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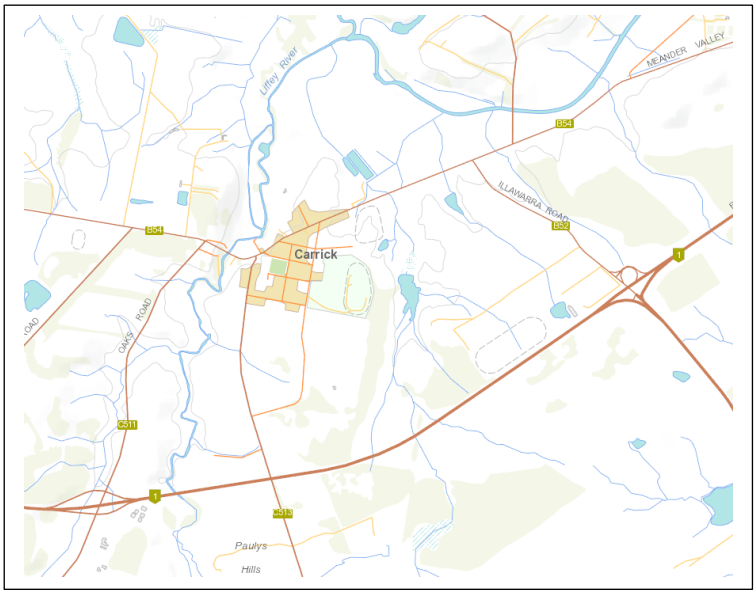

CARRICK
ROAD NETWORK PLAN

MEANDER VALLEY COUNCIL
JANUARY 2026

Carrick
Road Network Plan

MEANDER VALLEY COUNCIL

- Draft #4
- January 2026

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1. Background

Meander Valley Council (MVC) have requested review of the road transport and pedestrian & cycling network at Carrick to provide for sustainable development of the network and the region and follows development of the Meander Valley Community Strategic Plan (MVCSP) 2024 – 2034, see Appendix J for extracts. Accordingly, the MVCSP has been referenced regarding the recommended actions and planning principles relating to road and pathway development to support housing and settlement development, see Strategic Directions 3 & 4 in Figure 1.

Figure 1 – MVC Strategic Direction

2. References

2.1 Project References

- Project Brief supplied by Thomas Wagenknecht, Senior Strategic Planner, MVC
- Traffic Count Data supplied by MVC
- Project Scope supplied by GTC – August 2024

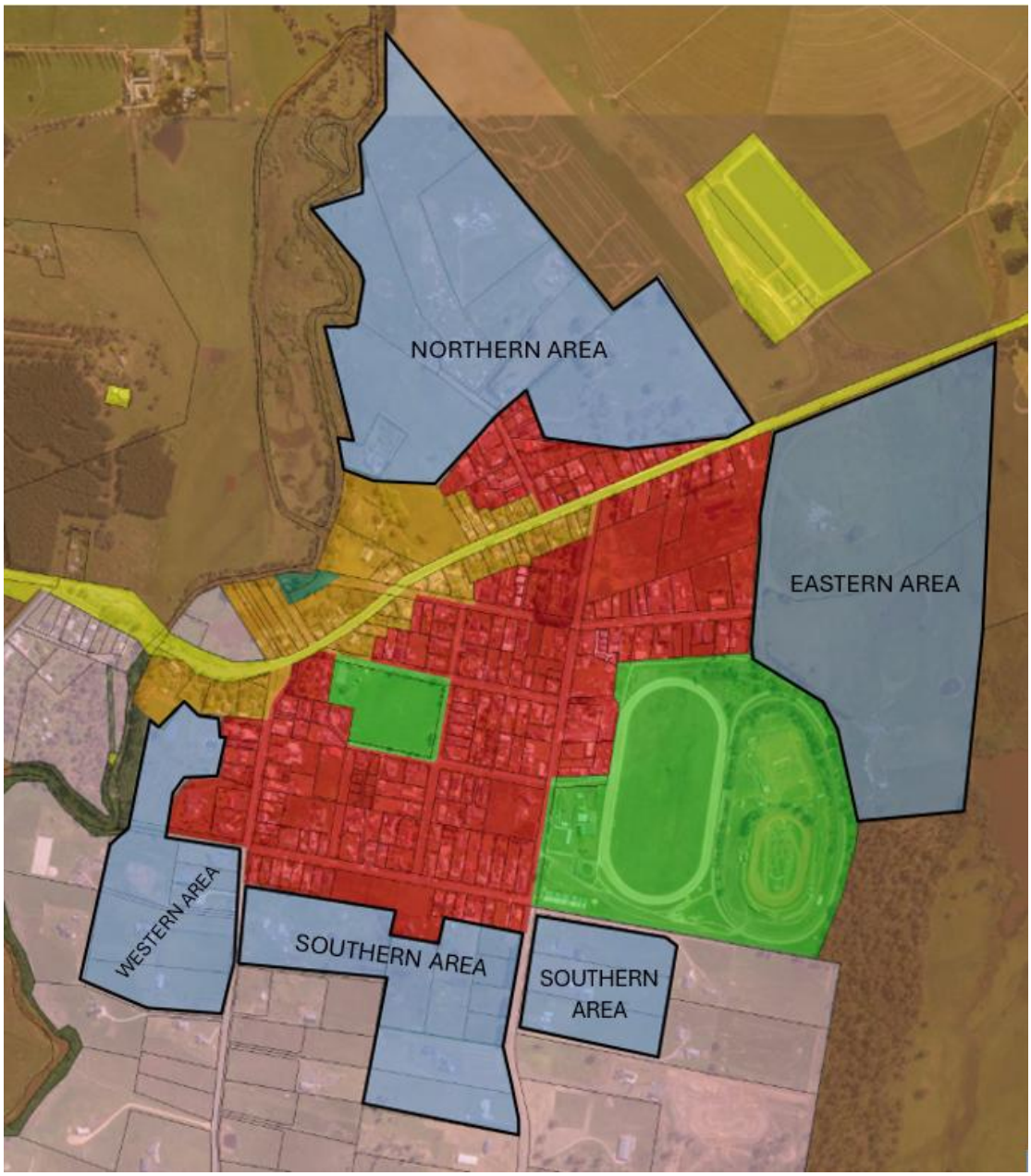
2.2 Technical References

- Meander Valley Community Strategic Plan 2024-2034
- Traffic Engineering and Management by K.W. Ogden and S.Y. Taylor (TE&M)
- Local Government Road Hierarchy (Local Government Division of Department of Premier and Cabinet), see Appendix A.
- Austroads Safe Systems Assessment Framework (Research Report AP-R509-16)
- Austroads Guide Traffic Management (latest versions)
    - Part 6: Intersection, Interchanges & Crossings
    - Part 7: Traffic Management in Activity Centres
    - Part 8: Local Area Traffic Management
    - Part 12: Traffic Impacts of Developments
    - Part 13: Road Environment Safety
- Austroads Guide to Road Design (latest versions)
    - Part 4A: Unsignalised and signalised Intersections
    - Part 6A: Pedestrian and Cyclist Paths

2.3 Identified Growth and Consolidation areas, Carrick

Meander Valley Council has identified potential growth areas at Carrick to the North, East, South and West of Carrick CBD, see Figure 2. Current servicing constraints will likely mean developable areas will be less than what is preliminarily identified.

Figure 2 – Preliminary Investigation Areas for Low Density Residential Growth



Source: MVC February 2025

3. Carrick Road Network

This section of the report provides a snapshot of existing road network sites and their status.

