 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Fri PM Highway 3-4pm Conversion Factor for 120th HH Analysis: 1.15 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat AM Highway 8-9am Conversion Factor for 120th HH Analysis: 1.43 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Local Peak Comparison to HW1 Peak

Forest Rd + Greenwell Point Rd Friday AM 792 (8-9am) Forest Rd + Greenwell Point Rd LOCAL Fri AM Peak (SAME AS HW1 PEAK)

Forest Rd + Greenwell Point Rd Friday PM 741 (2-3pm) Forest Rd + Greenwell Point Rd LOCAL Fri PM Peak
738 (3-4pm) Forest Rd + Greenwell Point Rd 3-4pm volume

Local to HW1 peak Conversion Factor: 1.00 (Converts LOCAL Peak data to HW1 peak for Highway intersection analysis)

Forest Rd + Greenwell Point Rd Saturday MD 706 (12-1pm) Forest Rd + Greenwell Point Rd LOCAL Sat MD Peak
487 (8-9am) Forest Rd + Greenwell Point Rd 8-9am volume

Local to HW1 peak Conversion Factor: 0.69 (Converts LOCAL Peak data to HW1 peak for Highway intersection analysis)

50% Reduction Factor for HW1 intersections in Nowra Urban Area - ie at Kalandar St & Moss St

Fri AM Peak Conversion Factor for AADT Analysis: 0.94 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Fri PM Peak Conversion Factor for AADT Analysis: 0.95 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)
Sat MD Peak Conversion Factor for AADT Analysis: 1.14 (Converts consultant's 2012 survey data to AADT values for LOS C analysis)

Fri AM Peak Conversion Factor for Seasonal Peak Analysis: 1.13 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Fri PM Peak Conversion Factor for Seasonal Peak Analysis: 1.07 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)
Sat MD Peak Conversion Factor for Seasonal Peak Analysis: 1.18 (Converts consultant's 2012 survey data to Seasonal Peak values for LOS D analysis)

Date	Forest Rd			Greenwell Point Road			Combined		
	Combined	E-bound W-bound	% E % W	Combined	E-bound W-bound	% E % W	Combined	E-bound W-bound	% E % W
Fri 29-Aug-08 AM Peak	180	54 126	30% 70%	556	105 451	19% 81%	736	159 577	22% 78%
Fri 29-Aug-08 PM Peak	167	112 55	67% 33%	562	364 198	65% 35%	729	476 253	65% 35%
Sat 30-Aug-08 MD Peak	186	94 92	51% 49%	490	261 229	53% 47%	676	355 321	53% 47%
Fri 25-Jan-08 AM Peak	204	61 143	30% 70%	561	121 440	22% 78%	765	182 583	24% 76%
Fri 25-Jan-08 PM Peak	226	160 66	71% 29%	700	530 170	76% 24%	926	690 236	75% 25%
Sat 26-Jan-08 MD Peak	239	125 114	52% 48%	764	380 384	50% 50%	1003	505 498	50% 50%

Note: Split data obtained directly from MetroCount data files

region_id	Occupied_	Occupied_	Occupied_	Occupied_	Occupied_	Occupied_	Occupied_	Occupied_	Occupied_	Unoccupied	Total_private_dwellings_Dwellings
1127301	27	3	0	0	0	0	0	0	0	30	41
1127302	171	0	6	0	0	0	0	0	0	177	529
1127303	155	0	4	0	0	0	0	0	0	159	411
1127304	118	0	0	0	0	0	0	0	0	118	177
1127305	153	4	0	0	0	0	0	0	0	157	261
1127306	141	0	8	0	0	0	0	0	0	149	243
1127307	190	0	0	0	0	0	0	0	0	190	237
1127308	169	0	0	0	0	0	0	0	0	169	213
1127309	55	0	0	0	0	0	0	0	0	55	157
1127310	141	0	0	0	0	0	0	0	0	141	396
1127311	0	0	0	0	0	0	0	0	0	0	0
1127312	49	0	0	3	0	0	3	0	0	52	84
1127401	112	0	0	0	0	0	0	0	0	112	150
1127402	27	0	0	0	0	0	0	0	0	27	27
1127403	121	7	0	0	0	3	3	0	0	131	317
1127404	127	3	0	0	0	0	0	0	0	130	240
1127405	91	3	0	0	0	0	0	0	0	94	202
1127406	109	35	11	0	0	4	4	0	0	159	248
1127407	152	0	0	0	0	0	0	0	0	152	294
1127408	212	0	0	3	0	0	3	0	0	215	370
1127409	85	3	0	17	0	0	17	0	0	105	128
1127410	121	5	17	0	0	0	0	0	0	143	188
1127411	146	0	4	6	0	0	6	0	0	156	189
1127412	126	0	5	3	0	0	3	0	0	134	215
1127413	122	0	0	0	0	0	0	0	0	122	196
1127415	0	0	0	0	0	0	0	0	0	0	0
1127416	229	40	0	0	0	0	0	0	0	269	415
	3149	103	55	32	0	7	39	0	0	3346	5928

Census (enumerated) total Occupied Private Dwellings:

3379

57%

Census (enumerated) total Vacant Private Dwellings:

2582

43%

TOTAL (enumerated) Private Dwellings:

5961

Detached Occupied Dwellings:

3182

94%

Occupied Medium Density Dwellings:

197

6%

Equivalent Occupied Dwellings:

3324 (Determined by multiplying MD dwellings by ratio of daily traffic generation rates)

Equivalent Vacant Dwellings:

2431

Total Equivalent Dwellings:

5755

98.645th percentile Dwelling Occupancy:

5723 Equivalent to 120th Highest Hour seasonal peak

← Note: 3,379 includes the net addition of 33 dwellings which was determined by adding the number of rural dwellings that were part of another SA1 zone but still serviced by Greenwell Point Rd (+42), and subtracting the number of rural dwellings included within tallied SA1 zones but not serviced by either Greenwell Point Rd or Forest Rd (-9).

Appendix D

SIDRA INTERSECTION Results

MOVEMENT SUMMARY

Site: 1.Culburra -Coonamia (Ex Fri
AM-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	165	0.0	0.223	13.6	LOS A	0.7	4.9	0.37	0.74	62.3
3	R	73	6.5	0.124	15.7	LOS B	0.5	3.6	0.46	0.78	59.9
Approach		238	2.0	0.223	14.3	LOS A	0.7	4.9	0.40	0.75	61.5
East: Culburra Rd (E)											
4	L	40	2.9	0.022	11.5	LOS A	0.0	0.0	0.00	0.74	63.3
5	T	225	3.7	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		265	3.6	0.118	1.7	NA	0.0	0.0	0.00	0.11	76.6
West: Culburra Rd (W)											
11	T	96	12.3	0.053	0.0	X	X	X	X	0.00	80.0
12	R	33	3.6	0.029	12.5	LOS A	0.1	0.8	0.35	0.69	61.6
Approach		128	10.1	0.053	3.2	NA	0.1	0.8	0.09	0.17	73.9
All Vehicles		632	4.3	0.223	6.8	NA	0.7	4.9	0.17	0.37	69.8

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:25 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

Culburra Subdivision.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 1.Culburra -Coonamia (Ex Fri
PM-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	77	7.7	0.106	13.5	LOS A	0.3	2.1	0.27	0.70	62.9
3	R	75	2.0	0.130	15.7	LOS B	0.5	3.7	0.48	0.79	59.5
Approach		152	4.9	0.130	14.6	LOS B	0.5	3.7	0.37	0.75	61.2
East: Culburra Rd (E)											
4	L	75	2.0	0.041	11.5	LOS A	0.0	0.0	0.00	0.74	63.3
5	T	115	2.6	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		189	2.4	0.060	4.5	NA	0.0	0.0	0.00	0.29	71.9
West: Culburra Rd (W)											
11	T	280	1.1	0.145	0.0	X	X	X	X	0.00	80.0
12	R	152	3.9	0.133	12.3	LOS A	0.5	3.8	0.31	0.70	61.8
Approach		432	2.1	0.145	4.3	NA	0.5	3.8	0.11	0.24	71.9
All Vehicles		773	2.7	0.145	6.4	NA	0.5	3.8	0.13	0.35	69.7

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 1.Culburra -Coonamia (Ex
Sat-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	104	1.3	0.140	13.4	LOS A	0.4	2.9	0.32	0.72	62.6
3	R	66	0.0	0.117	15.6	LOS B	0.5	3.2	0.48	0.79	59.4
Approach		171	0.8	0.140	14.3	LOS A	0.5	3.2	0.38	0.75	61.3
East: Culburra Rd (E)											
4	L	80	0.0	0.043	11.3	LOS A	0.0	0.0	0.00	0.73	63.3
5	T	169	0.8	0.087	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		249	0.5	0.087	3.6	NA	0.0	0.0	0.00	0.24	73.3
West: Culburra Rd (W)											
11	T	166	0.8	0.086	0.0	X	X	X	X	0.00	80.0
12	R	104	2.5	0.092	12.4	LOS A	0.4	2.7	0.35	0.71	61.6
Approach		271	1.5	0.092	4.8	NA	0.4	2.7	0.13	0.27	71.2
All Vehicles		691	1.0	0.140	6.7	NA	0.5	3.2	0.15	0.38	69.3

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield (Ex Fri
AM-120th HH)

Culburra Road-Mayfield Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	2	0.0	0.198	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
2	T	383	0.0	0.198	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		385	0.0	0.198	0.1	NA	0.0	0.0	0.00	0.01	79.8
North: Culburra Road (N)											
8	T	126	0.0	0.066	1.9	LOS A	0.5	3.6	0.50	0.00	64.7
9	R	1	0.0	0.066	12.0	LOS A	0.5	3.6	0.50	1.34	60.6
Approach		127	0.0	0.066	1.9	NA	0.5	3.6	0.50	0.01	64.7
West: Mayfield Road											
10	L	1	0.0	0.007	14.0	LOS A	0.0	0.2	0.53	0.65	46.2
12	R	2	0.0	0.007	14.0	LOS A	0.0	0.2	0.53	0.74	46.4
Approach		3	0.0	0.007	14.0	LOS A	0.0	0.2	0.53	0.71	46.3
All Vehicles		516	0.0	0.198	0.6	NA	0.5	3.6	0.13	0.01	75.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:26 AM

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MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield (Ex Fri
PM-120th HH)

Culburra Road-Mayfield Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	1	0.0	0.102	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
2	T	193	4.6	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		194	4.6	0.102	0.1	NA	0.0	0.0	0.00	0.01	79.8
North: Culburra Road (N)											
8	T	412	1.8	0.214	1.0	LOS A	1.6	11.4	0.39	0.00	67.7
9	R	1	0.0	0.214	11.1	LOS A	1.6	11.4	0.39	1.45	60.0
Approach		413	1.8	0.214	1.0	NA	1.6	11.4	0.39	0.00	67.6
West: Mayfield Road											
10	L	1	0.0	0.019	38.1	LOS C	0.1	0.6	0.71	0.58	31.7
12	R	1	100.0	0.019	43.5	LOS D	0.1	0.6	0.71	0.93	33.8
Approach		2	50.0	0.019	40.8	LOS C	0.1	0.6	0.71	0.75	32.9
All Vehicles		608	2.9	0.214	0.8	NA	1.6	11.4	0.27	0.01	70.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield (Ex
Sat-120th HH)

Culburra Road-Mayfield Road
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	3	0.0	0.144	10.1	LOS A	0.0	0.0	0.00	1.71	57.1
2	T	277	0.5	0.144	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		280	0.5	0.144	0.1	NA	0.0	0.0	0.00	0.02	79.7
North: Culburra Road (N)											
8	T	248	0.5	0.129	1.3	LOS A	1.0	6.8	0.44	0.00	66.2
9	R	1	0.0	0.129	11.5	LOS A	1.0	6.8	0.44	1.40	60.4
Approach		249	0.5	0.129	1.4	NA	1.0	6.8	0.44	0.01	66.2
West: Mayfield Road											
10	L	1	0.0	0.009	14.5	LOS B	0.0	0.2	0.53	0.62	45.8
12	R	3	0.0	0.009	14.5	LOS B	0.0	0.2	0.53	0.75	46.0
Approach		4	0.0	0.009	14.5	LOS B	0.0	0.2	0.53	0.72	45.9
All Vehicles		534	0.5	0.144	0.8	NA	1.0	6.8	0.21	0.02	72.4

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Ex Fri
AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	376	1.9	0.205	11.2	X	X	X	X	0.69	58.8
3	R	14	8.3	0.020	13.0	LOS A	0.1	0.6	0.34	0.69	56.9
Approach		389	2.1	0.205	11.2	LOS A	0.1	0.6	0.01	0.69	58.8
East: Greenwell Pt Rd (E)											
4	L	20	66.7	0.094	14.9	LOS B	0.0	0.0	0.00	1.42	58.9
5	T	147	5.6	0.094	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		167	12.9	0.094	1.8	NA	0.0	0.0	0.00	0.17	76.8
West: Greenwell Pt Rd (W)											
11	T	63	5.6	0.034	0.0	X	X	X	X	0.00	80.0
12	R	111	7.4	0.224	16.4	LOS B	0.9	6.8	0.56	0.85	52.5
Approach		174	6.8	0.224	10.4	LOS A	0.9	6.8	0.35	0.54	60.1
All Vehicles		731	5.7	0.224	8.9	NA	0.9	6.8	0.09	0.54	62.5

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:26 AM

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Ex Fri
PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	155	5.8	0.087	11.3	X	X	X	X	0.69	58.9
3	R	32	0.0	0.039	11.5	LOS A	0.2	1.1	0.23	0.68	58.0
Approach		186	4.8	0.087	11.4	LOS A	0.2	1.1	0.04	0.69	58.7
East: Greenwell Pt Rd (E)											
4	L	26	0.0	0.050	10.9	LOS A	0.0	0.0	0.00	1.07	58.9
5	T	68	4.3	0.050	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		95	3.1	0.050	3.0	NA	0.0	0.0	0.00	0.30	72.9
West: Greenwell Pt Rd (W)											
11	T	173	1.7	0.090	0.0	X	X	X	X	0.00	80.0
12	R	391	1.5	0.558	15.5	LOS B	5.2	36.6	0.56	0.82	53.1
Approach		563	1.6	0.558	10.8	LOS A	5.2	36.6	0.39	0.57	59.3
All Vehicles		844	2.5	0.558	10.0	NA	5.2	36.6	0.27	0.56	60.4

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:27 AM

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Ex
Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	226	1.2	0.123	11.1	X	X	X	X	0.69	58.9
3	R	45	0.0	0.065	12.5	LOS A	0.3	1.8	0.35	0.71	56.7
Approach		272	1.0	0.123	11.3	LOS A	0.3	1.8	0.06	0.69	58.5
East: Greenwell Pt Rd (E)											
4	L	145	2.7	0.132	11.1	LOS A	0.0	0.0	0.00	0.89	58.9
5	T	100	3.9	0.132	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		245	3.2	0.132	6.6	NA	0.0	0.0	0.00	0.53	66.1
West: Greenwell Pt Rd (W)											
11	T	227	1.2	0.117	0.0	X	X	X	X	0.00	80.0
12	R	109	1.2	0.212	15.6	LOS B	0.9	6.1	0.54	0.84	53.0
Approach		337	1.2	0.212	5.1	LOS A	0.9	6.1	0.18	0.27	68.7
All Vehicles		854	1.7	0.212	7.5	NA	0.9	6.1	0.09	0.48	64.4

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:27 AM

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Ex Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	371	4.8	0.196	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	159	0.7	0.227	10.3	LOS A	1.0	7.1	0.39	0.70	46.7
Approach		529	3.6	0.227	3.1	NA	1.0	7.1	0.12	0.21	67.0
North West: Jindy Andy Lane											
27	L	39	3.0	0.038	11.8	LOS A	0.1	1.0	0.25	0.67	57.5
29	R	12	30.0	0.077	30.3	LOS C	0.2	1.8	0.76	0.94	41.4
Approach		51	9.2	0.077	16.0	LOS B	0.2	1.8	0.37	0.74	52.8
South West: Greenwell Point Road (SW)											
30	L	8	42.9	0.079	13.5	LOS A	0.0	0.0	0.00	1.45	58.9
31	T	136	8.7	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		144	10.7	0.079	0.8	NA	0.0	0.0	0.00	0.08	78.4
All Vehicles		724	5.4	0.227	3.5	NA	1.0	7.1	0.11	0.22	67.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:27 AM

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Ex Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Friday AM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	175	5.9	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	61	2.4	0.150	15.2	LOS B	0.6	4.0	0.59	0.87	42.3
Approach		236	5.0	0.150	3.9	NA	0.6	4.0	0.15	0.23	66.2
North West: Jindy Andy Lane											
27	L	160	1.9	0.214	13.8	LOS A	0.8	5.8	0.50	0.82	55.2
29	R	3	0.0	0.011	19.3	LOS B	0.0	0.2	0.64	0.80	49.0
Approach		163	1.8	0.214	13.9	LOS A	0.8	5.8	0.50	0.82	55.0
South West: Greenwell Point Road (SW)											
30	L	14	11.1	0.215	11.6	LOS A	0.0	0.0	0.00	1.36	58.9
31	T	399	1.9	0.215	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		413	2.2	0.215	0.4	NA	0.0	0.0	0.00	0.05	79.1
All Vehicles		812	2.9	0.215	4.1	NA	0.8	5.8	0.15	0.25	69.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:27 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	254	3.1	0.133	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	96	1.4	0.181	12.6	LOS A	0.7	5.1	0.53	0.80	44.5
Approach		349	2.6	0.181	3.5	NA	0.7	5.1	0.14	0.22	66.8
North West: Jindy Andy Lane											
27	L	100	0.0	0.115	12.6	LOS A	0.4	3.0	0.39	0.74	56.6
29	R	9	0.0	0.034	19.5	LOS B	0.1	0.7	0.65	0.86	48.7
Approach		109	0.0	0.115	13.2	LOS A	0.4	3.0	0.41	0.75	55.8
South West: Greenwell Point Road (SW)											
30	L	5	0.0	0.154	10.9	LOS A	0.0	0.0	0.00	1.33	58.9
31	T	288	3.2	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		294	3.1	0.154	0.2	NA	0.0	0.0	0.00	0.02	79.5
All Vehicles		753	2.4	0.181	3.6	NA	0.7	5.1	0.13	0.22	69.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:28 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield (Ex
Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	12	0.0	0.018	11.6	LOS A	0.1	0.4	0.45	0.69	48.6
23	R	1	0.0	0.018	11.6	LOS A	0.1	0.4	0.45	0.78	48.7
Approach		13	0.0	0.018	11.6	LOS A	0.1	0.4	0.45	0.70	48.6
North East: Greenwell Point Road (NE)											
24	L	3	0.0	0.200	10.1	LOS A	0.0	0.0	0.00	1.72	57.1
25	T	377	3.8	0.200	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		380	3.7	0.200	0.1	NA	0.0	0.0	0.00	0.01	79.8
South West: Greenwell Point Road (SW)											
31	T	141	9.2	0.089	4.9	LOS A	1.2	8.7	0.68	0.00	60.3
32	R	6	0.0	0.089	15.1	LOS B	1.2	8.7	0.68	1.17	57.6
Approach		147	8.8	0.089	5.4	NA	1.2	8.7	0.68	0.05	60.2
All Vehicles		540	5.0	0.200	1.8	NA	1.2	8.7	0.20	0.04	72.3