3.1 Meander Valley Road (MVR) and major junctions

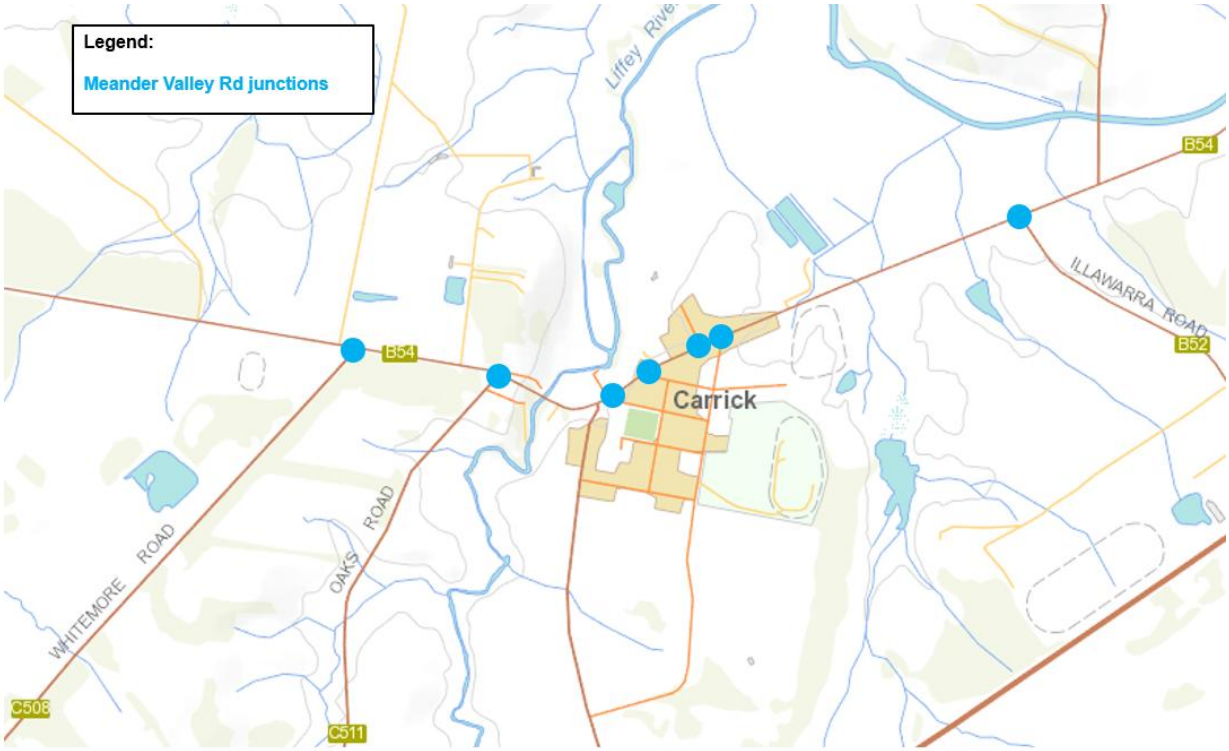
MVR is State Road and operates as the East – West spine road through Carrick between Westbury and Hadspen. MVR is a Category 5 – Other Road in the State Road Hierarchy and not part of the Tasmanian 26m B Double Network, see Appendix B, and not classed as a Limited Access Road.

Through Carrick MVR has a 60km/h Speed Limit sign posted at the Liffey River Bridge and the Eastern approach to East Street with an estimated AADT of some 3,646 vpd (2023).

The 60 Km/h Speed Limit signs approach Gateways to the Carrick Township.

The road varies in width but typically has a 4.0m wide traffic and 2.5m wide parking lanes in each direction. Delineation is provided by street lighting, kerb & channel and line marking. Figures 3.1.0.1 – 3.1.0.3 show the nature of the road. The road has footpaths both sides.

Figure 3.1.0.1 – Plan view of significant MVR junctions at Carrick



Source: List Map

Figure 3.1.0.2 – MVR Western approach to Carrick

Source: Google Maps

Figure 3.1.0.3 – MVR Eastern approach to Carrick

Source: Google Maps

3.1.1 Whitemore Road

Whitemore Road is a sealed rural Council Road with a minor collector function linking Carrick with Whitemore and is not part of the Tasmanian 26m B Double Network.

The default 100km/h sealed rural road speed limit applies and the road has an estimated AADT of some 200 vpd (2024).

The road varies in width but typically has a 5.5m seal width with 0.5m gravel shoulders. Delineation is provided by guideposts. Figures 3.1.1.1 – 3.1.1.2 show the nature of the road.

Figure 3.1.1.1 – Aerial view of MVR / Whitemore Road junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard but considered fit for purpose as there is a low number of turning vehicles.

Figure 3.1.1.2 – Whitemore Road approach to MVR

Source: Google Maps

3.1.2 Oaks Road

Oaks Road is a sealed rural Council Road with a collector function linking Bracknell and the Bass Highway with Carrick and is not part of the Tasmanian 26m B Double Network.

An 80 km/h sign posted speed limit applies and the road has an estimated AADT of some 280 vpd (2024).

The road varies in width but typically has a 5.5 m seal width with 0.5m gravel shoulders. Delineation is provided by guideposts and line marking. Figures 3.1.2.1 – 3.1.2.2 show the nature of the road.

Figure 3.1.2.1 – Aerial view of MVR / Oaks Road junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard but considered fit for purpose as there is a low number of turning vehicles.

Figure 3.1.2.2 – Oaks Road approach to MVR

Source: Google Maps

3.1.3 Bishopsbourne Road – Church Street

Bishopsbourne Road is a sealed rural Council Road with a collector function linking Bishopsbourne with Carrick and is not part of the Tasmanian 26m B Double Network.

A 100 km/h sign posted speed limit applies from the Bass Highway to the South and the road has an estimated AADT of some 200 vpd (2024). The road varies in width but typically has a 5.5 m seal width with 0.5m gravel shoulders. Delineation is provided by guideposts.

Church Street extends North from Bishopsbourne Road at Percy Street and is a sealed rural standard road. A 60 km/h sign posted speed limit applies from the Bass Highway to the North and the road has an estimated AADT of some 558 vpd (2023).

The road varies in width but typically has a 5.5 m seal width with 0.5m gravel shoulders. Delineation is provided by guideposts. Figures 3.1.3.1 – 3.1.3.3 show the nature of the road within Carrick. The street has no kerb and channel or footpaths.

Figure 3.1.3.1 – Aerial view of MVR / Church Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard. Upgrading to BAR standard is recommended.

The East bound lane width is 5.2m and would needs to be widened to 6.0m to achieve BAR layout.

Figure 3.1.3.2 – MVR East bound lane approaching Church Street

Figure 3.1.3.3 – Church Street approach to MVR

3.1.4 South Street

South Street is a sealed urban Council Road and is not part of the Tasmanian 26m B Double Network. The General Urban Speed Limit of 50 km/h applies, and the road has an estimated AADT of some 200 vpd (2024).

The road varies in width but typically has a 4.0 m seal width with 0.5m gravel shoulders. Delineation is provided by guideposts. Figures 3.1.4.1 – 3.1.4.2 show the nature of the road.

The road has no kerb and channel or footpaths.

Figure 3.1.4.1 – Aerial view of MVR / South Street junction

Source: List Map

This junction has a simple layout which does not meet BAR standard.

East bound lane width is 6.1m & just needs No Stopping / Yellow Line to support BAR operation.

Figure 3.1.4.2 – South Street approach to MVR

Source: Google Maps

3.1.5 Liffey Street

Liffey Street is a sealed urban Council Road and is not part of the Tasmanian 26m B Double Network. The General Urban Speed Limit of 50 km/h applies, and the road has an estimated AADT of some 300 vpd (2024).

The road varies in width but typically has a 4.0m seal width with 0.5m gravel shoulders. There is no road delineation. Figures 3.1.5.1 – 3.1.5.3 show the nature of the road.

The road has no kerb and channel or footpaths.

Figure 3.1.5.1 – Aerial view of MVR / Liffey Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard. Upgrading to BAR standard is recommended.

East bound lane width is 6.5m & just needs and Edge line to support BAR operation.

Figure 3.1.5.2 – MVR East bound lane approaching Liffey Street

Figure 3.1.5.3 – Looking right along MVR from Liffey Street

Source: Google Maps

Sight distance right is estimated at 123m.

Safe Intersection Sight Distance (SISD) within a 60km/h speed environment is 123m .

Figure 3.1.5.4 – Looking left along MVR from Liffey Street

Source: Google Maps

3.1.6 East Street

East Street is a sealed urban Council Road and is not part of the Tasmanian 26m B Double Network. The Street has a sign posted 50 km/h speed limit and the road has an estimated AADT of some 400 vpd (2024).

The road varies in width but typically has a 6.0m seal width with 0.5m gravel shoulders. There is no road delineation. Figures 3.1.6.1 – 3.1.6.2 show the nature of the road.

The road has no kerb and channel or footpaths.

Figure 3.1.6.1 – Aerial view of MVR / East Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard. Upgrading to BAR standard is recommended.

East bound lane width is 6.5m & just needs No Stopping / Yellow Line to support BAR operation.

Figure 3.1.6.2 – East Street approach to MVR

Source: Google Maps

3.1.7 Illawarra Road

Illawarra Road is State Road and connects MVR with the Bass Highway and Perth. Illawarra Road MVR is a Category 5 – Other Road in the State Road Hierarchy between MVR and the Bass Highway. South of the Bass Highway, Illawarra Road is a Category 1 Trunk Road and part of the Tasmanian 26m B Double Network, see Appendix B, and classed as a Limited Access Road.

Between MVR and the Bass Highway, Illawarra Road has a 100km/h Speed Limit with an estimated AADT of some 1,300 vpd (2024).

The road has a sealed width of 7.0m with 0.5m gravel shoulders. Delineation is provided by edge and barrier lines. Figures 3.1.7.1 – 3.1.7.2 show the nature of the road.

Figure 3.1.7.1 – Aerial view of MVR / Illawarra Road junction

Source: List Map

This junction has a layout that meets CHR(s) and BAL standard.

No upgrades are required based for projected traffic activity.

Figure 3.1.7.2 – Illawarra Road approach to MVR

Source: Google Maps

3.1.8 Simmons Street

Simmons Street is a sealed urban Council Road and not part of the Tasmanian 26m B Double Network. The General Urban Speed Limit of 50 km/h applies, and the road has an estimated AADT of some 100 vpd (2024).

The road varies in width but typically has a 5.0 m seal width with 0.5m gravel shoulders. Delineation is provided by street lighting. Figures 3.1.8.1 – 3.1.8.2 show the nature of the road which has no kerb and channel or footpaths.

Figure 3.1.8.1 – Aerial view of MVR / Simmons Street junction

Source: List Map

This junction has a simple layout which could easily be upgraded to meet BAR & BAL standard.

The West bound lane width is 6.5m & just needs relocation of a street tree and No Stopping Signs / Yellow line to support BAR operation.

Figure 3.1.8.2 – MVR Western approach to Simmons Street

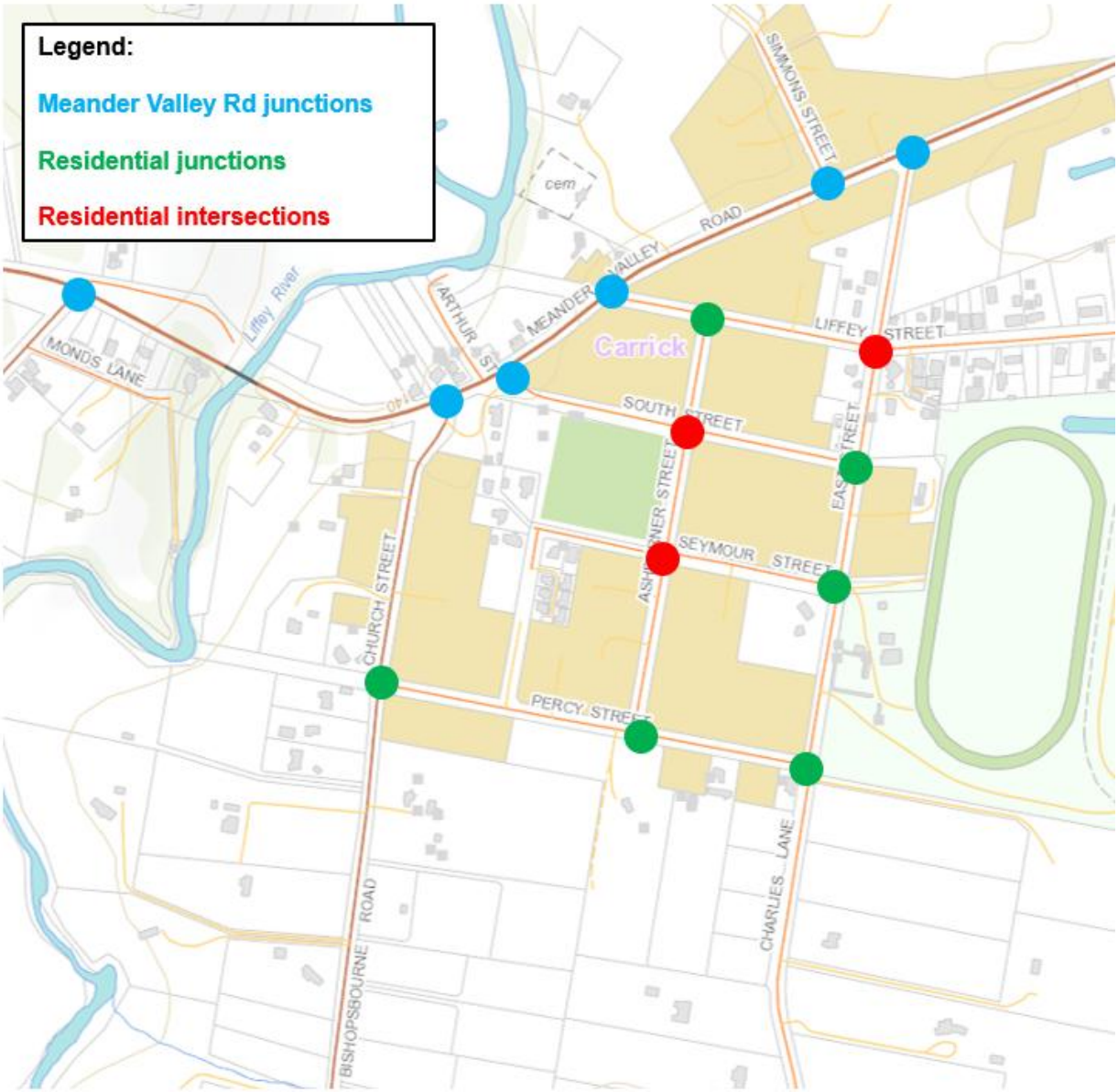
Source: Google Maps

3.2 Carrick Residential Streets

MVR is the primary road through Carrick with Oaks Road and Illawarra Road providing access to the Bass Highway which is a high standard Category 1 Trunk Road in the State Road Hierarchy. Church Street and East Street have collector functions within the Carrick precinct.

Figure 3.2 shows the road network and intersections at Carrick that are considered in this report. The existing residential streets are typically narrow (< 5.0m wide), low volume (AADT < 500 vpd) and low standard (no kerb & channel or footpaths).

Figure 3.2 – Plan view of Carrick Residential Precinct



3.2.1 Charlies Lane & East Street

The nature of Charlies Lane and East Street are shown in Figures 3.2.1.1 to 3.2.1.6.

Figure 3.2.1.1 – East Street / Liffey Street intersection.

Source: List Map

This cross intersection has a simple legacy layout. Safety improvements are recommended to reduce crash risk.