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:28 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield (Ex
Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	6	0.0	0.035	16.7	LOS B	0.1	0.9	0.50	0.62	44.0
23	R	6	25.0	0.035	18.0	LOS B	0.1	0.9	0.50	0.86	44.2
Approach		13	12.5	0.035	17.4	LOS B	0.1	0.9	0.50	0.74	44.1
North East: Greenwell Point Road (NE)											
24	L	1	0.0	0.097	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
25	T	181	5.7	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		182	5.7	0.097	0.1	NA	0.0	0.0	0.00	0.01	79.8
South West: Greenwell Point Road (SW)											
31	T	413	1.4	0.235	2.4	LOS A	2.9	20.6	0.57	0.00	63.0
32	R	15	0.0	0.235	12.6	LOS A	2.9	20.6	0.57	1.21	60.3
Approach		427	1.4	0.235	2.8	NA	2.9	20.6	0.57	0.04	62.9
All Vehicles		622	2.9	0.235	2.3	NA	2.9	20.6	0.40	0.05	66.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:28 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield (Ex
Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	8	0.0	0.012	11.1	LOS A	0.0	0.3	0.38	0.65	49.0
23	R	1	0.0	0.012	11.1	LOS A	0.0	0.3	0.38	0.77	49.2
Approach		9	0.0	0.012	11.1	LOS A	0.0	0.3	0.38	0.66	49.0
North East: Greenwell Point Road (NE)											
24	L	4	66.7	0.139	13.0	LOS A	0.0	0.0	0.00	2.24	57.1
25	T	263	1.0	0.139	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		267	2.0	0.139	0.2	NA	0.0	0.0	0.00	0.04	79.6
South West: Greenwell Point Road (SW)											
31	T	289	1.8	0.170	3.5	LOS A	2.2	15.4	0.64	0.00	61.3
32	R	12	0.0	0.170	13.6	LOS A	2.2	15.4	0.64	1.18	59.4
Approach		301	1.7	0.170	3.9	NA	2.2	15.4	0.64	0.05	61.2
All Vehicles		578	1.9	0.170	2.3	NA	2.2	15.4	0.34	0.05	68.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:28 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrigeer (Ex Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrigeer Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrigeer Road											
1	L	69	5.1	0.391	20.4	LOS B	2.1	14.9	0.66	1.04	42.6
2	T	118	3.0	0.391	19.0	LOS B	2.1	14.9	0.66	1.07	40.5
3	R	21	0.0	0.076	20.6	LOS B	0.2	1.6	0.66	1.00	42.1
Approach		208	3.4	0.391	19.6	LOS B	2.1	14.9	0.66	1.05	41.4
East: Greenwell Point Road (E)											
4	L	12	0.0	0.193	10.1	LOS A	0.0	0.0	0.00	1.65	57.1
5	T	357	3.0	0.193	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	32	7.4	0.027	11.2	LOS A	0.1	0.8	0.30	0.66	55.3
Approach		400	3.2	0.193	1.2	NA	0.1	0.8	0.02	0.10	76.8
North: Millbank Road											
7	L	14	16.7	0.027	13.8	LOS A	0.1	0.4	0.29	0.86	48.2
8	T	26	13.6	0.126	22.0	LOS B	0.5	3.5	0.70	1.00	38.8
9	R	12	0.0	0.126	22.2	LOS B	0.5	3.5	0.70	1.00	41.1
Approach		52	11.4	0.126	19.9	LOS B	0.5	3.5	0.59	0.96	41.6
West: Greenwell Point Road (W)											
10	L	47	7.5	0.105	10.4	LOS A	0.0	0.0	0.00	1.24	57.1
11	T	143	9.1	0.105	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	61	5.8	0.063	12.1	LOS A	0.2	1.8	0.43	0.73	54.6
Approach		252	8.0	0.105	4.9	NA	0.2	1.8	0.10	0.41	68.1
All Vehicles		912	5.0	0.391	7.5	NA	2.1	14.9	0.22	0.45	60.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:29 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrigee (Ex Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrigee Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrigee Road											
1	L	58	0.0	0.197	16.8	LOS B	0.8	5.3	0.46	0.84	44.8
2	T	47	0.0	0.197	15.6	LOS B	0.8	5.3	0.46	1.00	42.7
3	R	21	5.3	0.086	25.1	LOS B	0.3	2.1	0.74	1.00	39.4
Approach		126	0.9	0.197	17.7	LOS B	0.8	5.3	0.51	0.93	43.0
East: Greenwell Point Road (E)											
4	L	21	7.1	0.099	10.4	LOS A	0.0	0.0	0.00	1.48	57.1
5	T	163	5.5	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	14	0.0	0.015	12.0	LOS A	0.1	0.4	0.45	0.70	54.3
Approach		198	5.3	0.099	1.9	NA	0.1	0.4	0.03	0.21	75.0
North: Millbank Road											
7	L	22	0.0	0.042	14.1	LOS A	0.1	0.7	0.45	0.89	47.2
8	T	54	2.8	0.235	22.5	LOS B	0.9	6.6	0.74	1.02	38.0
9	R	18	0.0	0.235	23.4	LOS B	0.9	6.6	0.74	1.02	40.3
Approach		94	1.6	0.235	20.7	LOS B	0.9	6.6	0.67	0.99	40.5
West: Greenwell Point Road (W)											
10	L	17	0.0	0.220	10.1	LOS A	0.0	0.0	0.00	1.62	57.1
11	T	409	0.7	0.220	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	115	1.3	0.095	10.9	LOS A	0.4	2.8	0.30	0.68	55.3
Approach		541	0.8	0.220	2.6	NA	0.4	2.8	0.06	0.19	73.0
All Vehicles		959	1.8	0.235	6.2	NA	0.9	6.6	0.18	0.37	63.0

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:29 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrigeer (Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrigeer Road
Saturday - Equivalent 120th HH
Existing
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrigeer Road											
1	L	77	0.0	0.153	14.7	LOS B	0.6	4.2	0.45	0.88	46.6
2	T	29	4.5	0.153	13.8	LOS A	0.6	4.2	0.45	1.00	44.5
3	R	38	3.4	0.133	20.3	LOS B	0.4	2.8	0.64	1.00	42.5
Approach		144	1.8	0.153	16.0	LOS B	0.6	4.2	0.50	0.94	45.0
East: Greenwell Point Road (E)											
4	L	20	6.7	0.136	10.4	LOS A	0.0	0.0	0.00	1.57	57.1
5	T	241	1.1	0.136	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	16	0.0	0.014	11.2	LOS A	0.1	0.4	0.35	0.67	55.0
Approach		277	1.4	0.136	1.4	NA	0.1	0.4	0.02	0.15	76.3
North: Millbank Road											
7	L	8	16.7	0.018	14.4	LOS A	0.0	0.3	0.37	0.85	47.7
8	T	24	11.1	0.116	20.0	LOS B	0.4	3.2	0.66	1.00	40.0
9	R	16	0.0	0.116	20.4	LOS B	0.4	3.2	0.66	1.00	42.3
Approach		48	8.5	0.116	19.2	LOS B	0.4	3.2	0.61	0.97	42.1
West: Greenwell Point Road (W)											
10	L	21	6.2	0.142	10.3	LOS A	0.0	0.0	0.00	1.56	57.1
11	T	253	1.0	0.142	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	54	0.0	0.048	11.2	LOS A	0.2	1.3	0.35	0.68	55.0
Approach		327	1.2	0.142	2.5	NA	0.2	1.3	0.06	0.21	73.4
All Vehicles		797	1.8	0.153	5.6	NA	0.6	4.2	0.16	0.37	64.3

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:30 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 7. Princes Hwy-Kalandar (Ex
Fri AM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Friday AM (0800-0900) - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	3	0.0	1.049	103.7	LOS F	39.3	288.0	1.00	1.17	16.8
2	T	962	5.6	1.049	111.7	LOS F	49.4	362.6	1.00	1.25	15.6
3	R	38	0.0	0.459	81.6	LOS F	2.6	18.3	1.00	0.73	19.2
Approach		1003	5.3	1.049	110.6	LOS F	49.4	362.6	1.00	1.23	15.7
East: Kalandar St (E)											
4	L	38	9.4	1.039	115.9	LOS F	51.4	370.2	1.00	1.23	10.7
5	T	306	3.1	1.039	106.6	LOS F	51.4	370.2	1.00	1.23	10.1
6	R	782	2.9	1.039	129.2	LOS F	56.2	403.3	1.00	1.21	9.7
Approach		1126	3.1	1.039	122.6	LOS F	56.2	403.3	1.00	1.22	9.8
North: Princes Hwy (N)											
7	L	259	7.3	0.261	9.2	LOS A	0.8	5.7	0.07	0.64	53.4
8	T	898	7.3	0.734	40.8	LOS C	24.3	180.8	0.88	0.78	29.9
9	R	157	11.3	1.042	112.3	LOS F	12.0	91.7	1.00	1.09	15.2
Approach		1314	7.8	1.042	43.1	LOS D	24.3	180.8	0.74	0.79	29.1
West: Kalandar St (W)											
10	L	52	13.6	0.700	65.8	LOS E	9.0	66.1	0.95	0.90	19.0
11	T	149	1.6	0.700	57.2	LOS E	12.8	92.9	0.97	0.86	18.0
12	R	156	5.3	0.700	69.3	LOS E	12.8	92.9	1.00	0.85	17.9
Approach		357	4.9	0.700	63.7	LOS E	12.8	92.9	0.98	0.86	18.1
All Vehicles		3800	5.5	1.049	86.4	LOS F	56.2	403.3	0.91	1.04	16.8

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	45.6	LOS E	0.2	0.2	0.82	0.82
P3	Across E approach	53	37.0	LOS D	0.2	0.2	0.74	0.74
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		159	48.1	LOS E			0.84	0.84

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: 7. Princes Hwy-Kalandar (Ex
Fri PM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Friday PM (1600-1700) - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	12	0.0	1.038	100.6	LOS F	29.4	210.2	1.00	1.12	17.2
2	T	785	2.6	1.038	107.4	LOS F	39.3	281.0	1.00	1.20	16.1
3	R	109	1.4	1.004	120.5	LOS F	9.8	69.4	1.00	1.08	14.3
Approach		906	2.4	1.038	108.9	LOS F	39.3	281.0	1.00	1.18	15.8
East: Kalandar St (E)											
4	L	99	1.5	1.065	132.7	LOS F	42.9	306.0	1.00	1.27	9.5
5	T	245	2.4	1.065	123.7	LOS F	42.9	306.0	1.00	1.27	8.9
6	R	567	1.8	1.065	151.3	LOS F	47.2	335.4	1.00	1.26	8.5
Approach		912	2.0	1.065	141.9	LOS F	47.2	335.4	1.00	1.26	8.7
North: Princes Hwy (N)											
7	L	815	1.1	1.000 ³	35.7	LOS C	18.5	130.6	0.21	0.77	32.5
8	T	1318	3.1	1.100	162.7	LOS F	77.6	557.9	1.00	1.54	11.6
9	R	138	5.4	0.587	44.5	LOS D	6.1	44.8	0.99	0.79	28.6
Approach		2272	2.5	1.100	109.9	LOS F	77.6	557.9	0.71	1.22	15.7
West: Kalandar St (W)											
10	L	109	9.5	1.000 ³	56.8	LOS E	13.7	99.1	0.93	0.90	21.0
11	T	305	0.0	1.101	113.6	LOS F	55.2	388.8	0.97	1.13	11.0
12	R	303	1.0	1.101	185.3	LOS F	55.2	388.8	1.00	1.41	8.1
Approach		718	1.9	1.101	135.2	LOS F	55.2	388.8	0.97	1.22	10.2
All Vehicles		4807	2.3	1.101	119.6	LOS F	77.6	557.9	0.86	1.22	13.4

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	53.3	LOS E	0.2	0.2	0.89	0.89
P3	Across E approach	53	38.5	LOS D	0.2	0.2	0.76	0.76
P5	Across N approach	53	53.3	LOS E	0.2	0.2	0.89	0.89
All Pedestrians		159	48.4	LOS E			0.84	0.84

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: 7. Princes Hwy-Kalandar (Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Saturday - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	5	25.0	0.872	74.6	LOS F	32.0	229.4	0.99	0.98	21.9
2	T	960	2.6	0.872	60.0	LOS E	32.0	229.4	0.99	0.96	23.9
3	R	116	4.5	0.966	104.3	LOS F	9.6	69.5	1.00	1.03	16.0
Approach		1081	2.9	0.966	64.8	LOS E	32.0	229.4	0.99	0.97	22.8
East: Kalandar St (E)											
4	L	89	0.0	0.968	87.7	LOS F	35.3	248.4	1.00	1.15	13.4
5	T	211	0.6	0.968	78.7	LOS F	35.3	248.4	1.00	1.15	12.6
6	R	543	1.0	0.968	95.1	LOS F	35.3	248.4	1.00	1.09	12.5
Approach		843	0.8	0.968	90.3	LOS F	35.3	248.4	1.00	1.12	12.6
North: Princes Hwy (N)											
7	L	496	0.3	0.507	9.3	LOS A	2.0	14.2	0.08	0.65	53.1
8	T	1386	1.0	0.961	65.3	LOS E	55.2	389.4	1.00	1.11	22.6
9	R	91	11.6	0.482	42.7	LOS D	3.4	26.4	0.98	0.77	29.4
Approach		1973	1.3	0.961	50.2	LOS D	55.2	389.4	0.77	0.98	26.6
West: Kalandar St (W)											
10	L	66	2.0	0.771	70.3	LOS E	10.8	76.1	0.96	0.96	18.0
11	T	168	0.0	0.771	61.7	LOS E	15.0	105.2	0.98	0.92	17.1
12	R	173	0.8	0.771	71.6	LOS F	15.0	105.2	1.00	0.88	17.5
Approach		407	0.6	0.771	67.3	LOS E	15.0	105.2	0.98	0.91	17.4
All Vehicles		4304	1.5	0.968	63.3	LOS E	55.2	389.4	0.89	1.00	21.5

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	53.3	LOS E	0.2	0.2	0.89	0.89
P3	Across E approach	53	32.7	LOS D	0.1	0.1	0.70	0.70
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		159	49.2	LOS E			0.85	0.85

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: 8. Coonamia-Currarong-Forest (Ex Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	13	0.0	0.041	0.9	LOS A	0.2	1.2	0.31	0.00	79.6
6	R	40	0.0	0.041	13.3	LOS A	0.2	1.2	0.31	0.77	68.3
Approach		53	0.0	0.041	10.3	NA	0.2	1.2	0.31	0.59	70.8
North: Coonamia Road											
7	L	7	0.0	0.012	13.1	LOS A	0.0	0.2	0.22	0.68	67.6
9	R	67	1.8	0.096	14.1	LOS A	0.4	2.7	0.35	0.73	66.8
Approach		75	1.6	0.096	14.0	LOS A	0.4	2.7	0.34	0.73	66.9
West: Forest Road											
10	L	197	1.8	0.117	12.7	LOS A	0.0	0.0	0.00	0.79	69.1
11	T	19	6.3	0.117	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		216	2.2	0.117	11.6	NA	0.0	0.0	0.00	0.72	71.1
All Vehicles		343	1.7	0.117	11.9	NA	0.4	2.7	0.12	0.70	70.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 8. Coonamia-Currarong-Forest (Ex Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	15	0.0	0.020	0.6	LOS A	0.1	0.7	0.27	0.00	82.9
6	R	15	0.0	0.020	13.1	LOS A	0.1	0.7	0.27	0.87	69.4
Approach		29	0.0	0.020	6.8	NA	0.1	0.7	0.27	0.43	75.7
North: Coonamia Road											
7	L	37	0.0	0.058	13.0	LOS A	0.1	0.8	0.20	0.69	67.7
9	R	185	4.0	0.249	14.2	LOS A	1.1	8.3	0.35	0.73	67.1
Approach		222	3.3	0.249	14.0	LOS A	1.1	8.3	0.33	0.73	67.2
West: Forest Road											
10	L	137	5.4	0.094	13.0	LOS A	0.0	0.0	0.00	0.84	69.1
11	T	34	4.3	0.094	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		171	5.2	0.094	10.5	NA	0.0	0.0	0.00	0.67	73.7
All Vehicles		422	3.9	0.249	12.1	NA	1.1	8.3	0.19	0.68	70.3

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:32 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 8. Coonamia-Currarong-Forest (Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	11	0.0	0.027	0.6	LOS A	0.1	0.8	0.27	0.00	82.0
6	R	26	0.0	0.027	13.1	LOS A	0.1	0.8	0.27	0.78	68.6
Approach		37	0.0	0.027	9.5	NA	0.1	0.8	0.27	0.56	72.0
North: Coonamia Road											
7	L	29	0.0	0.046	13.0	LOS A	0.1	0.7	0.19	0.69	67.8
9	R	151	1.8	0.202	13.9	LOS A	0.9	6.3	0.34	0.73	67.2
Approach		180	1.5	0.202	13.7	LOS A	0.9	6.3	0.31	0.72	67.3
West: Forest Road											
10	L	152	0.9	0.092	12.6	LOS A	0.0	0.0	0.00	0.80	69.1
11	T	19	0.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		171	0.8	0.092	11.2	NA	0.0	0.0	0.00	0.71	71.6
All Vehicles		387	1.0	0.202	12.2	NA	0.9	6.3	0.17	0.70	69.6

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Ex Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	31	7.7	0.711	19.1	LOS B	9.6	69.3	0.97	1.10	40.2
2	T	483	3.4	0.711	17.7	LOS B	9.6	69.3	0.97	1.09	40.3
3	R	59	0.0	0.711	22.5	LOS B	9.6	69.3	0.97	1.10	38.4
Approach		573	3.3	0.711	18.2	LOS B	9.6	69.3	0.97	1.09	40.1
East: Kalandar Street											
4	L	315	7.5	0.422	7.9	LOS A	2.7	19.5	0.45	0.59	45.2
6	R	156	2.3	0.422	12.6	LOS A	2.7	19.5	0.45	0.78	42.0
Approach		471	5.8	0.422	9.4	LOS A	2.7	19.5	0.45	0.65	44.0
North: Kinghorne Street											
7	L	127	3.7	0.327	8.8	LOS A	2.2	15.9	0.57	0.66	47.2
8	T	31	0.0	0.327	7.8	LOS A	2.2	15.9	0.57	0.62	47.2
9	R	176	3.4	0.327	11.9	LOS A	2.2	15.9	0.57	0.74	45.5
Approach		334	3.2	0.327	10.4	LOS A	2.2	15.9	0.57	0.70	46.2
South West: Albatross Road											
30	L	261	4.5	0.729	19.6	LOS B	9.3	68.4	1.00	1.18	38.6
32	R	217	8.1	0.729	23.8	LOS B	9.3	68.4	1.00	1.18	37.3
Approach		478	6.2	0.729	21.5	LOS B	9.3	68.4	1.00	1.18	38.0
All Vehicles		1855	4.6	0.729	15.4	LOS B	9.6	69.3	0.77	0.93	41.3

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Ex Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Friday AM (1600-1700) - Equivalent 120th HH
Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	34	0.0	0.576	15.2	LOS B	5.6	39.4	0.90	0.99	42.9
2	T	326	0.0	0.576	13.9	LOS A	5.6	39.4	0.90	0.97	43.1
3	R	77	0.0	0.576	18.8	LOS B	5.6	39.4	0.90	1.01	40.8
Approach		437	0.0	0.576	14.9	LOS B	5.6	39.4	0.90	0.98	42.6
East: Kalandar Street											
4	L	278	0.0	0.436	8.9	LOS A	2.8	19.8	0.61	0.71	44.0
6	R	115	0.0	0.436	13.8	LOS A	2.8	19.8	0.61	0.84	40.9
Approach		393	0.0	0.436	10.3	LOS A	2.8	19.8	0.61	0.74	43.0
North: Kinghorne Street											
7	L	315	0.0	0.766	15.0	LOS B	10.8	75.8	0.96	1.01	42.2
8	T	80	0.0	0.766	14.2	LOS A	10.8	75.8	0.96	1.01	42.3
9	R	304	0.0	0.766	18.2	LOS B	10.8	75.8	0.96	1.02	40.7
Approach		699	0.0	0.766	16.3	LOS B	10.8	75.8	0.96	1.02	41.6
South West: Albatross Road											
30	L	300	0.0	0.774	16.7	LOS B	11.2	78.4	1.00	1.12	40.4
32	R	341	0.0	0.774	20.9	LOS B	11.2	78.4	1.00	1.12	39.0
Approach		641	0.0	0.774	18.9	LOS B	11.2	78.4	1.00	1.12	39.6
All Vehicles		2169	0.0	0.774	15.7	LOS B	11.2	78.4	0.90	0.99	41.3

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:33 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Saturday - Equivalent 120th HH
Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	21	12.5	0.225	10.5	LOS A	1.4	9.9	0.59	0.74	47.5
2	T	162	1.6	0.225	8.8	LOS A	1.4	9.9	0.59	0.66	47.5
3	R	29	0.0	0.225	13.6	LOS A	1.4	9.9	0.59	0.81	44.7
Approach		213	2.5	0.225	9.6	LOS A	1.4	9.9	0.59	0.69	47.1
East: Kalandar Street											
4	L	199	6.0	0.262	7.5	LOS A	1.4	10.1	0.37	0.56	45.8
6	R	96	1.4	0.262	12.2	LOS A	1.4	10.1	0.37	0.77	42.3
Approach		295	4.5	0.262	9.0	LOS A	1.4	10.1	0.37	0.63	44.5
North: Kinghorne Street											
7	L	152	0.8	0.310	8.5	LOS A	2.0	14.0	0.52	0.64	47.4
8	T	21	0.0	0.310	7.7	LOS A	2.0	14.0	0.52	0.60	47.5
9	R	157	2.6	0.310	11.8	LOS A	2.0	14.0	0.52	0.73	45.6
Approach		329	1.6	0.310	10.0	LOS A	2.0	14.0	0.52	0.68	46.6
South West: Albatross Road											
30	L	161	1.4	0.373	8.0	LOS A	2.5	18.0	0.56	0.62	47.4
32	R	234	1.7	0.373	12.2	LOS A	2.5	18.0	0.56	0.75	45.6
Approach		395	1.6	0.373	10.5	LOS A	2.5	18.0	0.56	0.70	46.3
All Vehicles		1232	2.4	0.373	9.8	LOS A	2.5	18.0	0.51	0.68	46.2

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 9:54:33 AM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest (Ex
Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Friday AM (0800-0900) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	1413	3.1	0.739	0.4	X	X	X	X	0.00	98.7
3	R	27	13.0	0.043	17.2	LOS B	0.2	1.2	0.56	0.81	56.9
Approach		1440	3.3	0.739	0.7	NA	0.2	1.2	0.01	0.02	97.7
South East: Forest Road (Median RT)											
23	R	102	2.3	0.056	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		102	2.3	0.056	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	36	3.3	0.078	13.1	LOS A	0.2	1.5	0.53	0.80	51.4
6	R	102	2.3	0.213	14.6	LOS B	0.7	5.3	0.59	0.88	49.9
Approach		138	2.6	0.213	14.2	LOS A	0.7	5.3	0.58	0.86	50.3
North: Princes Hwy (N)											
7	L	57	8.3	0.032	13.0	LOS A	0.0	0.0	0.00	0.76	63.3
8	T	521	16.0	0.295	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		578	15.2	0.295	1.3	NA	0.0	0.0	0.00	0.07	95.8
All Vehicles		2258	6.3	0.739	2.0	NA	0.7	5.3	0.04	0.11	90.1

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 1:37:25 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest (Ex
Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Friday PM (1600-1700) - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	640	6.0	0.341	0.1	X	X	X	X	0.00	99.8
3	R	51	2.9	0.357	44.3	LOS D	1.2	8.5	0.93	1.01	33.0
Approach		691	5.8	0.357	3.3	NA	1.2	8.5	0.07	0.07	89.5
South East: Forest Road (Median RT)											
23	R	66	2.2	0.036	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		66	2.2	0.036	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	49	0.0	0.448	51.2	LOS D	1.5	10.2	0.95	1.04	30.2
6	R	66	2.2	0.654	66.4	LOS E	2.4	16.9	0.96	1.10	26.0
Approach		116	1.3	0.654	59.9	LOS E	2.4	16.9	0.96	1.07	27.6
North: Princes Hwy (N)											
7	L	148	2.0	0.081	12.7	LOS A	0.0	0.0	0.00	0.75	63.3
8	T	1475	2.0	0.766	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		1623	2.0	0.766	1.2	NA	0.0	0.0	0.00	0.07	96.1
All Vehicles		2496	3.0	0.766	4.7	NA	2.4	16.9	0.06	0.13	83.7

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 1:38:42 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest (Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Saturday - Equivalent 120th HH
Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	812	1.7	0.421	0.1	X	X	X	X	0.00	99.7
3	R	40	0.0	0.142	25.1	LOS B	0.5	3.3	0.83	0.96	46.4
Approach		852	1.6	0.421	1.3	NA	0.5	3.3	0.04	0.04	95.7
South East: Forest Road (Median RT)											
23	R	88	0.0	0.048	8.0	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		88	0.0	0.048	8.0	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	45	0.0	0.202	25.0	LOS B	0.7	4.6	0.85	0.96	42.0
6	R	88	3.0	0.470	33.6	LOS C	1.8	12.6	0.89	1.05	37.3
Approach		134	2.0	0.470	30.7	LOS C	1.8	12.6	0.88	1.02	38.8
North: Princes Hwy (N)											
7	L	125	0.0	0.067	12.5	LOS A	0.0	0.0	0.00	0.75	63.3
8	T	1153	1.7	0.598	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		1278	1.6	0.598	1.2	NA	0.0	0.0	0.00	0.07	95.8
All Vehicles		2352	1.5	0.598	3.2	NA	1.8	12.6	0.06	0.14	87.0

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 1:39:22 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
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MOVEMENT SUMMARY

Site: 11. Princes Hwy-Moss (Ex Fri AM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Friday AM (0800-0900) - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	3	0.0	0.947	91.5	LOS F	22.5	167.8	1.00	1.06	17.9
2	T	904	7.6	1.025	105.5	LOS F	29.3	218.8	1.00	1.16	16.3
3	R	158	3.7	0.906	88.8	LOS F	12.0	86.5	1.00	0.97	17.5
Approach		1065	7.0	1.025	103.0	LOS F	29.3	218.8	1.00	1.13	16.4
East: Moss St (E)											
4	L	34	3.4	0.377	50.0	LOS D	3.9	28.5	0.82	0.77	24.8
5	T	227	4.1	1.011	97.9	LOS F	42.5	308.5	0.97	1.13	14.4
6	R	257	4.6	1.011	118.6	LOS F	42.5	308.5	1.00	1.25	14.3
Approach		518	4.3	1.011	105.0	LOS F	42.5	308.5	0.97	1.17	14.8
North: Princes Hwy (N)											
7	L	187	5.0	1.000 ³	55.0	LOS D	29.0	213.5	0.98	0.93	25.5
8	T	1450	6.8	1.005	85.3	LOS F	52.3	387.5	1.00	1.16	18.9
9	R	356	3.7	1.022	99.5	LOS F	27.1	195.7	1.00	1.10	16.0
Approach		1994	6.1	1.022	85.0	LOS F	52.3	387.5	0.99	1.13	18.7
West: Moss St (W)											
10	L	126	10.3	0.257	21.6	LOS B	3.1	23.3	0.66	0.75	25.0
11	T	131	3.6	0.526	54.0	LOS D	10.8	79.6	0.95	0.79	10.1
12	R	49	11.9	0.526	61.8	LOS E	10.8	79.6	0.95	0.82	12.7
Approach		306	7.7	0.526	41.9	LOS C	10.8	79.6	0.83	0.78	14.6
All Vehicles		3883	6.2	1.025	89.2	LOS F	52.3	387.5	0.98	1.11	17.2

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	55.1	LOS E	0.2	0.2	0.90	0.90
P3	Across E approach	53	40.1	LOS E	0.2	0.2	0.77	0.77
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P7	Across W approach	53	56.0	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		212	53.2	LOS E			0.89	0.89

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: 11. Princes Hwy-Moss (Ex Fri PM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Friday PM (1600-1700) - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	11	0.0	1.144	205.9	LOS F	42.0	301.3	1.00	1.42	9.0
2	T	1117	3.1	1.237	260.8	LOS F	58.8	422.6	1.00	1.63	7.8
3	R	115	0.0	0.927	93.6	LOS F	8.9	62.2	1.00	0.99	16.8
Approach		1242	2.8	1.237	244.9	LOS F	58.8	422.6	1.00	1.57	8.2
East: Moss St (E)											
4	L	34	4.3	0.369	56.2	LOS D	3.9	28.1	0.87	0.77	23.2
5	T	149	0.0	0.991	88.2	LOS F	31.0	219.2	0.97	1.06	15.4
6	R	232	1.9	0.991	109.3	LOS F	31.0	219.2	1.00	1.20	15.1
Approach		415	1.4	0.991	97.4	LOS F	31.0	219.2	0.98	1.11	15.7
North: Princes Hwy (N)											
7	L	199	3.7	1.000 ³	62.5	LOS E	29.6	213.5	1.00	0.94	23.3
8	T	1465	3.5	1.166	190.1	LOS F	80.2	578.3	1.00	1.56	10.2
9	R	262	0.7	1.128	179.4	LOS F	27.7	195.1	1.00	1.26	9.9
Approach		1926	2.9	1.166	175.4	LOS F	80.2	578.3	1.00	1.46	10.7
West: Moss St (W)											
10	L	169	1.2	0.330	19.1	LOS B	3.6	25.2	0.61	0.75	26.6
11	T	245	0.0	1.237	288.0	LOS F	113.0	795.9	1.00	1.79	2.4
12	R	135	1.1	1.237	295.5	LOS F	113.0	795.9	1.00	1.79	3.1
Approach		886	0.8	1.237	240.2	LOS F	113.0	795.9	0.88	1.47	3.8
All Vehicles		4469	2.3	1.237	199.9	LOS F	113.0	795.9	0.98	1.35	9.2

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	44.0	LOS E	0.2	0.2	0.81	0.81
P5	Across N approach	53	47.3	LOS E	0.2	0.2	0.84	0.84
P7	Across W approach	53	56.0	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		212	52.2	LOS E			0.88	0.88

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: 11. Princes Hwy-Moss (Ex Sat-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Saturday - Equivalent 120th HH

Existing

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	12	0.0	0.820	66.0	LOS E	23.8	170.1	0.98	0.93	23.0
2	T	1167	2.7	0.887	60.8	LOS E	28.0	200.4	0.99	0.96	23.7
3	R	104	0.0	0.541	72.5	LOS F	6.7	47.1	1.00	0.79	20.2
Approach		1283	2.4	0.887	61.8	LOS E	28.0	200.4	0.99	0.94	23.4
East: Moss St (E)											
4	L	32	0.0	0.228	52.5	LOS D	2.4	17.0	0.83	0.75	24.0
5	T	80	0.0	0.612	53.2	LOS D	13.0	91.7	0.95	0.78	20.8
6	R	146	1.8	0.612	62.5	LOS E	13.0	91.7	0.97	0.83	21.8
Approach		258	1.0	0.612	58.4	LOS E	13.0	91.7	0.95	0.80	21.8
North: Princes Hwy (N)											
7	L	115	2.3	0.757	48.5	LOS D	20.7	147.2	0.82	0.96	27.7
8	T	1303	1.5	0.757	40.2	LOS C	27.2	192.6	0.88	0.78	30.1
9	R	258	1.0	0.858	49.2	LOS D	12.0	85.0	1.00	0.91	26.1
Approach		1676	1.5	0.858	42.1	LOS C	27.2	192.6	0.89	0.81	29.3
West: Moss St (W)											
10	L	311	0.0	0.590	23.7	LOS B	8.0	55.9	0.77	0.80	23.5
11	T	154	0.0	0.700	55.8	LOS D	16.1	113.0	0.99	0.84	9.8
12	R	103	1.3	0.700	63.2	LOS E	16.1	113.0	0.99	0.85	12.3
Approach		567	0.2	0.700	39.6	LOS C	16.1	113.0	0.87	0.82	15.8
All Vehicles		3784	1.6	0.887	49.5	LOS D	28.0	200.4	0.93	0.86	24.9

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	36.3	LOS D	0.1	0.1	0.73	0.73
P5	Across N approach	53	60.7	LOS F	0.2	0.2	0.95	0.95
P7	Across W approach	53	47.3	LOS E	0.2	0.2	0.84	0.84
All Pedestrians		212	51.5	LOS E			0.87	0.87

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: 1. Culburra -Coonamia
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	165	0.0	0.234	14.4	LOS A	0.8	5.6	0.46	0.79	61.2
3	R	85	6.5	0.175	17.6	LOS B	0.7	5.1	0.55	0.86	57.3
Approach		251	2.2	0.234	15.5	LOS B	0.8	5.6	0.49	0.81	59.8
East: Culburra Rd (E)											
4	L	58	2.9	0.032	11.5	LOS A	0.0	0.0	0.00	0.74	63.3
5	T	328	3.7	0.172	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		386	3.6	0.172	1.7	NA	0.0	0.0	0.00	0.11	76.6
West: Culburra Rd (W)											
11	T	123	12.3	0.068	0.0	X	X	X	X	0.00	80.0
12	R	33	3.6	0.033	13.1	LOS A	0.1	0.9	0.42	0.72	61.2
Approach		156	10.5	0.068	2.8	NA	0.1	0.9	0.09	0.15	74.7
All Vehicles		793	4.5	0.234	6.3	NA	0.8	5.6	0.17	0.34	70.2

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 1. Culburra -Coonamia
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	77	7.7	0.107	13.7	LOS A	0.3	2.2	0.30	0.71	62.7
3	R	99	2.0	0.181	16.3	LOS B	0.7	5.2	0.52	0.82	58.6
Approach		176	4.5	0.181	15.2	LOS B	0.7	5.2	0.42	0.77	60.4
East: Culburra Rd (E)											
4	L	89	2.0	0.049	11.5	LOS A	0.0	0.0	0.00	0.74	63.3
5	T	139	2.6	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		228	2.4	0.072	4.5	NA	0.0	0.0	0.00	0.29	72.0
West: Culburra Rd (W)											
11	T	371	1.1	0.191	0.0	X	X	X	X	0.00	79.9
12	R	152	3.9	0.131	12.5	LOS A	0.6	4.0	0.34	0.71	61.6
Approach		522	1.9	0.191	3.6	NA	0.6	4.0	0.10	0.21	73.1
All Vehicles		926	2.5	0.191	6.0	NA	0.7	5.2	0.14	0.33	70.1

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:00:53 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 1. Culburra -Coonamia
(Future SAT-120th HH)

13S1231000 - West Culburra Subdivision
Culburra Road-Coonamia Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonamia Rd											
1	L	104	1.3	0.144	13.8	LOS A	0.4	3.1	0.38	0.74	62.2
3	R	89	0.0	0.177	16.9	LOS B	0.7	4.9	0.54	0.85	57.6
Approach		194	0.7	0.177	15.2	LOS B	0.7	4.9	0.45	0.79	60.0
East: Culburra Rd (E)											
4	L	106	0.0	0.057	11.3	LOS A	0.0	0.0	0.00	0.73	63.3
5	T	225	0.8	0.116	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		332	0.5	0.116	3.6	NA	0.0	0.0	0.00	0.24	73.3
West: Culburra Rd (W)											
11	T	227	0.8	0.117	0.0	X	X	X	X	0.00	80.0
12	R	104	2.5	0.100	12.9	LOS A	0.4	2.9	0.41	0.73	61.2
Approach		332	1.3	0.117	4.1	NA	0.4	2.9	0.13	0.23	72.4
All Vehicles		857	0.9	0.177	6.4	NA	0.7	4.9	0.15	0.36	69.6

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:09:55 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield (Future
Fri AM-120th HH)