Figure 3.2.1.2 – East Street / Seymour Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

Figure 3.2.1.3 – Charles Lane / Percy Street junction.

Source: List Map

This junction has a simple layout not meeting BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

Give Way controls are recommended given the function of Percy Street

Figure 3.2.1.4 – Charles Lane approach to Percy Street (East end) junction.

Figure 3.2.1.5 – Bishopsbourne Road / Charlies Lane junction.

Source: List Map

This junction has a simple layout not meeting BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

Give Way controls are recommended given the function of Charles Lane.

Figure 3.2.1.6 – Bishopsbourne Road Southern approach to Charlies Lane.

3.2.2 Ashburner Street

The nature of Ashburner Street is shown in Figures 3.2.2.1 to 3.2.2.2.

Figure 3.2.2.1 – Ashburner Street / South Street intersection

Source: List Map

This cross intersection has a simple layout. Safety improvements are recommended to reduce crash risk.

Figure 3.2.2.2 – Ashburner Street / Seymour Street intersection

Source: List Map

This cross intersection has a simple layout. Safety improvements are recommended to reduce crash risk.

3.2.3 Percy Street

The nature of Percy Street is shown in Figures 3.2.3.1 to 3.2.3.2.

Figure 3.2.3.1 – Church Street / Percy Street junction

Source: List Map

This junction has a simple layout not meeting BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

Give Way controls are recommended given the function of Percy Street

Figure 3.2.3.2 – Percy / Ashburner Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

3.2.4 South Street

The nature of South Street is shown in Figures 3.2.4.

Figure 3.2.4– South Street / East Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

3.2.5 Liffey Street

The nature of Liffey Street is shown in Figures 3.2.5.

Figure 3.2.5 – Liffey Street / Ashburner Street junction

Source: List Map

This junction has a simple layout which does not meet BAR or BAL standard.

The simple layout is considered adequate given the low traffic turning movements.

3.2.6 Simmonds Street

The nature of South Street is shown in Figures 3.2.6.

Figure 3.2.6 – MVR Eastern approach to Simmonds Street junction

Source: Google Maps

4. Bass Highway Interchanges to Carrick

This section of the report provides a snapshot of existing Bass Highway interchanges to the West and East of Carrick.

4.1 Bass Highway

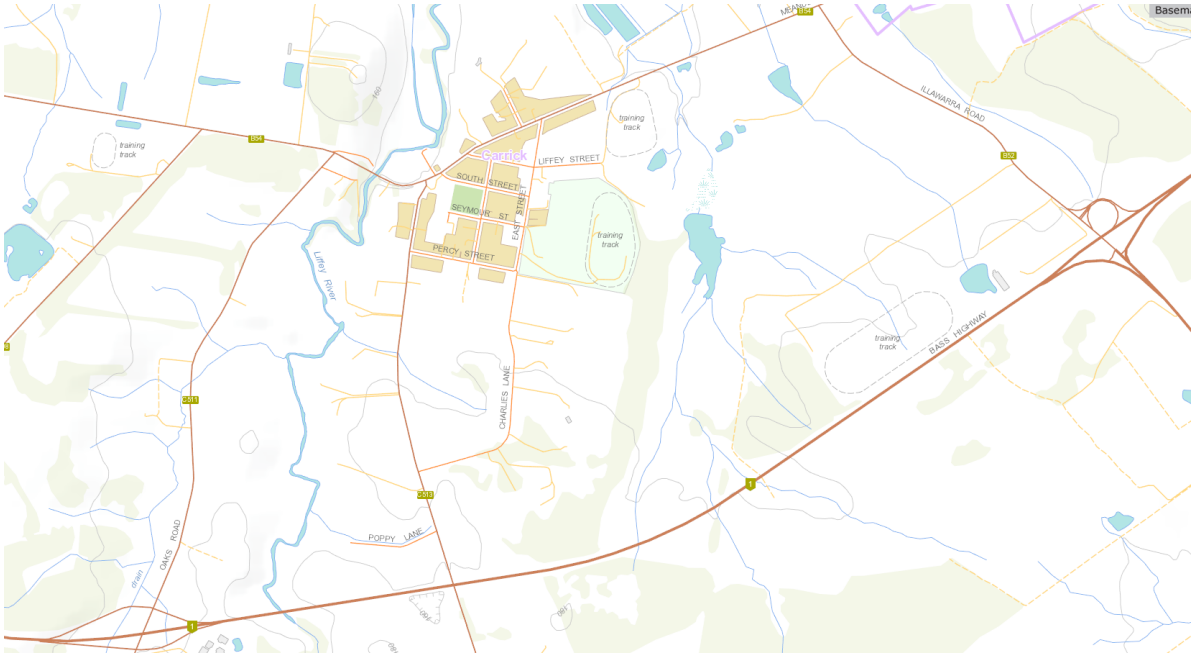
Bass Highway is State Truck Road linking Launceston in the Northeast with the Northwest of the State. Carrick is well connected to the trunk road network with access via interchanges close by to the East and West of the Township, see Figure 4.1.1.

The Bass Highway is a Category 1 Trunk Road in the State Road Hierarchy and part of the Tasmanian 26m B Double Network, see Appendix B, and classed as a Limited Access Road.

The Bass Hwy has a 110km/h Speed Limit with an estimated AADT of some 10,900vpd (2024).

Between the Oaks Road and Illawarra Road interchanges the Bass Highway consists of a single carriageway with a sealed width of 7.0m with 2.5m wide sealed shoulders. Delineation is provided by edge and barrier lines.

Figure 4.1.1 – Plan view of Bass Highway interchanges for Carrick



Source: List Map

4.2 Oaks Road Interchange

The Oaks Road interchange is a high standard facility with on and off ramps to the Bass Highway that maintain a high level of service for highway traffic, see Figure 4.2.

Figure 4.2 – Aerial view of Bass Hwy / Oaks Road interchange

Source: List Map

This interchange provides a high level of service for turning traffic.

4.3 Illawarra Road Interchange

The Illawarra Road interchange is a high standard facility with on and off ramps to the Bass Highway that maintain a high level of service for highway traffic, see Figure 4.3.

Figure 4.3 – Aerial view of Bass Hwy / Illawarra Road interchange

Source: List Map

This interchange provides a high level of service for turning traffic.

The West bound left turn deceleration lane could be lengthened to better cater for traffic decelerating to turn left to access Illawarra Road. This could be done in future as part of DSG carriageway duplication and separation.

5. Objectives and Methodology

5.1 General Objectives for Carrick

The following primary objectives were identified from consideration of the MVCSP Strategic Directions, see Section 1 of this report, and MVCSP Strategic Directions, see Appendix J:

- **Development of land use capacity of the area**
  - Consistent with TPS and potential rezoning opportunities
  - Consideration of ultimate development needs of the whole area.
  - Respond to topography & environmental constraints

- **Provision of cost-effective transport infrastructure to support development**
  - Appropriate functional road hierarchy for cost effective development.
  - Appropriate use of traffic management facilities

- **Efficient access**
  - Multimodal access and integration with surrounding road network
  - Provide for pedestrians and cyclists
  - Heavy vehicles e.g Waste Management., Public Transport & Emergency Services
  - Appropriate connections with major traffic generating sites

- **Integration**
  - Respond to constraints (brownfield areas) and opportunities (greenfield areas) to achieve the best integration possible for the situation.