Culburra Road-Mayfield Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	2	0.0	0.251	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
2	T	486	0.0	0.251	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		488	0.0	0.251	0.0	NA	0.0	0.0	0.00	0.01	79.9
North: Culburra Road (N)											
8	T	154	0.0	0.080	2.7	LOS A	0.7	5.0	0.58	0.00	63.0
9	R	1	0.0	0.080	12.8	LOS A	0.7	5.0	0.58	1.31	60.3
Approach		155	0.0	0.080	2.7	NA	0.7	5.0	0.58	0.01	63.0
West: Mayfield Road											
10	L	1	0.0	0.008	16.3	LOS B	0.0	0.2	0.61	0.70	44.3
12	R	2	0.0	0.008	16.3	LOS B	0.0	0.2	0.61	0.79	44.5
Approach		3	0.0	0.008	16.3	LOS B	0.0	0.2	0.61	0.76	44.4
All Vehicles		646	0.0	0.251	0.8	NA	0.7	5.0	0.14	0.01	74.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:07:18 PM

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MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield (Future
Fri PM-120th HH)

Culburra Road-Mayfield Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	1	0.0	0.115	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
2	T	217	4.6	0.115	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		218	4.6	0.115	0.0	NA	0.0	0.0	0.00	0.01	79.9
North: Culburra Road (N)											
8	T	502	1.8	0.261	1.2	LOS A	2.1	14.9	0.44	0.00	66.4
9	R	1	0.0	0.261	11.4	LOS A	2.1	14.9	0.44	1.41	60.4
Approach		503	1.8	0.261	1.2	NA	2.1	14.9	0.44	0.00	66.4
West: Mayfield Road											
10	L	1	0.0	0.030	56.4	LOS D	0.1	0.9	0.80	0.60	25.6
12	R	1	100.0	0.030	61.8	LOS E	0.1	0.9	0.80	0.95	28.1
Approach		2	50.0	0.030	59.1	LOS E	0.1	0.9	0.80	0.78	27.0
All Vehicles		723	2.8	0.261	1.0	NA	2.1	14.9	0.31	0.01	69.6

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:11:44 PM

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MOVEMENT SUMMARY

Site: 2. Culburra-Mayfield
(Future-120th HH)

Culburra Road-Mayfield Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Culburra Road (S)											
1	L	3	0.0	0.173	10.1	LOS A	0.0	0.0	0.00	1.72	57.1
2	T	333	0.5	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		336	0.5	0.173	0.1	NA	0.0	0.0	0.00	0.02	79.7
North: Culburra Road (N)											
8	T	309	0.5	0.160	1.8	LOS A	1.3	9.2	0.51	0.00	64.7
9	R	1	0.0	0.160	11.9	LOS A	1.3	9.2	0.51	1.36	60.9
Approach		311	0.5	0.160	1.8	NA	1.3	9.2	0.51	0.00	64.6
West: Mayfield Road											
10	L	1	0.0	0.012	16.6	LOS B	0.0	0.3	0.59	0.65	44.0
12	R	3	0.0	0.012	16.6	LOS B	0.0	0.3	0.59	0.80	44.2
Approach		4	0.0	0.012	16.6	LOS B	0.0	0.3	0.59	0.76	44.1
All Vehicles		651	0.5	0.173	1.0	NA	1.3	9.2	0.25	0.02	71.4

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:15:42 PM

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Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Future
Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	479	1.9	0.261	11.2	X	X	X	X	0.69	58.8
3	R	14	8.3	0.020	13.0	LOS A	0.1	0.6	0.34	0.69	56.9
Approach		493	2.1	0.261	11.2	LOS A	0.1	0.6	0.01	0.69	58.8
East: Greenwell Pt Rd (E)											
4	L	20	66.7	0.094	14.9	LOS B	0.0	0.0	0.00	1.42	58.9
5	T	147	5.6	0.094	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		167	12.9	0.094	1.8	NA	0.0	0.0	0.00	0.17	76.8
West: Greenwell Pt Rd (W)											
11	T	63	5.6	0.034	0.0	X	X	X	X	0.00	80.0
12	R	138	7.4	0.306	18.3	LOS B	1.4	10.6	0.61	0.92	50.5
Approach		201	6.9	0.306	12.5	LOS A	1.4	10.6	0.42	0.63	57.2
All Vehicles		861	5.3	0.306	9.7	NA	1.4	10.6	0.10	0.57	61.2

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:21:29 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Future
Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	179	5.8	0.100	11.3	X	X	X	X	0.69	58.9
3	R	32	0.0	0.039	11.5	LOS A	0.2	1.1	0.23	0.68	58.0
Approach		211	4.9	0.100	11.4	LOS A	0.2	1.1	0.03	0.69	58.7
East: Greenwell Pt Rd (E)											
4	L	26	0.0	0.050	10.9	LOS A	0.0	0.0	0.00	1.07	58.9
5	T	68	4.3	0.050	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		95	3.1	0.050	3.0	NA	0.0	0.0	0.00	0.30	72.9
West: Greenwell Pt Rd (W)											
11	T	173	1.7	0.090	0.0	X	X	X	X	0.00	80.0
12	R	481	1.5	0.701	18.6	LOS B	9.6	68.2	0.69	0.93	49.8
Approach		654	1.6	0.701	13.7	LOS A	9.6	68.2	0.51	0.68	55.4
All Vehicles		959	2.5	0.701	12.1	NA	9.6	68.2	0.36	0.65	57.5

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:23:41 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 3. Greenwell Pt-Pyree (Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Pyree Lane
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pyreen Ln											
1	L	274	1.2	0.149	11.1	X	X	X	X	0.69	58.9
3	R	55	0.0	0.080	12.7	LOS A	0.3	2.2	0.37	0.72	56.5
Approach		328	1.0	0.149	11.4	LOS A	0.3	2.2	0.06	0.69	58.5
East: Greenwell Pt Rd (E)											
4	L	169	2.7	0.146	11.1	LOS A	0.0	0.0	0.00	0.87	58.9
5	T	100	3.9	0.146	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		269	3.2	0.146	7.0	NA	0.0	0.0	0.00	0.55	65.4
West: Greenwell Pt Rd (W)											
11	T	227	1.2	0.117	0.0	X	X	X	X	0.00	80.0
12	R	146	1.2	0.307	17.4	LOS B	1.4	10.2	0.60	0.92	51.0
Approach		374	1.2	0.307	6.8	LOS A	1.4	10.2	0.24	0.36	65.6
All Vehicles		972	1.7	0.307	8.4	NA	1.4	10.2	0.11	0.52	62.9

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	442	4.8	0.234	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	191	0.7	0.283	10.8	LOS A	1.3	9.1	0.44	0.72	46.2
Approach		633	3.6	0.283	3.2	NA	1.3	9.1	0.13	0.22	66.7
North West: Jindy Andy Lane											
27	L	45	3.0	0.045	11.9	LOS A	0.2	1.2	0.28	0.68	57.3
29	R	12	30.0	0.084	37.7	LOS C	0.3	2.4	0.82	0.96	36.9
Approach		57	8.5	0.084	17.1	LOS B	0.3	2.4	0.39	0.74	51.5
South West: Greenwell Point Road (SW)											
30	L	8	42.9	0.091	13.5	LOS A	0.0	0.0	0.00	1.47	58.9
31	T	157	8.7	0.091	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		165	10.4	0.091	0.7	NA	0.0	0.0	0.00	0.07	78.6
All Vehicles		855	5.2	0.283	3.7	NA	1.3	9.1	0.12	0.22	67.4

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:27:56 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Friday AM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	193	5.9	0.103	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	67	2.4	0.192	17.1	LOS B	0.7	5.1	0.66	0.89	40.8
Approach		260	5.0	0.192	4.4	NA	0.7	5.1	0.17	0.23	65.3
North West: Jindy Andy Lane											
27	L	185	1.9	0.273	14.8	LOS B	1.1	7.9	0.55	0.89	54.0
29	R	3	0.0	0.011	21.5	LOS B	0.0	0.3	0.70	0.83	46.9
Approach		188	1.8	0.273	14.9	LOS B	1.1	7.9	0.55	0.88	53.9
South West: Greenwell Point Road (SW)											
30	L	14	11.1	0.249	11.6	LOS A	0.0	0.0	0.00	1.37	58.9
31	T	464	1.9	0.249	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		478	2.1	0.249	0.3	NA	0.0	0.0	0.00	0.04	79.2
All Vehicles		926	2.9	0.273	4.4	NA	1.1	7.9	0.16	0.26	68.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:29:46 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 4. Greenwell Pt-Jindy Andy
(Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Jindy Andy Lane
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
North East: Greenwell Point Road (NE)											
25	T	287	3.1	0.150	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
26	R	109	1.4	0.218	13.3	LOS A	0.9	6.2	0.56	0.83	43.9
Approach		397	2.6	0.218	3.7	NA	0.9	6.2	0.15	0.23	66.4
North West: Jindy Andy Lane											
27	L	113	0.0	0.134	12.8	LOS A	0.5	3.5	0.42	0.75	56.3
29	R	9	0.0	0.033	21.3	LOS B	0.1	0.8	0.69	0.89	47.1
Approach		122	0.0	0.134	13.4	LOS A	0.5	3.5	0.44	0.76	55.5
South West: Greenwell Point Road (SW)											
30	L	5	0.0	0.166	10.9	LOS A	0.0	0.0	0.00	1.33	58.9
31	T	313	3.2	0.166	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		318	3.1	0.166	0.2	NA	0.0	0.0	0.00	0.02	79.5
All Vehicles		837	2.4	0.218	3.8	NA	0.9	6.2	0.14	0.23	68.9

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	12	0.0	0.020	12.3	LOS A	0.1	0.5	0.49	0.72	47.9
23	R	1	0.0	0.020	12.3	LOS A	0.1	0.5	0.49	0.81	48.0
Approach		13	0.0	0.020	12.3	LOS A	0.1	0.5	0.49	0.73	47.9
North East: Greenwell Point Road (NE)											
24	L	3	0.0	0.237	10.1	LOS A	0.0	0.0	0.00	1.72	57.1
25	T	448	3.8	0.237	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		452	3.7	0.237	0.1	NA	0.0	0.0	0.00	0.01	79.8
South West: Greenwell Point Road (SW)											
31	T	162	9.2	0.103	6.4	LOS A	1.5	11.3	0.75	0.00	59.0
32	R	6	0.0	0.103	16.6	LOS B	1.5	11.3	0.75	1.17	56.2
Approach		168	8.8	0.103	6.8	NA	1.5	11.3	0.75	0.04	58.9
All Vehicles		633	5.0	0.237	2.1	NA	1.5	11.3	0.21	0.03	72.1

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	6	0.0	0.042	18.8	LOS B	0.1	1.1	0.55	0.63	42.4
23	R	6	25.0	0.042	20.2	LOS B	0.1	1.1	0.55	0.88	42.6
Approach		13	12.5	0.042	19.5	LOS B	0.1	1.1	0.55	0.76	42.5
North East: Greenwell Point Road (NE)											
24	L	1	0.0	0.106	10.1	LOS A	0.0	0.0	0.00	1.73	57.1
25	T	199	5.7	0.106	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		200	5.7	0.106	0.1	NA	0.0	0.0	0.00	0.01	79.9
South West: Greenwell Point Road (SW)											
31	T	478	1.4	0.270	2.8	LOS A	3.6	25.3	0.62	0.00	61.8
32	R	15	0.0	0.270	13.0	LOS A	3.6	25.3	0.62	1.19	60.3
Approach		493	1.4	0.270	3.2	NA	3.6	25.3	0.62	0.04	61.8
All Vehicles		705	2.8	0.270	2.6	NA	3.6	25.3	0.44	0.04	65.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:34:46 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 5. Greenwell Pt-Mayfield
(Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Mayfield Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South East: Mayfield Road											
21	L	8	0.0	0.013	11.5	LOS A	0.0	0.3	0.41	0.66	48.7
23	R	1	0.0	0.013	11.5	LOS A	0.0	0.3	0.41	0.79	48.8
Approach		9	0.0	0.013	11.5	LOS A	0.0	0.3	0.41	0.67	48.7
North East: Greenwell Point Road (NE)											
24	L	4	66.7	0.157	13.0	LOS A	0.0	0.0	0.00	2.25	57.1
25	T	297	1.0	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
Approach		301	1.9	0.157	0.2	NA	0.0	0.0	0.00	0.03	79.6
South West: Greenwell Point Road (SW)											
31	T	314	1.8	0.183	4.1	LOS A	2.5	17.7	0.69	0.00	60.3
32	R	12	0.0	0.183	14.3	LOS A	2.5	17.7	0.69	1.17	59.0
Approach		325	1.8	0.183	4.5	NA	2.5	17.7	0.69	0.04	60.2
All Vehicles		636	1.8	0.183	2.5	NA	2.5	17.7	0.36	0.05	67.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrigeer (Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrigeer Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrigeer Road											
1	L	69	5.1	0.448	23.0	LOS B	2.4	17.5	0.71	1.12	40.8
2	T	118	3.0	0.448	21.6	LOS B	2.4	17.5	0.71	1.10	38.7
3	R	23	0.0	0.084	23.0	LOS B	0.3	2.0	0.71	1.00	40.5
Approach		211	3.4	0.448	22.2	LOS B	2.4	17.5	0.71	1.09	39.6
East: Greenwell Point Road (E)											
4	L	14	0.0	0.227	10.1	LOS A	0.0	0.0	0.00	1.65	57.1
5	T	421	3.0	0.227	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	37	7.4	0.033	11.3	LOS A	0.1	0.9	0.32	0.67	55.2
Approach		472	3.2	0.227	1.2	NA	0.1	0.9	0.02	0.10	76.8
North: Millbank Road											
7	L	16	16.7	0.032	13.9	LOS A	0.1	0.5	0.31	0.86	48.1
8	T	26	13.6	0.148	24.6	LOS B	0.5	4.0	0.75	1.00	37.1
9	R	12	0.0	0.148	24.8	LOS B	0.5	4.0	0.75	1.00	39.4
Approach		54	11.6	0.148	21.5	LOS B	0.5	4.0	0.62	0.96	40.5
West: Greenwell Point Road (W)											
10	L	47	7.5	0.114	10.4	LOS A	0.0	0.0	0.00	1.27	57.1
11	T	160	9.1	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	61	5.8	0.069	12.5	LOS A	0.3	1.9	0.47	0.75	54.0
Approach		268	8.1	0.114	4.7	NA	0.3	1.9	0.11	0.40	68.6
All Vehicles		1004	5.0	0.448	7.6	NA	2.4	17.5	0.22	0.43	60.7

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrreege (Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrreege Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrreege Road											
1	L	58	0.0	0.218	17.8	LOS B	0.8	5.8	0.49	0.84	44.0
2	T	47	0.0	0.218	16.6	LOS B	0.8	5.8	0.49	1.00	42.0
3	R	23	5.3	0.110	28.0	LOS B	0.4	2.7	0.79	1.00	37.7
Approach		128	0.9	0.218	19.2	LOS B	0.8	5.8	0.55	0.93	42.0
East: Greenwell Point Road (E)											
4	L	23	7.1	0.107	10.4	LOS A	0.0	0.0	0.00	1.47	57.1
5	T	177	5.5	0.107	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	16	0.0	0.019	12.4	LOS A	0.1	0.5	0.48	0.72	53.7
Approach		216	5.2	0.107	2.0	NA	0.1	0.5	0.04	0.21	74.7
North: Millbank Road											
7	L	25	0.0	0.050	14.6	LOS B	0.1	0.9	0.49	0.91	46.7
8	T	54	2.8	0.270	25.5	LOS B	1.1	7.6	0.79	1.03	36.2
9	R	18	0.0	0.270	26.3	LOS B	1.1	7.6	0.79	1.03	38.5
Approach		97	1.5	0.270	22.8	LOS B	1.1	7.6	0.71	1.00	39.1
West: Greenwell Point Road (W)											
10	L	17	0.0	0.251	10.1	LOS A	0.0	0.0	0.00	1.64	57.1
11	T	469	0.7	0.251	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	115	1.3	0.097	11.0	LOS A	0.4	2.8	0.32	0.68	55.2
Approach		601	0.8	0.251	2.4	NA	0.4	2.8	0.06	0.18	73.6
All Vehicles		1042	1.8	0.270	6.3	NA	1.1	7.6	0.18	0.35	63.2

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:39:47 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 6. Greenwell Pt-Millbank-Worrigee (Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Greenwell Point Road-Millbank Road-Worrigee Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Stop (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Worrigee Road											
1	L	77	0.0	0.163	15.2	LOS B	0.6	4.4	0.48	0.89	46.2
2	T	29	4.5	0.163	14.2	LOS A	0.6	4.4	0.48	1.00	44.2
3	R	40	3.4	0.150	21.7	LOS B	0.5	3.3	0.68	1.00	41.6
Approach		146	1.9	0.163	16.7	LOS B	0.6	4.4	0.53	0.94	44.5
East: Greenwell Point Road (E)											
4	L	22	6.7	0.152	10.4	LOS A	0.0	0.0	0.00	1.57	57.1
5	T	269	1.1	0.152	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
6	R	19	0.0	0.018	11.3	LOS A	0.1	0.5	0.37	0.67	55.0
Approach		311	1.4	0.152	1.4	NA	0.1	0.5	0.02	0.15	76.2
North: Millbank Road											
7	L	12	16.7	0.025	14.6	LOS B	0.1	0.4	0.38	0.86	47.6
8	T	24	11.1	0.127	21.3	LOS B	0.5	3.4	0.69	1.00	39.2
9	R	16	0.0	0.127	21.6	LOS B	0.5	3.4	0.69	1.00	41.5
Approach		52	9.0	0.127	19.9	LOS B	0.5	3.4	0.62	0.97	41.7
West: Greenwell Point Road (W)											
10	L	21	6.2	0.152	10.3	LOS A	0.0	0.0	0.00	1.57	57.1
11	T	272	1.0	0.152	0.0	LOS A	0.0	0.0	0.00	0.00	80.0
12	R	54	0.0	0.050	11.3	LOS A	0.2	1.4	0.37	0.69	54.9
Approach		346	1.2	0.152	2.4	NA	0.2	1.4	0.06	0.20	73.7
All Vehicles		855	1.9	0.163	5.6	NA	0.6	4.4	0.16	0.36	64.5