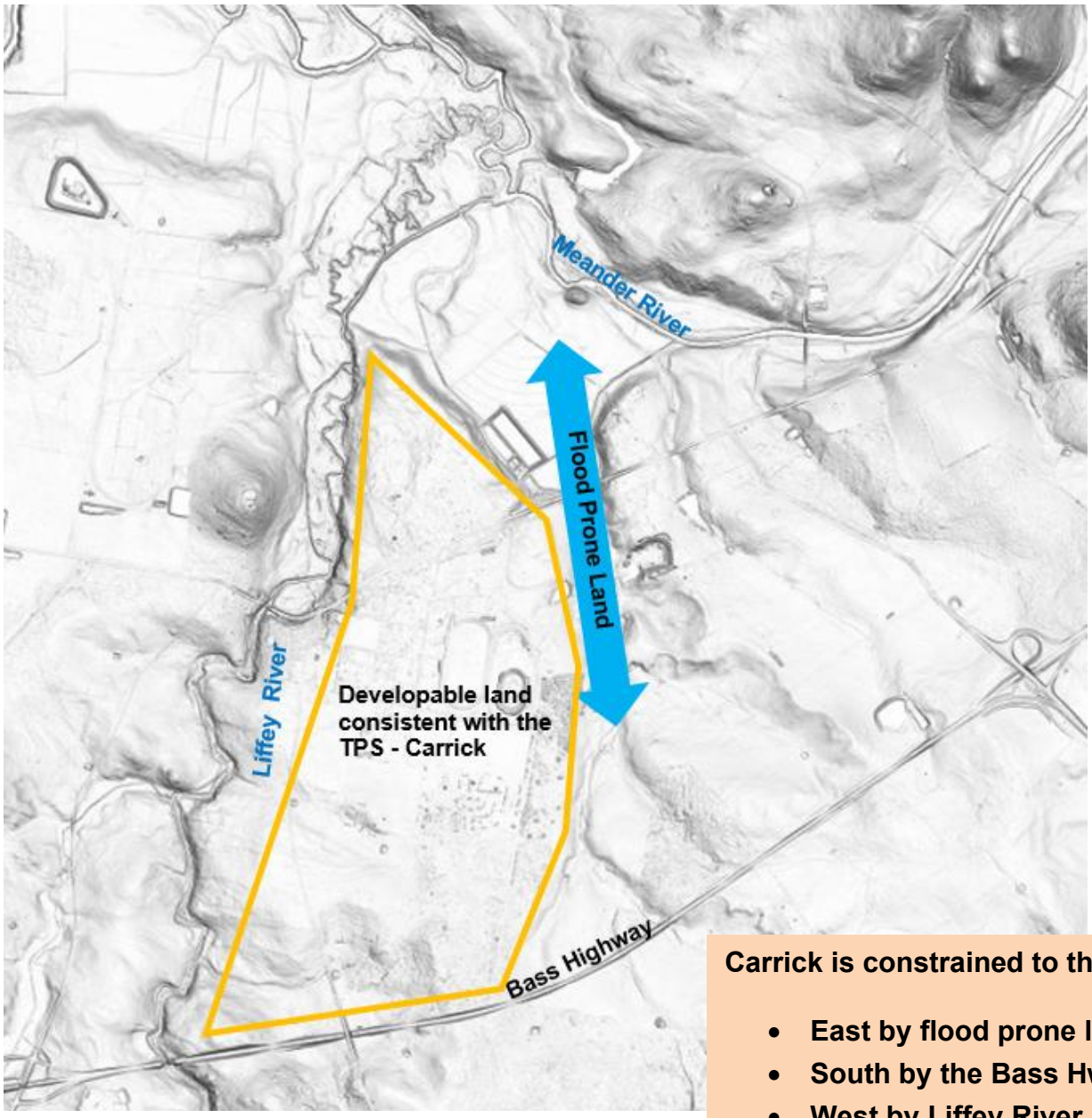
5.2 Methodology

The following methodology has been applied to assist in the development of a suitable Road Network plan for Carrick:

5.2.1 Development of land use capacity of the area

- Respond to topography & environmental constraints, see Figure 5.2.1
- Consider impact of identified potential growth areas, see Figure 5.2.2

Figure 5.2.1– Topography at Carrick



Source: The List, DPIPWE

Carrick is constrained to the:

- **East by flood prone land**
- **South by the Bass Hwy**
- **West by Liffey River**
- **North by Meander River**

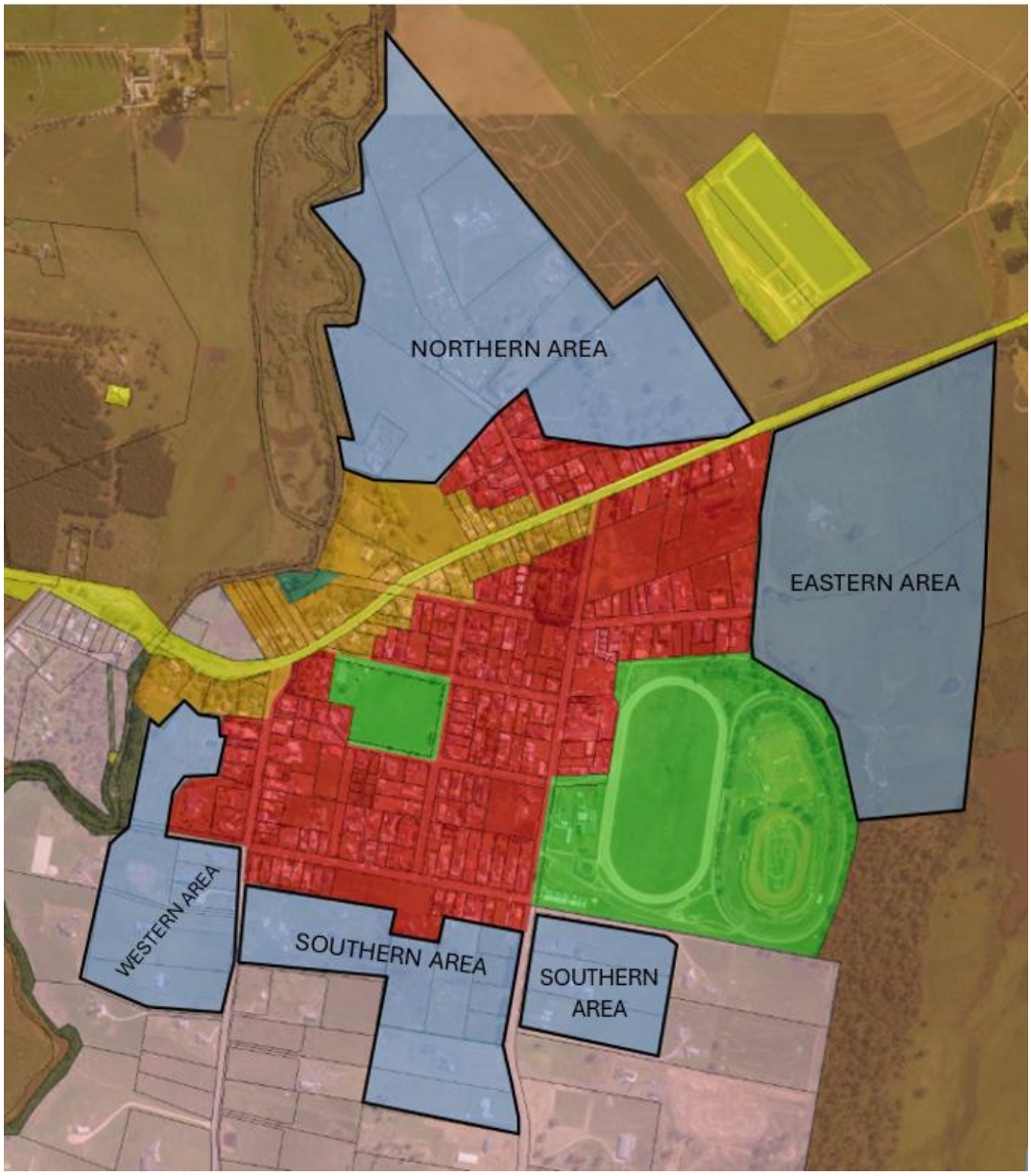
5.2.2 Provide cost-effective transport infrastructure to support development

Guidance of development proposals towards achieving efficient and cost-effective land use and infrastructure development.

Use of traffic management facilities to support road network objectives e.g intersection treatments and provisions for vulnerable road users i.e pedestrians and cyclists.

Current servicing constraints will likely mean developable areas will be less than what is preliminarily identified, see Figure 5.2.2.

Figure 5.2.2 – Preliminary Investigation Areas for Low Density Residential Growth



Source: MVC February 2025

Northern Area

- Northern loop road intersecting MVR East and West and with Simmons Street.

Eastern Area

- Eastern link connecting Liffey Street with MVR East of Carrick.

Southern Area

- Extension of Ashburner Street further South.

Western Area

- Extension of Percy Street West of Church Street.

5.2.3 Safe and efficient access

Cater for pedestrians and cyclists, providing footpaths along urban roads with a collector function.

Identify existing and potential heavy vehicle / public transport routes to guide intersection design and design vehicle selection.

Appropriate connections with major traffic generating sites e.g. residential areas, educational facilities (schools) and commercial centres (shopping). Proposed links and management of traffic management facilities cater for such connections.

5.2.4 Integration

Respond to constraints (brownfield areas) and opportunities (greenfield areas) to achieve the best integration possible for the situation.

The proposed links and management allow options for brownfield and greenfield site development and integration with surrounding suburbs.

The proposed Road Network Plan is also informed by the following:

- Road Network Guidelines – Appendix C
- Intelligent Transport Systems – Appendix D
- Local Area Traffic Management – Appendix E

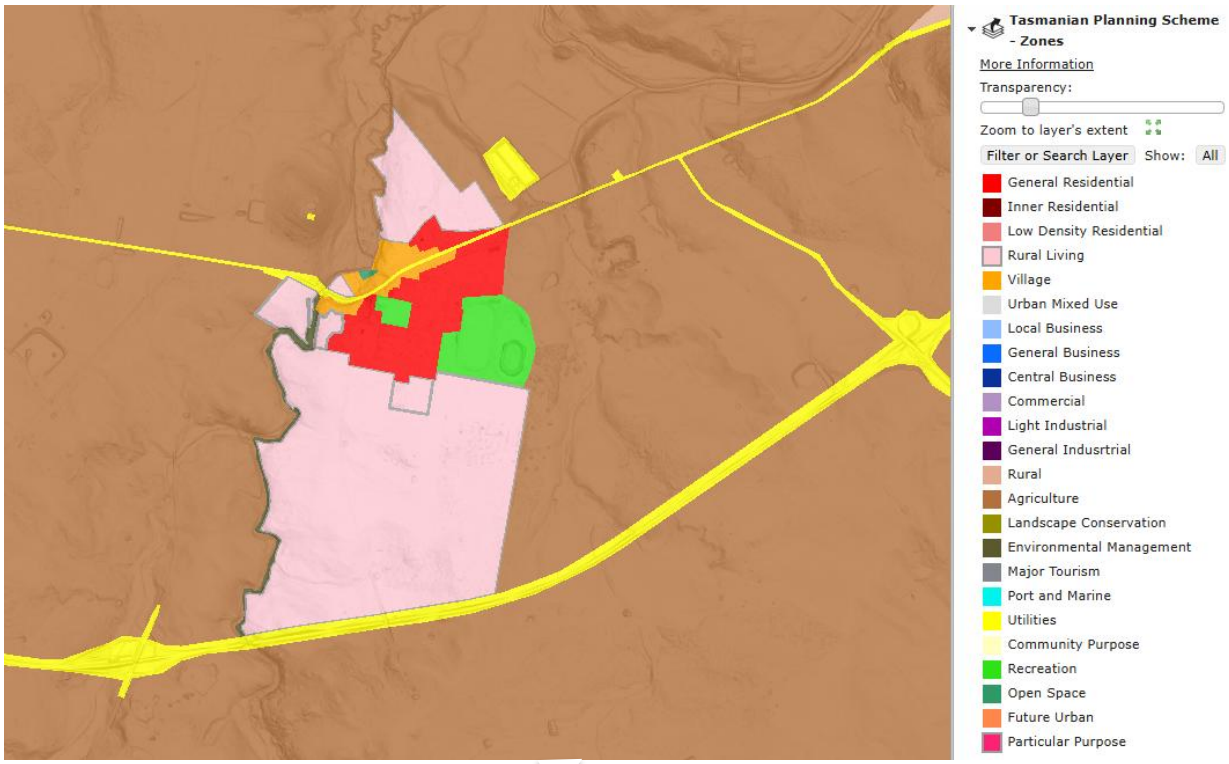
6. Tas. Planning Scheme – Meander Valley

Figure 6 shows the relevant TPS land use zoning within the study area.

Rural Living zones abuts General Residential zones North and South of Carrick.

There is land on the North side of MVR at Carrick that could be rezoned subject to demand which could impact the road network plan.

Figure 6 – Tasmanian Planning Scheme – Meander Valley - Carrick



Source: The List, DPIPWE

7. 2024 Road Network Operation

This section provides a snapshot of existing characteristics of the road network

7.1 Carrick growth rates

From traffic data and population data there is evidence of the following compound annual growth rates at Carrick:

- Historic Population growth (2001 – 2021) - 2.3% see Figure 7.1.1 and 7.1.2
- Traffic (vpd) growth inferred from traffic count data, see Appendix G.
  - Meander Valley Road has a growth rate of:
    - 0.5% West of Liffey River
    - 0.7% East of Liffey River

Figure 7.1.1– Population Data – Carrick

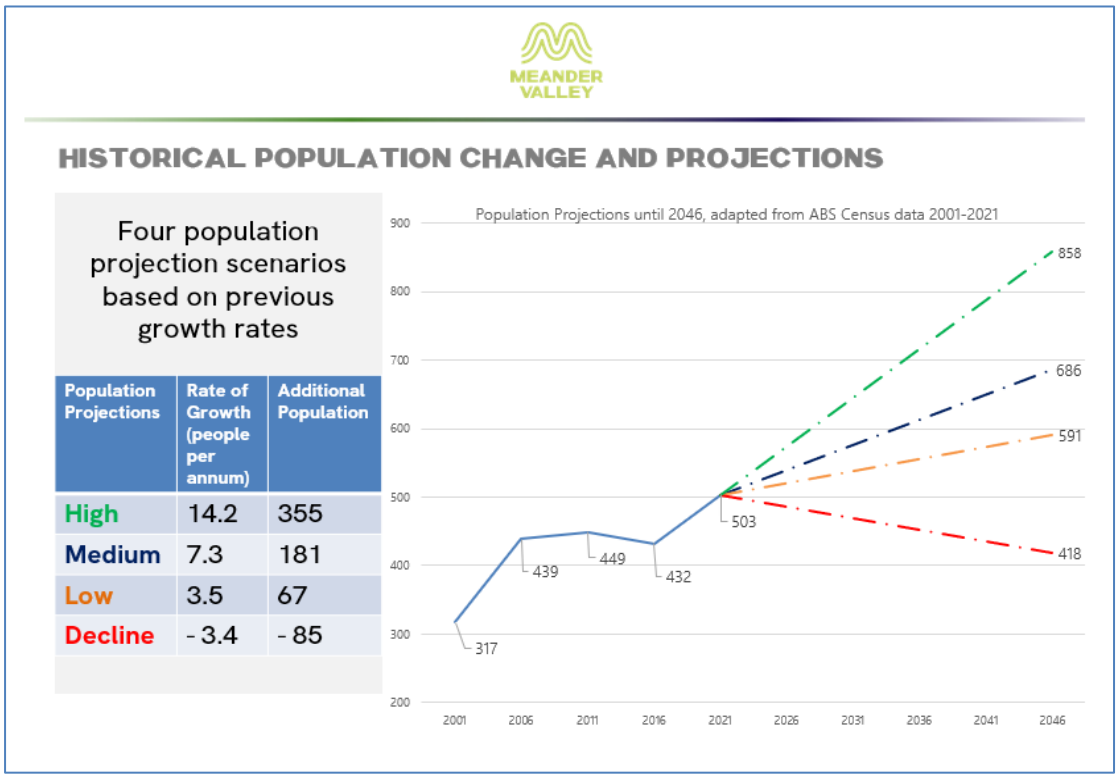


Figure 7.1.2– Housing Supply and Demand projections – Carrick

HOUSING SUPPLY AND DEMAND

Majority of lots in Carrick are greater than 1200m2.