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 2:41:15 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 7. Princes Hwy-Kalandar
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Friday AM (0800-0900) - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	3	0.0	1.082	128.4	LOS F	44.0	322.3	1.00	1.22	14.1
2	T	962	5.6	1.082	136.7	LOS F	53.8	394.6	1.00	1.32	13.4
3	R	41	0.0	0.497	81.8	LOS F	2.8	19.9	1.00	0.73	19.2
Approach		1006	5.3	1.082	134.5	LOS F	53.8	394.6	1.00	1.30	13.5
East: Kalandar St (E)											
4	L	41	9.4	1.069	138.2	LOS F	59.5	428.7	1.00	1.30	9.2
5	T	324	3.1	1.069	128.9	LOS F	59.5	428.7	1.00	1.30	8.6
6	R	823	2.9	1.069	151.5	LOS F	64.2	460.7	1.00	1.27	8.5
Approach		1188	3.1	1.069	144.9	LOS F	64.2	460.7	1.00	1.28	8.6
North: Princes Hwy (N)											
7	L	266	7.3	0.268	9.2	LOS A	0.8	5.9	0.07	0.64	53.4
8	T	898	7.3	0.751	42.2	LOS C	24.8	184.6	0.90	0.79	29.4
9	R	157	11.3	1.042	112.3	LOS F	12.0	92.4	1.00	1.09	15.2
Approach		1321	7.8	1.042	43.9	LOS D	24.8	184.6	0.74	0.80	28.9
West: Kalandar St (W)											
10	L	52	13.6	0.708	66.0	LOS E	9.2	67.2	0.95	0.91	19.0
11	T	154	1.6	0.708	57.5	LOS E	13.0	94.3	0.97	0.86	17.9
12	R	156	5.3	0.708	69.6	LOS E	13.0	94.3	1.00	0.85	17.9
Approach		361	4.9	0.708	63.9	LOS E	13.0	94.3	0.98	0.86	18.1
All Vehicles		3877	5.4	1.082	100.2	LOS F	64.2	460.7	0.91	1.08	15.0

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	44.8	LOS E	0.2	0.2	0.81	0.81
P3	Across E approach	53	37.8	LOS D	0.2	0.2	0.75	0.75
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		159	48.1	LOS E			0.84	0.84

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: 7. Princes Hwy-Kalandar
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Friday PM (1600-1700) - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	12	0.0	1.081	130.4	LOS F	32.8	234.8	1.00	1.20	13.9
2	T	785	2.6	1.081	136.2	LOS F	41.9	300.0	1.00	1.30	13.4
3	R	114	1.4	1.104	185.8	LOS F	12.7	89.6	1.00	1.22	10.0
Approach		911	2.4	1.104	142.3	LOS F	41.9	300.0	1.00	1.29	12.9
East: Kalandar St (E)											
4	L	102	1.5	1.104	159.8	LOS F	46.8	333.6	1.00	1.39	8.1
5	T	248	2.4	1.104	150.8	LOS F	46.8	333.6	1.00	1.39	7.6
6	R	573	1.8	1.104	177.5	LOS F	49.9	354.4	1.00	1.37	7.4
Approach		923	2.0	1.104	168.4	LOS F	49.9	354.4	1.00	1.38	7.5
North: Princes Hwy (N)											
7	L	867	1.1	1.000 ³	34.2	LOS C	18.5	130.6	0.22	0.78	33.2
8	T	1303	3.1	1.109	167.1	LOS F	75.1	539.5	1.00	1.60	11.4
9	R	138	5.4	0.612	42.7	LOS D	5.8	42.4	0.99	0.79	29.3
Approach		2308	2.5	1.109	109.7	LOS F	75.1	539.5	0.71	1.24	15.7
West: Kalandar St (W)											
10	L	109	9.5	1.000 ³	54.2	LOS D	13.7	99.2	0.94	0.90	21.7
11	T	322	0.0	1.094	104.0	LOS F	52.0	366.2	0.97	1.13	11.8
12	R	303	1.0	1.094	174.9	LOS F	52.0	366.2	1.00	1.44	8.6
Approach		735	1.8	1.094	125.8	LOS F	52.0	366.2	0.98	1.22	10.8
All Vehicles		4877	2.3	1.109	129.3	LOS F	75.1	539.5	0.86	1.27	12.6

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	51.1	LOS E	0.2	0.2	0.90	0.90
P3	Across E approach	53	36.9	LOS D	0.1	0.1	0.77	0.77
P5	Across N approach	53	50.2	LOS E	0.2	0.2	0.90	0.90
All Pedestrians		159	46.0	LOS E			0.86	0.86

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: 7. Princes Hwy-Kalandar
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Kalandar Street

Friday PM (1600-1700) - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 125 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	12	0.0	1.081	130.4	LOS F	32.8	234.8	1.00	1.20	13.9
2	T	785	2.6	1.081	136.2	LOS F	41.9	300.0	1.00	1.30	13.4
3	R	114	1.4	1.104	185.8	LOS F	12.7	89.6	1.00	1.22	10.0
Approach		911	2.4	1.104	142.3	LOS F	41.9	300.0	1.00	1.29	12.9
East: Kalandar St (E)											
4	L	102	1.5	1.104	159.8	LOS F	46.8	333.6	1.00	1.39	8.1
5	T	248	2.4	1.104	150.8	LOS F	46.8	333.6	1.00	1.39	7.6
6	R	573	1.8	1.104	177.5	LOS F	49.9	354.4	1.00	1.37	7.4
Approach		923	2.0	1.104	168.4	LOS F	49.9	354.4	1.00	1.38	7.5
North: Princes Hwy (N)											
7	L	867	1.1	1.000 ³	34.2	LOS C	18.5	130.6	0.22	0.78	33.2
8	T	1303	3.1	1.109	167.1	LOS F	75.1	539.5	1.00	1.60	11.4
9	R	138	5.4	0.612	42.7	LOS D	5.8	42.4	0.99	0.79	29.3
Approach		2308	2.5	1.109	109.7	LOS F	75.1	539.5	0.71	1.24	15.7
West: Kalandar St (W)											
10	L	109	9.5	1.000 ³	54.2	LOS D	13.7	99.2	0.94	0.90	21.7
11	T	322	0.0	1.094	104.0	LOS F	52.0	366.2	0.97	1.13	11.8
12	R	303	1.0	1.094	174.9	LOS F	52.0	366.2	1.00	1.44	8.6
Approach		735	1.8	1.094	125.8	LOS F	52.0	366.2	0.98	1.22	10.8
All Vehicles		4877	2.3	1.109	129.3	LOS F	75.1	539.5	0.86	1.27	12.6

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	51.1	LOS E	0.2	0.2	0.90	0.90
P3	Across E approach	53	36.9	LOS D	0.1	0.1	0.77	0.77
P5	Across N approach	53	50.2	LOS E	0.2	0.2	0.90	0.90
All Pedestrians		159	46.0	LOS E			0.86	0.86

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: 8. Coonamia-Currarong-Forest (Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	13	0.0	0.041	0.9	LOS A	0.2	1.2	0.32	0.00	79.0
6	R	40	0.0	0.041	13.3	LOS A	0.2	1.2	0.32	0.77	68.3
Approach		53	0.0	0.041	10.4	NA	0.2	1.2	0.32	0.59	70.6
North: Coonamia Road											
7	L	7	0.0	0.012	13.1	LOS A	0.0	0.2	0.22	0.68	67.6
9	R	85	1.8	0.123	14.3	LOS A	0.5	3.5	0.37	0.74	66.6
Approach		93	1.6	0.123	14.2	LOS A	0.5	3.5	0.36	0.73	66.7
West: Forest Road											
10	L	209	1.8	0.124	12.7	LOS A	0.0	0.0	0.00	0.79	69.1
11	T	19	6.3	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		228	2.2	0.124	11.7	NA	0.0	0.0	0.00	0.72	71.0
All Vehicles		374	1.7	0.124	12.1	NA	0.5	3.5	0.13	0.71	69.8

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:13:35 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 8. Coonamia-Currarong-Forest (Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	15	0.0	0.020	0.7	LOS A	0.1	0.7	0.30	0.00	81.8
6	R	15	0.0	0.020	13.2	LOS A	0.1	0.7	0.30	0.86	69.4
Approach		29	0.0	0.020	7.0	NA	0.1	0.7	0.30	0.43	75.2
North: Coonamia Road											
7	L	37	0.0	0.059	13.1	LOS A	0.1	0.9	0.22	0.69	67.6
9	R	200	4.0	0.274	14.4	LOS A	1.3	9.3	0.38	0.74	66.8
Approach		237	3.4	0.274	14.2	LOS A	1.3	9.3	0.35	0.73	66.9
West: Forest Road											
10	L	161	5.4	0.108	13.0	LOS A	0.0	0.0	0.00	0.83	69.1
11	T	34	4.3	0.108	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		195	5.2	0.108	10.8	NA	0.0	0.0	0.00	0.69	73.1
All Vehicles		461	4.0	0.274	12.3	NA	1.3	9.3	0.20	0.69	69.9

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:14:53 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 8. Coonamia-Currarong-Forest (Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Coonamia Road- Currarong Road-Forest Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Currarong Road											
5	T	11	0.0	0.027	0.7	LOS A	0.1	0.8	0.29	0.00	80.9
6	R	26	0.0	0.027	13.2	LOS A	0.1	0.8	0.29	0.78	68.6
Approach		37	0.0	0.027	9.6	NA	0.1	0.8	0.29	0.56	71.7
North: Coonamia Road											
7	L	29	0.0	0.047	13.0	LOS A	0.1	0.7	0.21	0.69	67.7
9	R	174	1.8	0.238	14.1	LOS A	1.1	7.6	0.36	0.74	66.9
Approach		203	1.5	0.238	13.9	LOS A	1.1	7.6	0.34	0.73	67.0
West: Forest Road											
10	L	175	0.9	0.104	12.6	LOS A	0.0	0.0	0.00	0.79	69.1
11	T	19	0.0	0.104	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		194	0.8	0.104	11.4	NA	0.0	0.0	0.00	0.72	71.3
All Vehicles		434	1.1	0.238	12.4	NA	1.1	7.6	0.18	0.71	69.3

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	31	7.7	0.722	20.0	LOS B	10.1	72.6	0.98	1.13	39.5
2	T	483	3.4	0.722	18.5	LOS B	10.1	72.6	0.98	1.12	39.7
3	R	59	0.0	0.722	23.3	LOS B	10.1	72.6	0.98	1.12	37.9
Approach		573	3.3	0.722	19.1	LOS B	10.1	72.6	0.98	1.12	39.5
East: Kalandar Street											
4	L	327	7.5	0.437	7.9	LOS A	2.8	20.6	0.46	0.59	45.1
6	R	161	2.3	0.437	12.6	LOS A	2.8	20.6	0.46	0.78	42.0
Approach		488	5.8	0.437	9.4	LOS A	2.8	20.6	0.46	0.65	44.0
North: Kinghorne Street											
7	L	129	3.7	0.329	8.8	LOS A	2.2	16.0	0.58	0.66	47.1
8	T	31	0.0	0.329	7.9	LOS A	2.2	16.0	0.58	0.62	47.1
9	R	176	3.4	0.329	12.0	LOS A	2.2	16.0	0.58	0.74	45.5
Approach		336	3.2	0.329	10.4	LOS A	2.2	16.0	0.58	0.70	46.2
South West: Albatross Road											
30	L	261	4.5	0.738	20.1	LOS B	9.6	70.6	1.00	1.19	38.2
32	R	219	8.1	0.738	24.4	LOS B	9.6	70.6	1.00	1.20	37.0
Approach		480	6.2	0.738	22.1	LOS B	9.6	70.6	1.00	1.19	37.6
All Vehicles		1877	4.7	0.738	15.8	LOS B	10.1	72.6	0.78	0.94	40.9

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:17:23 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Friday AM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	34	0.0	0.581	15.4	LOS B	5.7	40.2	0.90	1.00	42.7
2	T	326	0.0	0.581	14.1	LOS A	5.7	40.2	0.90	0.98	42.9
3	R	79	0.0	0.581	19.0	LOS B	5.7	40.2	0.90	1.02	40.7
Approach		439	0.0	0.581	15.1	LOS B	5.7	40.2	0.90	0.99	42.5
East: Kalandar Street											
4	L	280	0.0	0.440	8.9	LOS A	2.9	20.1	0.62	0.71	43.9
6	R	116	0.0	0.440	13.8	LOS A	2.9	20.1	0.62	0.84	40.9
Approach		396	0.0	0.440	10.3	LOS A	2.9	20.1	0.62	0.75	43.0
North: Kinghorne Street											
7	L	322	0.0	0.782	15.7	LOS B	11.5	80.8	0.98	1.04	41.6
8	T	80	0.0	0.782	14.9	LOS B	11.5	80.8	0.98	1.04	41.7
9	R	304	0.0	0.782	18.9	LOS B	11.5	80.8	0.98	1.05	40.2
Approach		706	0.0	0.782	17.0	LOS B	11.5	80.8	0.98	1.05	41.0
South West: Albatross Road											
30	L	300	0.0	0.786	17.3	LOS B	11.7	82.1	1.00	1.13	40.0
32	R	348	0.0	0.786	21.5	LOS B	11.7	82.1	1.00	1.13	38.6
Approach		648	0.0	0.786	19.5	LOS B	11.7	82.1	1.00	1.13	39.2
All Vehicles		2189	0.0	0.786	16.2	LOS B	11.7	82.1	0.91	1.01	41.0

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:19:01 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 9. Kalandar St-Kinghorne St
(Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Kalandar Street-Kinghorne Street-Albatross Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Kinghorne Street											
1	L	21	12.5	0.226	10.6	LOS A	1.4	10.0	0.60	0.74	47.5
2	T	162	1.6	0.226	8.8	LOS A	1.4	10.0	0.60	0.66	47.5
3	R	29	0.0	0.226	13.7	LOS A	1.4	10.0	0.60	0.81	44.7
Approach		213	2.5	0.226	9.7	LOS A	1.4	10.0	0.60	0.69	47.1
East: Kalandar Street											
4	L	204	6.0	0.268	7.5	LOS A	1.4	10.4	0.37	0.56	45.7
6	R	98	1.4	0.268	12.2	LOS A	1.4	10.4	0.37	0.77	42.3
Approach		302	4.5	0.268	9.0	LOS A	1.4	10.4	0.37	0.63	44.5
North: Kinghorne Street											
7	L	154	0.8	0.313	8.6	LOS A	2.0	14.2	0.53	0.65	47.4
8	T	21	0.0	0.313	7.7	LOS A	2.0	14.2	0.53	0.60	47.5
9	R	157	2.6	0.313	11.8	LOS A	2.0	14.2	0.53	0.74	45.6
Approach		332	1.6	0.313	10.0	LOS A	2.0	14.2	0.53	0.69	46.5
South West: Albatross Road											
30	L	161	1.4	0.377	8.0	LOS A	2.6	18.2	0.57	0.62	47.4
32	R	237	1.7	0.377	12.2	LOS A	2.6	18.2	0.57	0.75	45.6
Approach		398	1.6	0.377	10.5	LOS A	2.6	18.2	0.57	0.70	46.3
All Vehicles		1244	2.5	0.377	9.9	LOS A	2.6	18.2	0.51	0.68	46.1

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	1413	3.1	0.739	0.4	X	X	X	X	0.00	98.7
3	R	37	13.0	0.058	17.3	LOS B	0.2	1.7	0.56	0.83	56.7
Approach		1449	3.4	0.739	0.8	NA	0.2	1.7	0.01	0.02	97.3
South East: Forest Road (Median RT)											
23	R	107	2.3	0.059	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		107	2.3	0.059	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	36	3.3	0.078	13.1	LOS A	0.2	1.5	0.54	0.80	51.4
6	R	107	2.3	0.227	14.9	LOS B	0.8	5.9	0.60	0.89	49.6
Approach		143	2.6	0.227	14.5	LOS A	0.8	5.9	0.59	0.87	50.1
North: Princes Hwy (N)											
7	L	60	8.3	0.034	13.0	LOS A	0.0	0.0	0.00	0.76	63.3
8	T	521	16.0	0.295	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		581	15.2	0.295	1.3	NA	0.0	0.0	0.00	0.08	95.6
All Vehicles		2281	6.3	0.739	2.1	NA	0.8	5.9	0.05	0.12	89.6

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:22:10 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	640	6.0	0.341	0.1	X	X	X	X	0.00	99.8
3	R	63	2.9	0.457	48.6	LOS D	1.6	11.4	0.95	1.03	30.9
Approach		703	5.7	0.457	4.4	NA	1.6	11.4	0.08	0.09	86.4
South East: Forest Road (Median RT)											
23	R	71	2.2	0.039	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		71	2.2	0.039	8.1	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	60	0.0	0.551	57.0	LOS E	1.9	13.2	0.96	1.06	28.4
6	R	71	2.2	0.721	75.2	LOS F	2.7	19.6	0.97	1.14	24.0
Approach		131	1.2	0.721	66.8	LOS E	2.7	19.6	0.96	1.10	25.9
North: Princes Hwy (N)											
7	L	160	2.0	0.087	12.7	LOS A	0.0	0.0	0.00	0.75	63.3
8	T	1475	2.0	0.766	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		1635	2.0	0.766	1.2	NA	0.0	0.0	0.00	0.07	95.8
All Vehicles		2539	3.0	0.766	5.7	NA	2.7	19.6	0.07	0.15	81.0

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:23:29 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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MOVEMENT SUMMARY

Site: 10. Princes Hwy-Forest
(Future Sat-120th HH)

13S1231000 - West Culburra Subdivision
Princes Highway-Forest Road
Saturday - Equivalent 120th HH
Future - Full Site Development
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
2	T	812	1.7	0.421	0.1	X	X	X	X	0.00	99.7
3	R	52	0.0	0.187	25.9	LOS B	0.6	4.4	0.84	0.97	45.6
Approach		863	1.6	0.421	1.6	NA	0.6	4.4	0.05	0.06	94.5
South East: Forest Road (Median RT)											
23	R	98	0.0	0.053	8.0	LOS A	0.0	0.0	0.00	0.61	53.3
Approach		98	0.0	0.053	8.0	LOS A	0.0	0.0	0.00	0.61	53.3
East: Forest Road											
4	L	62	0.0	0.280	26.6	LOS B	1.0	6.7	0.86	0.99	41.0
6	R	98	3.0	0.536	36.3	LOS C	2.1	15.0	0.91	1.07	36.0
Approach		160	1.8	0.536	32.5	LOS C	2.1	15.0	0.89	1.04	37.8
North: Princes Hwy (N)											
7	L	137	0.0	0.074	12.5	LOS A	0.0	0.0	0.00	0.75	63.3
8	T	1153	1.7	0.598	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		1289	1.5	0.598	1.3	NA	0.0	0.0	0.00	0.08	95.4
All Vehicles		2411	1.5	0.598	3.8	NA	2.1	15.0	0.08	0.16	84.9

X: Not applicable for Continuous movement.

Level of Service (LOS) Method: Delay (RTA NSW).

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: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model used.