For a vacant 1200m2 lot, this equates to a yield of two lots or three multiple dwellings.

Population Projections	Additional Population	Additional Dwellings Required	Demand Met by Existing Supply?	Anticipated Dwelling Supply Shortfall	Additional Land Supply Required (based on 1200m2 average)
High	355	142	No	67	10.05 hectares
Medium	181	73	No	Dependant on private actors, but will exhaust current supply	
Low	67	27	Yes	-	-
Decline	-85	0	Yes	-	-

Source: Meander Valley Council November 2024

Potential Dwelling Yields for Carrick are summarised in Appendix K.

7.2 Traffic Data

Traffic data has been sourced from MVC & DSG records and is summarised in Figure 7.2. See Appendix G for MVC data.

Figure 7.2 – Traffic Data Summary

Section of Road				AADT	Speed (km/h)		Crash Data					
Authority	Road	Location	Year	(vpd)	Limit	85th %ile	PDO	First Aid	Minor Injury	Serious Injury	Fatal	Propensity
MVC	Oaks Road	South of Monds Rd	2012	240	80	79.5	1	0	0	0	0	None
			2018	270		77.0						
	East St.	North of Percy St.	2018	200	50	51.7	0	0	0	0	0	None
		South of South St.	2020	405		63.3						
			2023	370		60.1						
	Charlies Lane	South of Percy St.	2018	72	60	65.6	0	0	0	0	0	None
			2020	179		70.7						
	Percy St.	East end	2020	119	50	51.7	0	0	0	0	0	None
	Church St.	North of Percy St.	2023	558	60	61.4	0	0	0	0	0	None
DSG	Bass Hwy	Between Illawarra & Bishopsbourne Rd	2023	10,800	110	On straight	11	0	4	2	2	4* Rear end 5* Wrong side
	Illawarra MR	Between MVR & Bass	2023	1,290	100		0	0	0	0	0	None
	Meander Valley Road	Liffey River	2023	2,557	60	On straight	8	1	0	0	0	None
		East of Carrick	2023	3,646	80	Oaks Rd Jcn	3	0	1	1	0	None
						Illawarra Jcn	3	0	0	0	0	None

7.3 Crash Data as an indicator of existing road network safety

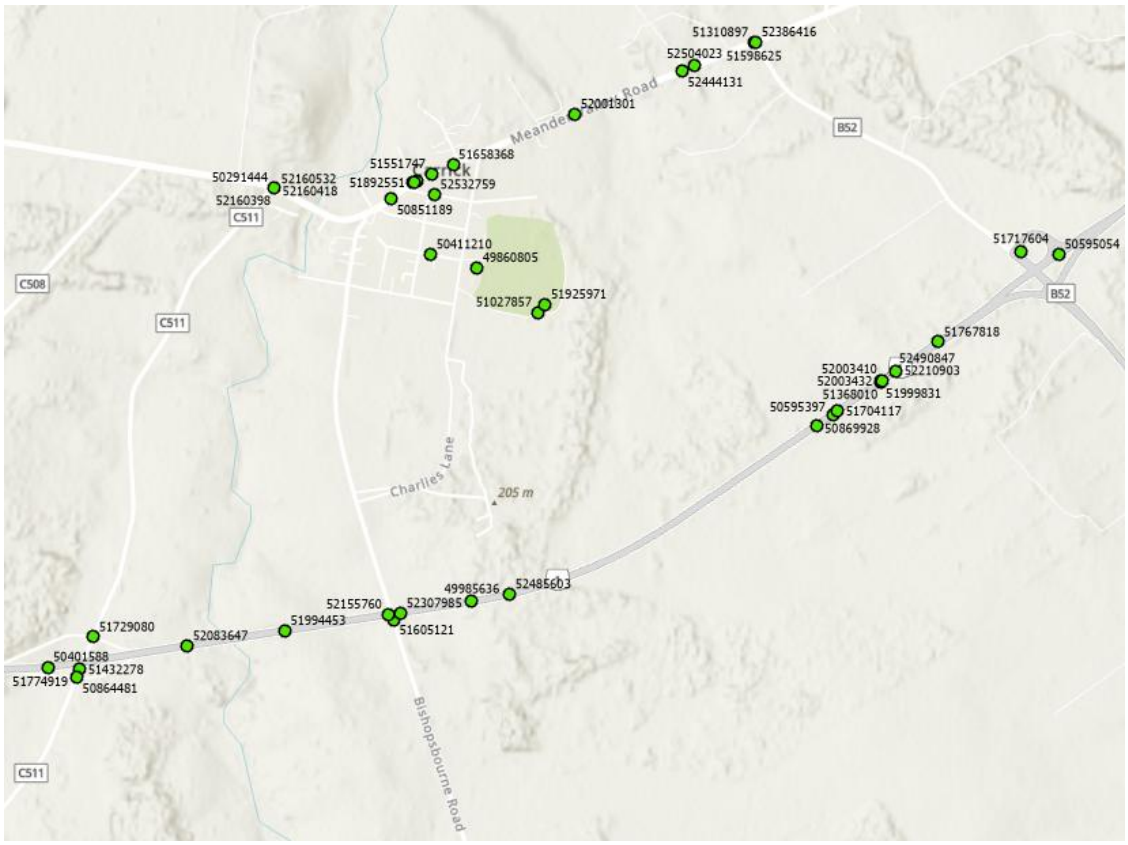
Generally, the reported crash history provides evidence that the road network is operating relatively safely and as expected for the level of traffic exposure.

The crash data is summarised in Figures 7.3.1 and 7.3.2.