Processed: Thursday, 28 February 2013 3:25:58 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130226sid-12S1231000 West

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SIDRA
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MOVEMENT SUMMARY

Site: 11. Princes Hwy-Moss
(Future Fri AM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Friday AM (0800-0900) - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	5	0.0	0.974	100.6	LOS F	24.6	183.4	1.00	1.11	16.6
2	T	928	7.6	1.054	122.4	LOS F	32.7	243.9	1.00	1.22	14.6
3	R	158	3.7	0.982	109.7	LOS F	13.6	98.2	1.00	1.06	14.9
Approach		1092	7.0	1.054	120.4	LOS F	32.7	243.9	1.00	1.20	14.6
East: Moss St (E)											
4	L	37	3.4	0.382	48.3	LOS D	4.0	28.9	0.80	0.77	25.3
5	T	243	4.1	1.025	105.2	LOS F	47.6	345.5	0.97	1.17	13.7
6	R	275	4.6	1.025	126.7	LOS F	47.6	345.5	1.00	1.28	13.6
Approach		555	4.3	1.025	112.1	LOS F	47.6	345.5	0.97	1.20	14.1
North: Princes Hwy (N)											
7	L	193	5.0	1.000 ³	55.8	LOS D	29.0	213.4	0.99	0.92	25.2
8	T	1479	6.8	1.066	119.8	LOS F	63.7	471.6	1.00	1.32	14.7
9	R	335	3.7	1.040	111.7	LOS F	27.1	195.8	1.00	1.13	14.7
Approach		2006	6.1	1.066	112.3	LOS F	63.7	471.6	1.00	1.25	15.3
West: Moss St (W)											
10	L	126	10.3	0.268	22.5	LOS B	3.2	24.4	0.67	0.75	24.5
11	T	134	3.6	0.535	54.1	LOS D	11.0	81.1	0.96	0.79	10.1
12	R	49	11.9	0.535	61.9	LOS E	11.0	81.1	0.96	0.82	12.6
Approach		309	7.7	0.535	42.5	LOS C	11.0	81.1	0.84	0.78	14.5
All Vehicles		3962	6.2	1.066	109.1	LOS F	63.7	471.6	0.98	1.19	14.9

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	53.3	LOS E	0.2	0.2	0.89	0.89
P3	Across E approach	53	40.8	LOS E	0.2	0.2	0.78	0.78
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P7	Across W approach	53	56.0	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		212	53.0	LOS E			0.88	0.88

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: 11. Princes Hwy-Moss
(Future Fri PM-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Friday PM (1600-1700) - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	13	0.0	1.149	210.3	LOS F	42.7	306.5	1.00	1.43	8.8
2	T	1120	3.1	1.243	265.7	LOS F	59.6	428.5	1.00	1.64	7.7
3	R	115	0.0	1.191	266.0	LOS F	16.2	113.5	1.00	1.31	7.0
Approach		1247	2.8	1.243	265.2	LOS F	59.6	428.5	1.00	1.61	7.6
East: Moss St (E)											
4	L	37	4.3	0.378	56.3	LOS D	4.0	28.7	0.87	0.77	23.2
5	T	153	0.0	1.013	98.5	LOS F	33.6	237.5	0.97	1.11	14.3
6	R	235	1.9	1.013	121.7	LOS F	33.6	237.5	1.00	1.25	14.0
Approach		424	1.4	1.013	107.7	LOS F	33.6	237.5	0.98	1.16	14.6
North: Princes Hwy (N)											
7	L	214	3.7	1.000 ³	62.2	LOS E	29.6	213.6	1.00	0.95	23.3
8	T	1525	3.5	1.238	244.3	LOS F	97.0	699.1	1.00	1.74	8.2
9	R	240	0.7	1.167	209.9	LOS F	27.8	195.8	1.00	1.29	8.7
Approach		1978	3.0	1.238	220.4	LOS F	97.0	699.1	1.00	1.60	8.8
West: Moss St (W)											
10	L	160	1.2	0.330	19.1	LOS B	3.4	24.2	0.61	0.75	26.5
11	T	259	0.0	1.216	268.9	LOS F	112.8	794.8	1.00	1.74	2.5
12	R	135	1.1	1.216	276.3	LOS F	112.8	794.8	1.00	1.74	3.3
Approach		900	0.8	1.216	227.9	LOS F	112.8	794.8	0.89	1.45	4.0
All Vehicles		4549	2.4	1.243	223.2	LOS F	112.8	794.8	0.98	1.42	8.2

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

³ x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	44.0	LOS E	0.2	0.2	0.81	0.81
P5	Across N approach	53	45.6	LOS E	0.2	0.2	0.82	0.82
P7	Across W approach	53	56.0	LOS E	0.2	0.2	0.91	0.91
All Pedestrians		212	51.8	LOS E			0.87	0.87

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: 11. Princes Hwy-Moss
(Future Sat-120th HH)

13S1231000 - West Culburra Subdivision

Princes Highway-Moss Street

Saturday - Equivalent 120th HH

Future - Full Site Development

Signals - Fixed Time Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Princes Hwy (S)											
1	L	14	0.0	0.807	64.6	LOS E	23.7	169.6	0.97	0.93	23.3
2	T	1183	2.7	0.873	58.7	LOS E	27.8	198.7	0.99	0.94	24.2
3	R	104	0.0	0.583	73.8	LOS F	6.8	47.7	1.00	0.79	20.0
Approach		1301	2.4	0.873	60.0	LOS E	27.8	198.7	0.99	0.93	23.8
East: Moss St (E)											
4	L	35	0.0	0.243	52.6	LOS D	2.6	18.1	0.83	0.75	24.0
5	T	85	0.0	0.651	53.7	LOS D	13.9	98.5	0.96	0.79	20.7
6	R	155	1.8	0.651	63.0	LOS E	13.9	98.5	0.98	0.83	21.7
Approach		275	1.0	0.651	58.8	LOS E	13.9	98.5	0.96	0.81	21.7
North: Princes Hwy (N)											
7	L	121	2.3	0.737	45.2	LOS D	19.6	139.6	0.79	0.95	28.8
8	T	1313	1.5	0.737	37.7	LOS C	26.8	189.8	0.85	0.76	31.1
9	R	258	1.0	0.858	49.0	LOS D	11.9	84.2	1.00	0.91	26.2
Approach		1692	1.5	0.858	40.0	LOS C	26.8	189.8	0.87	0.80	30.2
West: Moss St (W)											
10	L	311	0.0	0.609	24.2	LOS B	8.2	57.2	0.78	0.80	23.3
11	T	163	0.0	0.755	58.6	LOS E	17.3	121.4	1.00	0.89	9.5
12	R	103	1.3	0.755	66.1	LOS E	17.3	121.4	1.00	0.89	11.9
Approach		577	0.2	0.755	41.4	LOS C	17.3	121.4	0.88	0.84	15.3
All Vehicles		3844	1.6	0.873	48.3	LOS D	27.8	198.7	0.92	0.85	25.3

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	Across S approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P3	Across E approach	53	34.8	LOS D	0.1	0.1	0.72	0.72
P5	Across N approach	53	61.6	LOS F	0.2	0.2	0.96	0.96
P7	Across W approach	53	46.5	LOS E	0.2	0.2	0.83	0.83
All Pedestrians		212	51.1	LOS E			0.86	0.86

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: Culburra-Collector East -
Post-Dev AM

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Culburra Road - East Approach											
5	T	277	2.5	0.212	2.5	LOS A	1.3	9.3	0.02	0.25	47.1
6	R	98	1.0	0.212	8.8	LOS A	1.3	9.3	0.02	0.90	41.8
Approach		375	2.1	0.212	4.1	LOS A	1.3	9.3	0.02	0.42	45.5
North: East Access - North Approach											
7	L	311	1.0	0.254	4.8	LOS A	1.5	10.5	0.42	0.49	43.6
9	R	1	1.0	0.254	9.9	LOS A	1.5	10.5	0.42	0.76	41.3
Approach		312	1.0	0.254	4.8	LOS A	1.5	10.5	0.42	0.49	43.6
West: Culburra Road - West Approach											
10	L	1	1.0	0.155	4.1	LOS A	0.8	5.6	0.24	0.44	44.8
11	T	213	2.5	0.155	2.9	LOS A	0.8	5.6	0.24	0.32	45.6
Approach		214	2.5	0.155	2.9	LOS A	0.8	5.6	0.24	0.32	45.6
All Vehicles		900	1.8	0.254	4.1	LOS A	1.5	10.5	0.21	0.42	44.8

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

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SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: Culburra-Collector East -
Post-Dev PM

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Culburra Road - East Approach											
5	T	193	2.5	0.285	2.5	LOS A	2.0	13.9	0.02	0.23	47.0
6	R	312	1.0	0.285	8.8	LOS A	2.0	13.9	0.02	0.76	41.8
Approach		504	1.6	0.285	6.4	LOS A	2.0	13.9	0.02	0.56	43.5
North: East Access - North Approach											
7	L	104	1.0	0.099	5.3	LOS A	0.6	3.9	0.51	0.54	43.1
9	R	1	1.0	0.099	10.4	LOS A	0.6	3.9	0.51	0.76	41.1
Approach		105	1.0	0.099	5.4	LOS A	0.6	3.9	0.51	0.54	43.1
West: Culburra Road - West Approach											
10	L	1	1.0	0.319	5.4	LOS A	1.9	13.5	0.51	0.58	43.7
11	T	365	2.5	0.319	4.3	LOS A	1.9	13.5	0.51	0.47	43.9
Approach		366	2.5	0.319	4.3	LOS A	1.9	13.5	0.51	0.47	43.9
All Vehicles		976	1.9	0.319	5.5	LOS A	2.0	13.9	0.26	0.52	43.6

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Wednesday, 13 March 2013 2:09:42 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: Culburra-Collector East -
Post-Dev SAT

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East
Saturday - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Culburra Road - East Approach											
5	T	251	2.5	0.255	2.5	LOS A	1.7	11.8	0.02	0.24	47.0
6	R	201	1.0	0.255	8.8	LOS A	1.7	11.8	0.02	0.82	41.8
Approach		452	1.8	0.255	5.3	LOS A	1.7	11.8	0.02	0.50	44.4
North: East Access - North Approach											
7	L	201	1.0	0.171	4.8	LOS A	1.0	6.8	0.43	0.49	43.6
9	R	1	1.0	0.171	9.9	LOS A	1.0	6.8	0.43	0.75	41.3
Approach		202	1.0	0.171	4.8	LOS A	1.0	6.8	0.43	0.49	43.5
West: Culburra Road - West Approach											
10	L	1	1.0	0.194	4.6	LOS A	1.0	7.4	0.37	0.50	44.3
11	T	240	2.5	0.194	3.5	LOS A	1.0	7.4	0.37	0.38	44.8
Approach		241	2.5	0.194	3.5	LOS A	1.0	7.4	0.37	0.38	44.8
All Vehicles		895	1.8	0.255	4.7	LOS A	1.7	11.8	0.21	0.47	44.3

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Wednesday, 13 March 2013 2:09:42 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWT\Modelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: Culburra-Collector East-Golf
Course - Post-Dev AM

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East - Golf Course
Friday AM (0800-0900) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Golf Course Access (S)											
1	L	4	0.0	0.009	7.1	LOS A	0.0	0.3	0.45	0.50	48.7
2	T	1	0.0	0.009	6.0	LOS A	0.0	0.3	0.45	0.44	49.1
3	R	4	0.0	0.009	12.7	LOS A	0.0	0.3	0.45	0.68	45.5
Approach		9	0.0	0.009	9.5	LOS A	0.0	0.3	0.45	0.57	47.2
East: Culburra Road - East Approach											
4	L	15	0.0	0.237	5.7	LOS A	1.4	10.0	0.10	0.48	51.4
5	T	277	2.5	0.237	2.6	LOS A	1.4	10.0	0.10	0.25	46.5
6	R	98	1.0	0.237	8.9	LOS A	1.4	10.0	0.10	0.84	41.7
Approach		389	2.0	0.237	4.3	LOS A	1.4	10.0	0.10	0.41	45.3
North: East Access - North Approach											
7	L	311	1.0	0.259	4.9	LOS A	1.5	10.8	0.44	0.50	43.5
8	T	1	0.0	0.259	5.7	LOS A	1.5	10.8	0.44	0.50	49.5
9	R	1	1.0	0.259	10.0	LOS A	1.5	10.8	0.44	0.76	41.2
Approach		313	1.0	0.259	4.9	LOS A	1.5	10.8	0.44	0.50	43.5
West: Culburra Road - West Approach											
10	L	1	1.0	0.166	4.1	LOS A	0.9	6.2	0.26	0.44	44.7
11	T	213	2.5	0.166	3.0	LOS A	0.9	6.2	0.26	0.32	45.4
12	R	15	0.0	0.166	11.6	LOS A	0.9	6.2	0.26	0.85	46.6
Approach		228	2.3	0.166	3.5	LOS A	0.9	6.2	0.26	0.36	45.5
All Vehicles		940	1.7	0.259	4.3	LOS A	1.5	10.8	0.25	0.43	44.8

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Wednesday, 13 March 2013 2:09:42 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: Culburra-Collector East-Golf
Course - Post-Dev PM

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East - Golf Course
Friday PM (1600-1700) - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Golf Course Access (S)											
1	L	23	0.0	0.047	7.9	LOS A	0.2	1.7	0.53	0.58	48.1
2	T	1	0.0	0.047	6.8	LOS A	0.2	1.7	0.53	0.53	48.3
3	R	23	0.0	0.047	13.5	LOS A	0.2	1.7	0.53	0.73	44.9
Approach		47	0.0	0.047	10.6	LOS A	0.2	1.7	0.53	0.65	46.4
East: Culburra Road - East Approach											
4	L	6	0.0	0.298	5.6	LOS A	2.0	14.2	0.07	0.45	51.5
5	T	193	2.5	0.298	2.5	LOS A	2.0	14.2	0.07	0.23	46.6
6	R	312	1.0	0.298	8.8	LOS A	2.0	14.2	0.07	0.73	41.7
Approach		511	1.6	0.298	6.4	LOS A	2.0	14.2	0.07	0.54	43.4
North: East Access - North Approach											
7	L	104	1.0	0.103	5.5	LOS A	0.6	4.1	0.53	0.55	43.0
8	T	1	0.0	0.103	6.3	LOS A	0.6	4.1	0.53	0.55	48.7
9	R	1	1.0	0.103	10.6	LOS A	0.6	4.1	0.53	0.76	41.0
Approach		106	1.0	0.103	5.5	LOS A	0.6	4.1	0.53	0.55	43.0
West: Culburra Road - West Approach											
10	L	1	1.0	0.331	5.6	LOS A	2.0	14.3	0.53	0.60	43.5
11	T	365	2.5	0.331	4.4	LOS A	2.0	14.3	0.53	0.49	43.7
12	R	6	0.0	0.331	13.1	LOS A	2.0	14.3	0.53	0.87	46.0
Approach		373	2.5	0.331	4.6	LOS A	2.0	14.3	0.53	0.50	43.8
All Vehicles		1037	1.7	0.331	5.9	LOS A	2.0	14.3	0.31	0.53	43.6

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

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SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

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SIDRA
INTERSECTION

MOVEMENT SUMMARY

Site: Culburra-Collector East-Golf
Course - Post-Dev SAT

12S1231000 West Culburra Subdivision
Culburra Road - Collector Road-East - Golf Course
Saturday - Equivalent 120th HH
Future - Full Site Development
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Golf Course Access (S)											
1	L	18	0.0	0.036	7.6	LOS A	0.2	1.3	0.51	0.56	48.3
2	T	1	0.0	0.036	6.4	LOS A	0.2	1.3	0.51	0.50	48.6
3	R	18	0.0	0.036	13.2	LOS A	0.2	1.3	0.51	0.72	45.2
Approach		37	0.0	0.036	10.2	LOS A	0.2	1.3	0.51	0.63	46.7
East: Culburra Road - East Approach											
4	L	18	0.0	0.286	5.7	LOS A	1.9	13.3	0.12	0.46	51.2
5	T	251	2.5	0.286	2.6	LOS A	1.9	13.3	0.12	0.24	46.3
6	R	201	1.0	0.286	8.9	LOS A	1.9	13.3	0.12	0.77	41.6
Approach		469	1.8	0.286	5.4	LOS A	1.9	13.3	0.12	0.48	44.2
North: East Access - North Approach											
7	L	201	1.0	0.177	5.0	LOS A	1.0	7.1	0.46	0.51	43.4
8	T	1	0.0	0.177	5.8	LOS A	1.0	7.1	0.46	0.51	49.3
9	R	1	1.0	0.177	10.1	LOS A	1.0	7.1	0.46	0.76	41.2
Approach		203	1.0	0.177	5.0	LOS A	1.0	7.1	0.46	0.52	43.4
West: Culburra Road - West Approach											
10	L	1	1.0	0.212	4.7	LOS A	1.2	8.3	0.40	0.51	44.1
11	T	240	2.5	0.212	3.6	LOS A	1.2	8.3	0.40	0.40	44.5
12	R	18	0.0	0.212	12.3	LOS A	1.2	8.3	0.40	0.84	46.4
Approach		259	2.3	0.212	4.2	LOS A	1.2	8.3	0.40	0.43	44.6
All Vehicles		968	1.7	0.286	5.2	LOS A	1.9	13.3	0.28	0.48	44.3

Level of Service (LOS) Method: Delay (RTA NSW).

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.

SIDRA Standard Delay Model used.

Processed: Wednesday, 13 March 2013 4:26:11 PM

SIDRA INTERSECTION 5.1.13.2093

Project: P:\12S1200-1299\12S1231000 - West Culburra MWTModelling\SIDRA\130313sid12S1231000 Culburra-Collector Rd East.sip

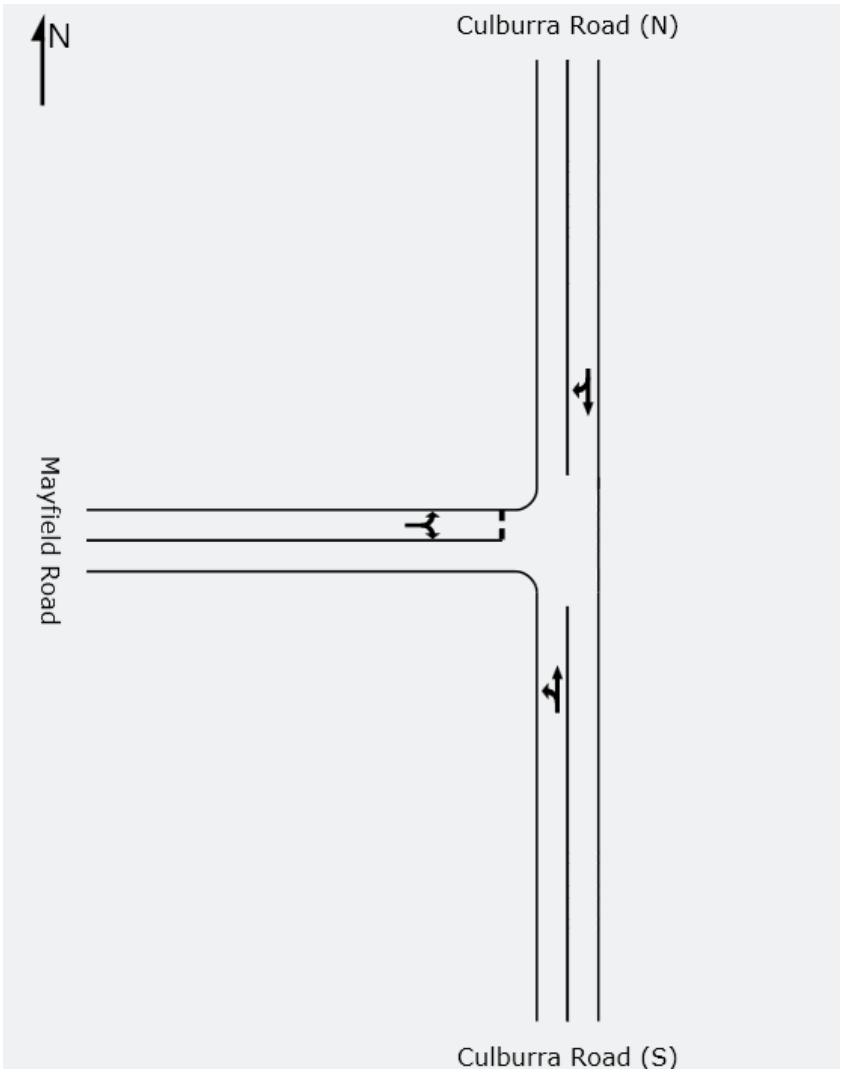
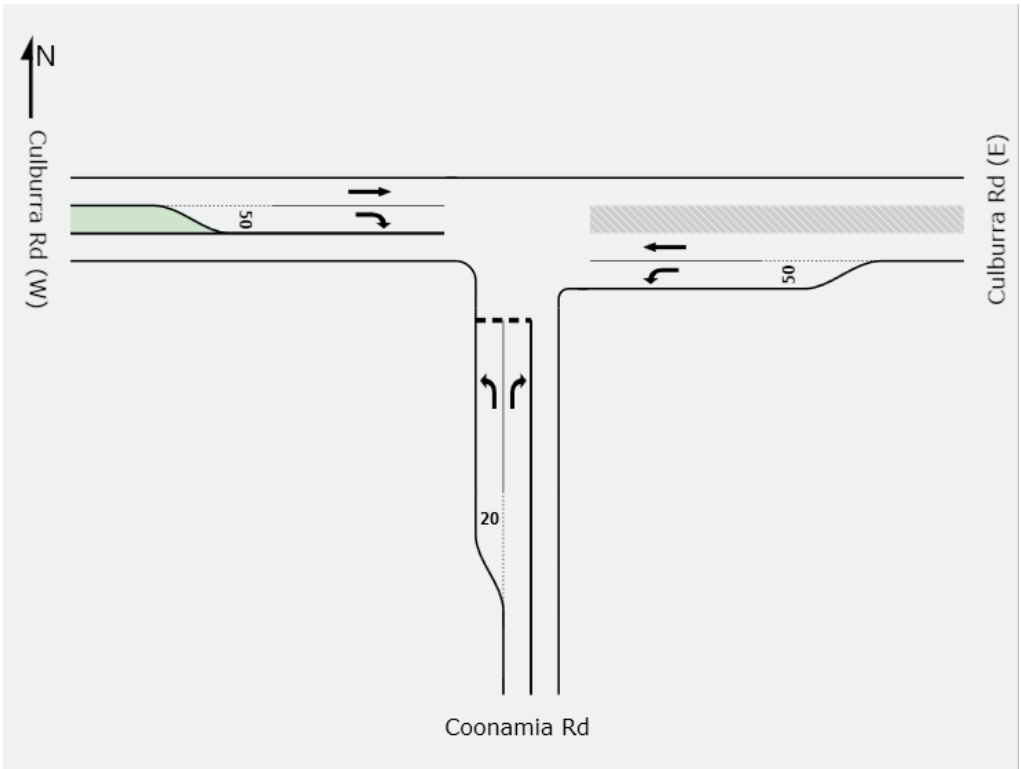
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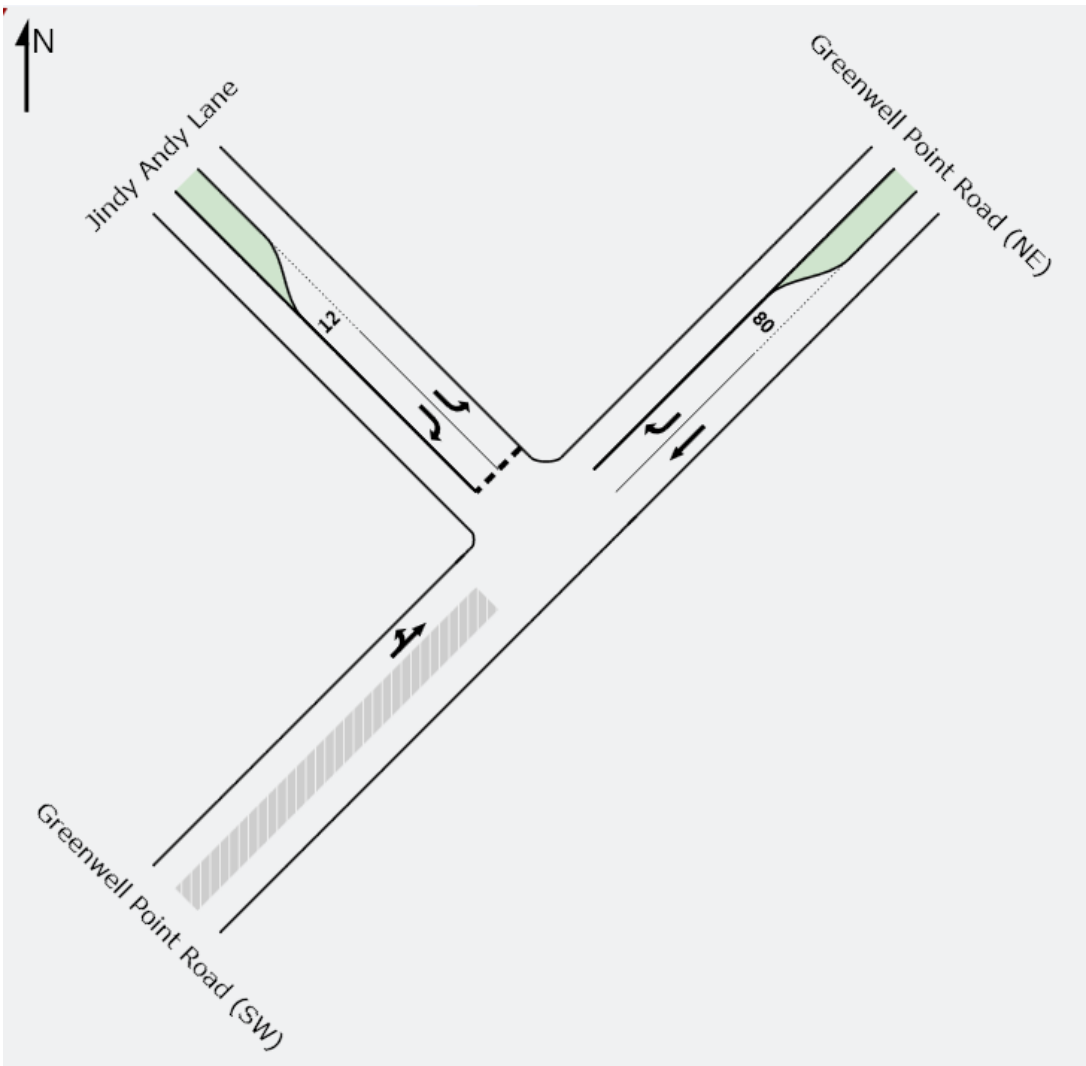
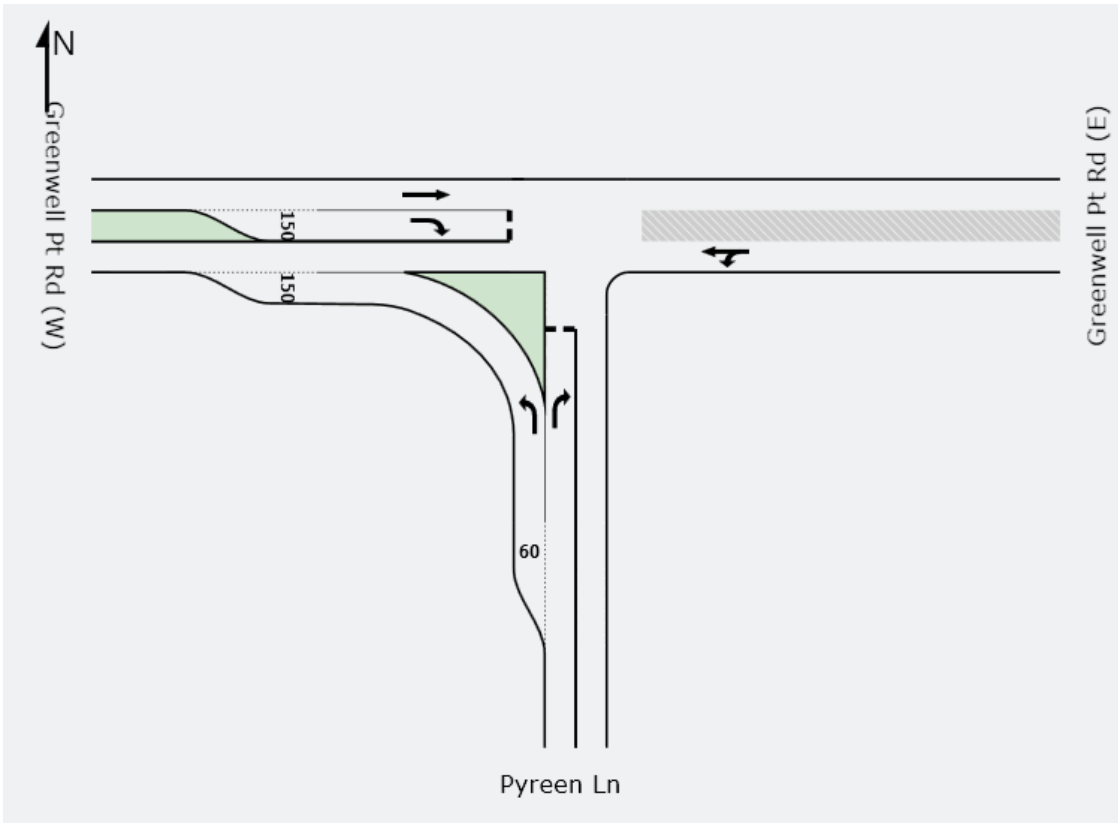
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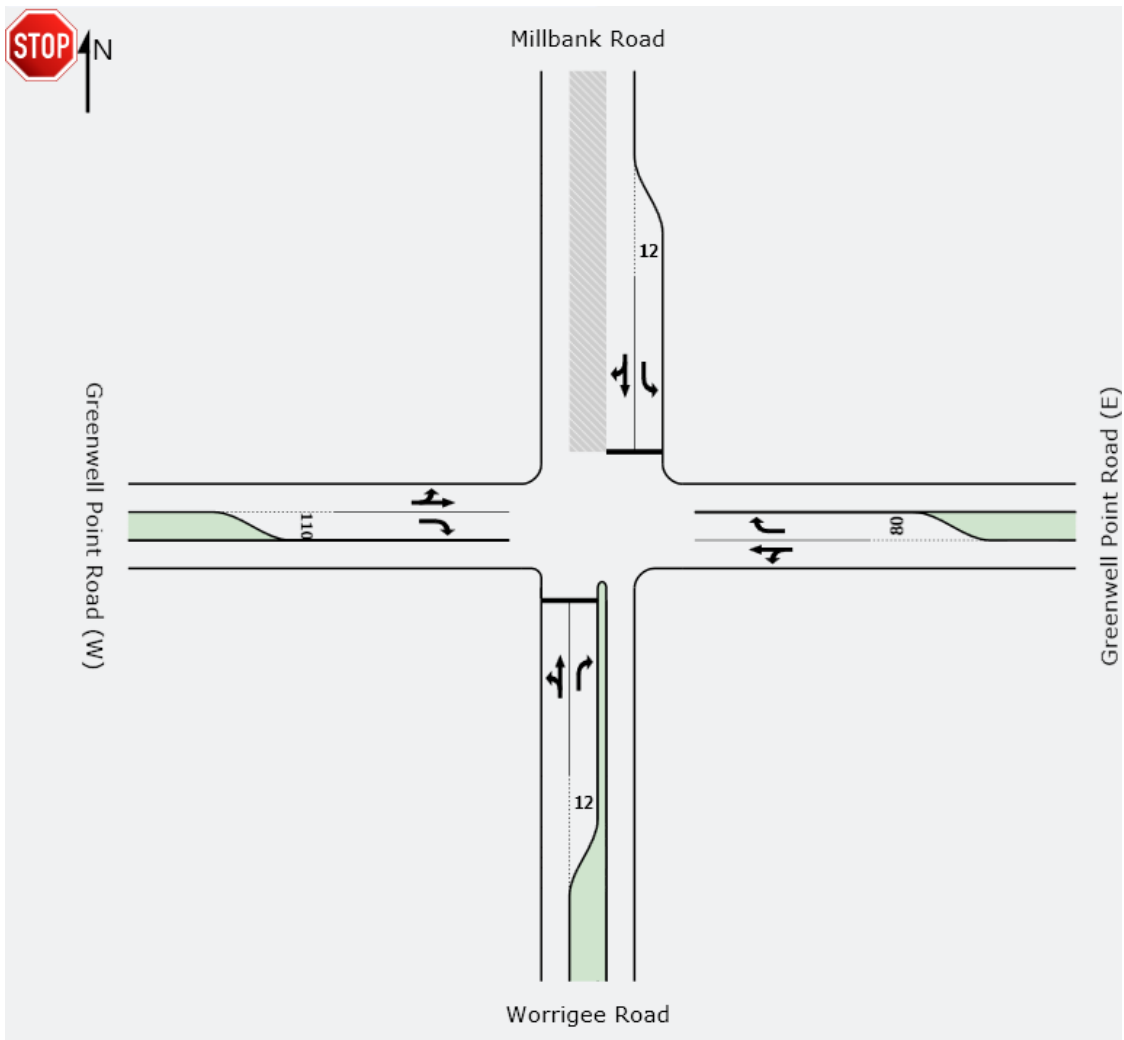
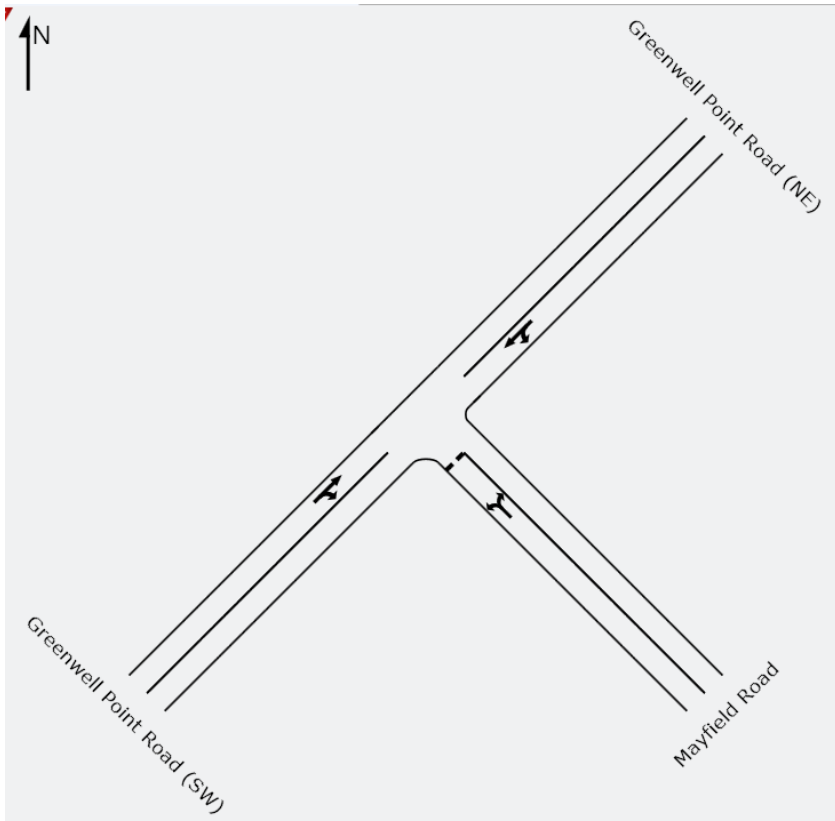
SIDRA
INTERSECTION

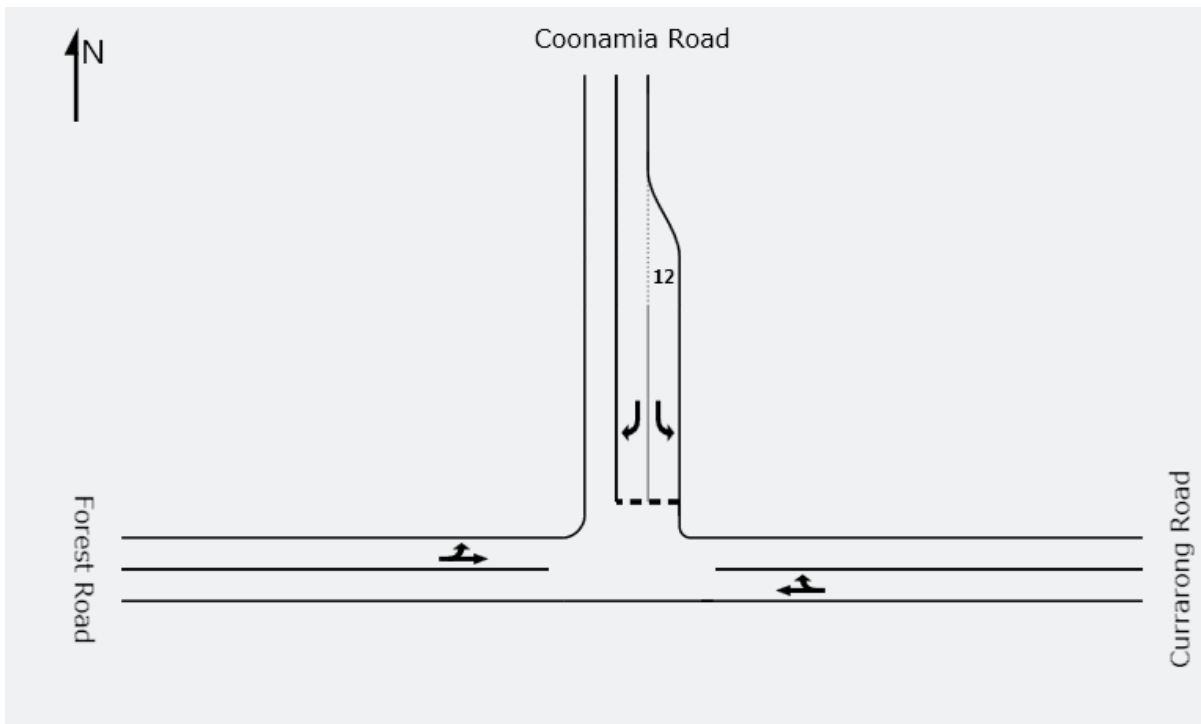
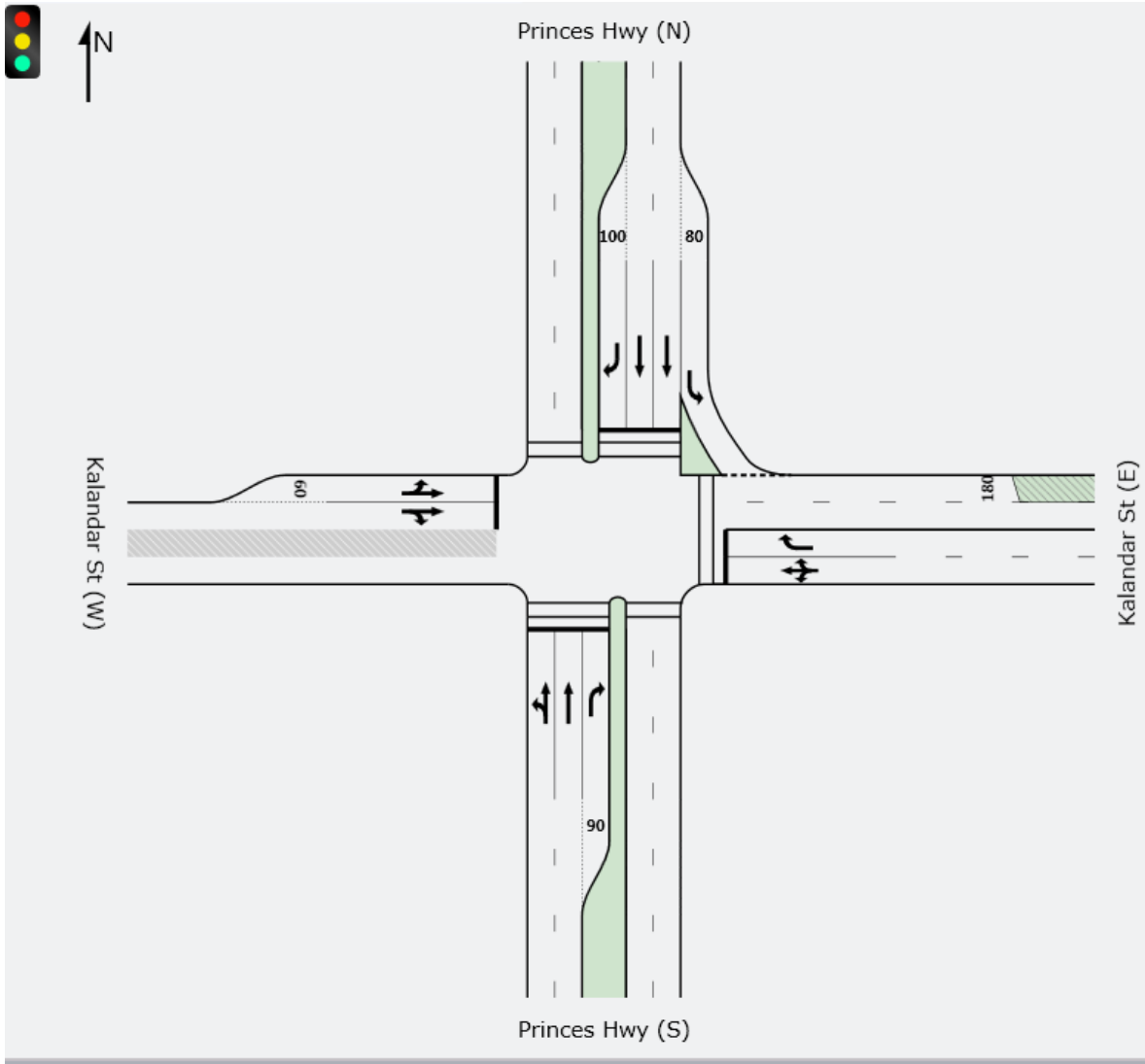
Appendix E

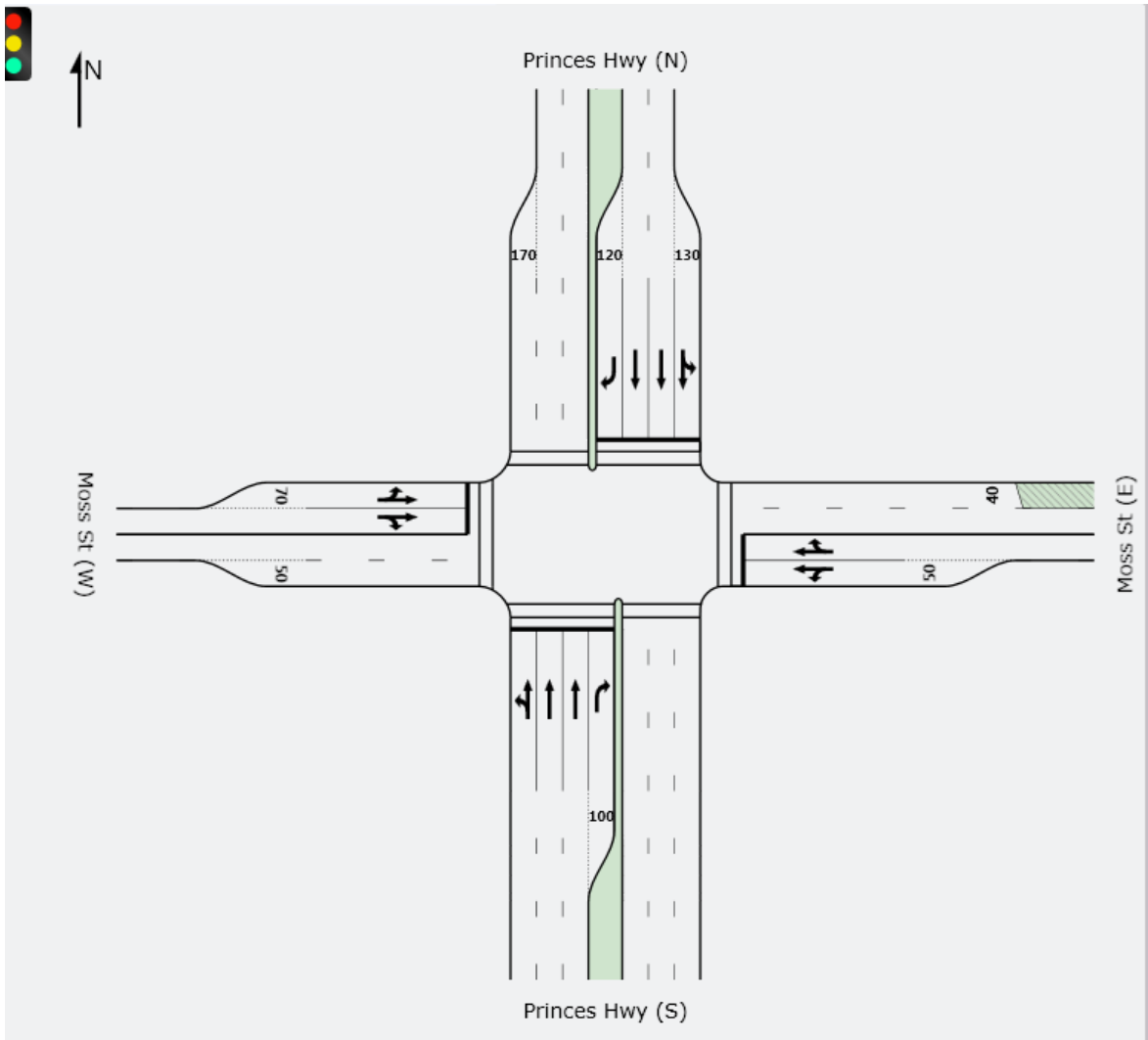
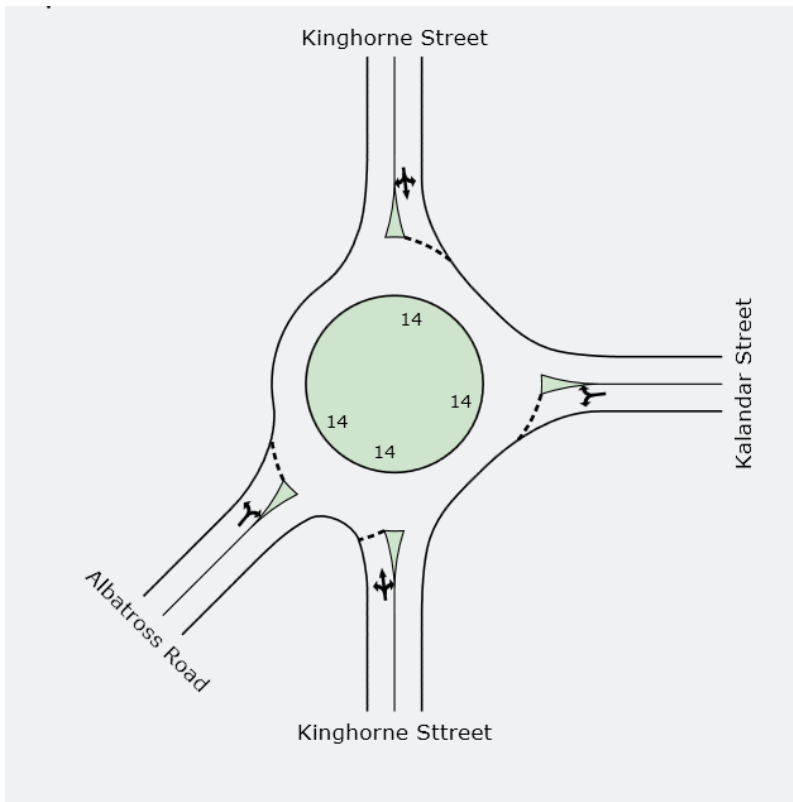
SIDRA INTERSECTION Layouts





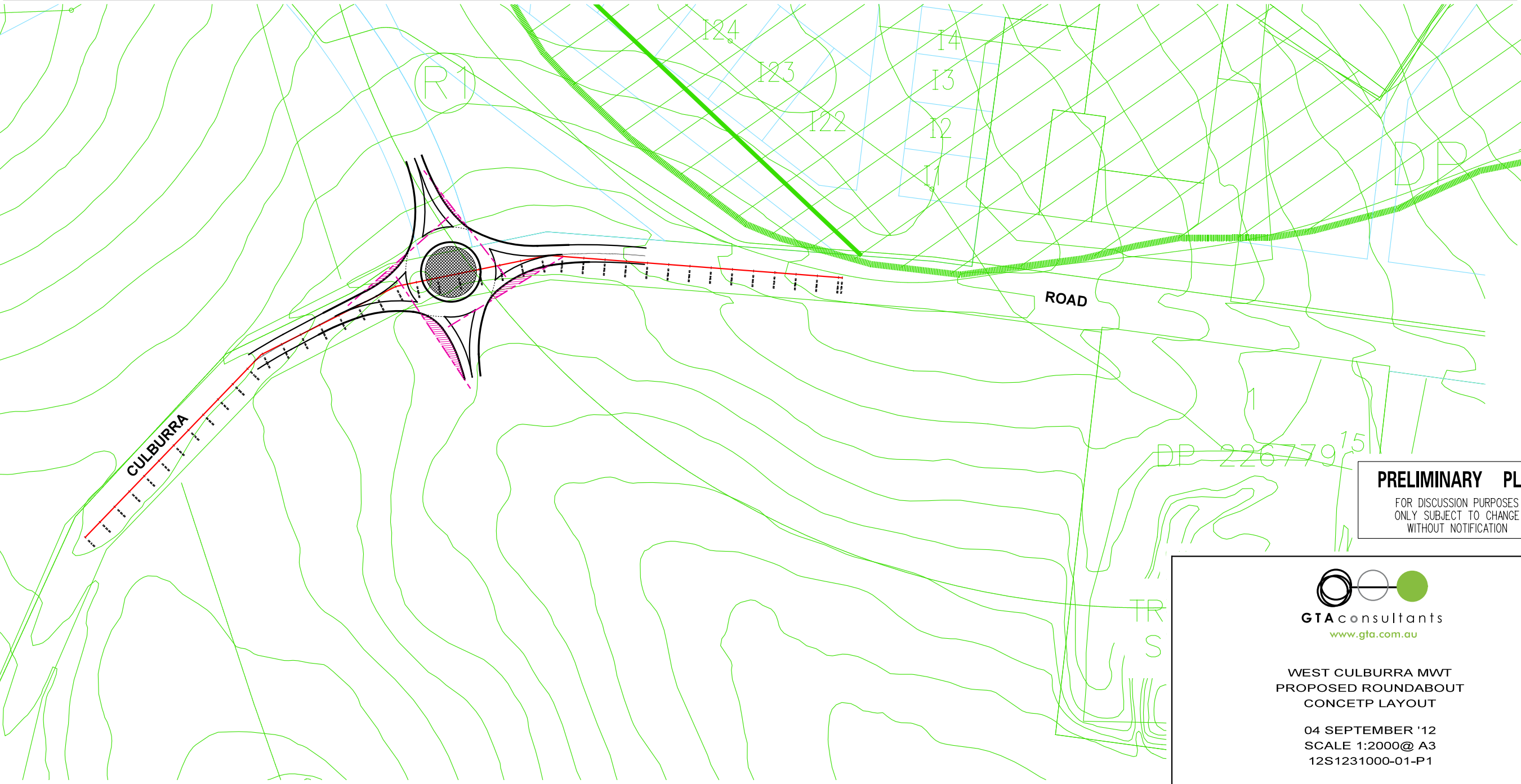
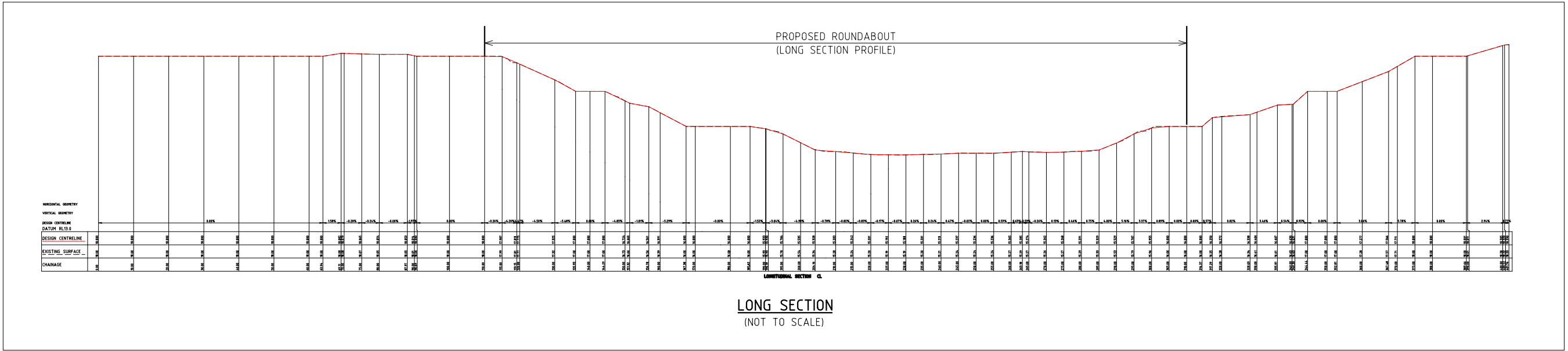






Appendix F

Preliminary Intersection Concept Design



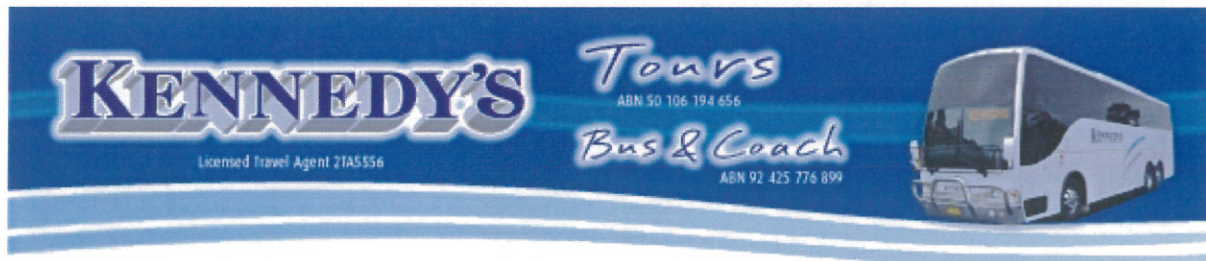
WEST CULBURRA MWT
 PROPOSED ROUNDABOUT
 CONCETP LAYOUT

04 SEPTEMBER '12
 SCALE 1:2000@ A3
 12S1231000-01-P1

Appendix G

Appendix G

Bus Operator Correspondence



Ken Hollyoak
Associate Director
GTA Consultants
PO Box 5254
West Chatswood NSW 1515

Re: Proposed Residential Development - Culburra

As a follow up from our initial discussion relating to your proposed development of 900 home sites in Culburra, the following information is provided.

Kennedys Bus & Coach is the contracted provider for Transport for NSW in supplying school & route services to Culburra / Orient Point. Additional patronage from your development would be welcomed and approval to include this development within our normal operations can be easily arranged. If the Development Proposal is approved we would be happy to extend our current service arrangements. There would be no additional cost to the government undercurrent contract arrangements.

It is important that you be aware in the design of this residential housing estate, that development enables bus stops to be located within 400 metre from access points / dwellings. The geometry of the road must be designed in order to allow for a minimum 12.5 metre to 13.5 metre bus to circulate through the proposed development.

Consideration also needs to be had relating to provision of Disability Access for low floor wheelchair buses which will be compulsory on all route services by 2020.

We look forward to providing services to this proposed new development. If I can be of any further assistance please contact me on the number below.

Yours sincerely


David Tagg
12th September 2012

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