Figure 7.3.1– 5 Year Reported Crash History Summary

Crash Id	Units	Description	Date	Time	Severity	Light	Speed Limit	Crash Location
49985636	LV; LV	130 - Veh. in same lane/ rear end	04-MAY-2019	15:55	Minor	Day	110	Bass Hwy
50401588	HV	189 - Other curve	13-DEC-2019	13:25	PDO	Day	110	Bass Hwy
50595054	LV; HV	120 - Wrong side/other head on (not o/taking)	26-FEB-2020	15:03	PDO	Day	110	Bass Hwy
50595397	LV; LV	120 - Wrong side/other head on (not o/taking)	26-FEB-2020	05:30	Fatal	Dawn	110	Bass Hwy
50869928	LV	191 - Load or missile struck vehicle	22-NOV-2020	12:55	PDO	Day	110	Bass Hwy
51368010	LV; LV; LV	130 - Veh. in same lane/ rear end	20-AUG-2021	14:54	PDO	Day	110	Bass Hwy
52003410	LV; MC; LV; LV	130 - Veh. in same lane/ rear end	25-MAR-2022	06:24	PDO	Dawn	110	Bass Hwy
52003432	HV; PE; LV; LV	109 - Other pedestrian	25-MAR-2022	06:24	Fatal	Dawn	110	Bass Hwy
51704117	LV	179 - Other straight	16-JUN-2022	08:00	Minor	Day	110	Bass Hwy
51767818	LV	191 - Load or missile struck vehicle	23-AUG-2022	16:08	PDO	Day	110	Bass Hwy
51994453	LV; LV	153 - Cutting in	13-MAY-2023	15:30	PDO	Day	110	Bass Hwy
51999831	LV; HV	120 - Wrong side/other head on (not o/taking)	19-MAY-2023	23:45	PDO	Night	110	Bass Hwy
52033782	LV; HV	120 - Wrong side/other head on (not o/taking)	23-JUN-2023	11:30	Serious	Day	110	Bass Hwy
52083647	LV	179 - Other straight	30-JUL-2023	15:15	Minor	Day	110	Bass Hwy
52155760	LV; LV	130 - Veh. in same lane/ rear end	17-OCT-2023	15:15	PDO	Day	110	Bass Hwy
52210903	LV; LV	-	06-DEC-2023	05:34	PDO	Day	110	Bass Hwy
52307985	LV; LV	-	10-MAR-2024	10:50	PDO	Day	110	Bass Hwy
52485603	LV; LV	120 - Wrong side/other head on (not o/taking)	12-AUG-2024	17:57	Serious	Dusk	110	Bass Hwy
52490847	LV	179 - Other straight	20-AUG-2024	23:00	Minor	Night	110	Bass Hwy
51605121	MC	167 - Animal (not ridden)	07-MAR-2022	05:15	Minor	Dawn	80	Bishopsbourne Rd
51717604	LV	189 - Other curve	03-JUL-2022	08:52	PDO	Day	100	Carrick
52532759	LV; LV	147 - Emerging from driveway or lane	29-SEP-2024	12:05	PDO	Day	NK	Liffey St.
50851189	LV	149 - Other maneuvering	01-NOV-2020	05:30	PDO	Dawn	60	MVR
51551747	LV; LV	142 - Leaving parking	02-FEB-2022	07:50	PDO	Day	60	MVR
51558414	LV; LV	147 - Emerging from driveway or lane	06-FEB-2022	14:45	PDO	Day	60	MVR
51658368	LV; LV	169 - Other on path	22-APR-2022	16:13	PDO	Day	60	MVR
51892551	LV; HV	144 - Parking vehicles only	08-FEB-2023	12:15	PDO	Day	60	MVR
51937009	LV; LV	147 - Emerging from driveway or lane	24-MAR-2023	15:30	PDO	Day	60	MVR
52001301	LV	173 - Right off c/way into obj. or pkd veh.	22-MAY-2023	17:05	PDO	Dusk	100	MVR
52444131	LV; LV	120 - Wrong side/other head on (not o/taking)	05-JUL-2024	07:35	First Aid	Day	100	MVR
52504023	LV	171 - Left off c/way into obj. or pkd veh.	31-AUG-2024	20:15	Minor	Night	100	MVR
51310897	LV	189 - Other curve	11-JUL-2021	01:30	PDO	Night	100	MVR / Illawarra Rd Jcn.
51598625	LV; LV	130 - Veh. in same lane/ rear end	01-MAR-2022	16:00	PDO	Day	100	MVR / Illawarra Rd Jcn.
52386416	LV	-	18-MAY-2024	14:20	PDO	Day	100	MVR / Illawarra Rd Jcn.
50291444	LV; LV	110 - Cross traffic	09-OCT-2019	13:45	PDO	Day	80	MVR / Oaks Rd Jcn.
50864481	LV; LV	121 - Right through	16-NOV-2020	15:35	PDO	Day	100	MVR / Oaks Rd Jcn.
51729080	LV	189 - Other curve	24-JUL-2022	17:20	Minor	Dusk	NK	MVR / Oaks Rd Jcn.
51774919	LV; LV	110 - Cross traffic	30-SEP-2022	15:45	Serious	Day	100	MVR / Oaks Rd Jcn.
52160398	LV; LV	-	21-OCT-2023	12:20	PDO	Day	60	MVR / Oaks Rd Jcn.
52160418	LV; LV	-	21-OCT-2023	13:30	PDO	Day	40	Not available
52160532	LV; LV	-	21-OCT-2023	03:35	PDO	Day	50	Not available
51432278	HV; LV	145 - Reversing	20-OCT-2021	11:33	PDO	Day	100	Oaks Rd
51925971	LV	149 - Other maneuvering	12-MAR-2023	20:00	PDO	Dusk	NK	Off st. Carrick
49860805	LV; LV	149 - Other manoeuvering	16-FEB-2019	21:18	PDO	Dusk	NK	Off st. Carrick
51027857	LV; LV	149 - Other maneuvering	10-APR-2021	22:15	PDO	Night	<40	Off st. Carrick
50411210	LV; LV	169 - Other on path	17-DEC-2019	17:20	PDO	Day	50	Seymour St

Figure 7.3.2 – 5 Year Reported Crash Distribution



From Figure 7.3.2 it is clear there are very few crashes within Carrick and most of the reported crashes are on the Bass Highway and Meander Valley Road.

Review of the Bass Highway crash history is beyond the scope of this report.

Review of MVR crash history (Whitemore to Illawarra Road) reveals:

- 9 crashes on the link, 7 being Property Damage Only (PDO) and showing no crash propensity other than some parking / unparking type crashes.
- 3 crashes at the Illawarra Rd junction, all being PDO crashes showing no propensity.
- 5 crashes at the Oaks Road junction, 3 being PDO crashes and 2 being injury crashes.

In summary the 5-year reported crash history shows no crash propensities that require treatment with countermeasures. Safety improvements at the MVR / Oaks Road junctions could be considered.

8. Forecast Traffic Generation

Projected traffic based on assumed compound annual growth rate of 0.7 % has been calculated and summarised in Figure 8 for 2046.

The roads at Carrick have low traffic levels now and in the foreseeable future.

Figure 8 – Projected traffic activity at Carrick

Section of Road				AADT	Growth Rate	AADT 2024 (vpd)	AADT 2046 (vpd)
Authority	Road	Location	Year	(vpd)			
MVC	Oaks Road	South of Monds Rd	2012	240	Compound Annual Growth Rate of 0.7%	280	325
			2018	270			
	East St.	North of Percy St.	2018	200		210	245
		South of South St.	2020	405		400	465
			2023	370			
	Charlies Lane	South of Percy St.	2018	72		185	215
			2020	179			
	Percy St.	East end	2020	119		122	140
	Church St.	North of Percy St.	2023	558		560	650
DSG	Bass Hwy	Between Illawarra & Bishopsbourne Rd	2023	10,800		10,900	12,700
	Illawarra MR	Between MVR & Bass	2023	1,290		1,300	1,520
	Meander Valley Road	Liffey River	2023	2,557		2,580	3,000
		East of Carrick	2023	3,646		3,670	4,280

9. Intersection Analysis

Based on the traffic projections from Figure 8 the MVR/ Church Street junction is the busiest intersection and a representative indicator of performance at other nearby junctions which are in the same ballpark in terms of layout and traffic movements.

Accordingly, the MVR / Church Street junction has been analysed with SIDRA 8 Intersection Analysis software. The intersection model and movement summaries are attached in Appendix H.

9.1 Results of Analysis

MVR / Church Street junction would operate at LOS A by 2046 on all approaches in the AM and PM peaks. See Appendix I for LOS descriptions.

9.2 Discussion of results

With estimated operation at LOS A there are no traffic capacity issues.

According by inference there are no capacity issues with the balance of the road network.

10. General Road Network Guidelines

This section considers general road network guidelines to consider when preparing a road network plan. Also see Appendix C for additional background considerations

10.1 Traffic Networks as a System

See Appendix C.1.

10.2 Network Management

Typical road function classifications by traffic volume are as follows:

- Arterial Roads > 10,000 vpd
- Major Collector Roads – 3,000 to 10,000 vpd
- Minor Collector Roads – 1,000 to 3,000 vpd

See Appendix A for DPAC Local Government Road Hierarchy Classifications - June 2015

10.2.1 Road types

- Main Road – Sub Arterial Road providing regional connection.
- Major Collector – 11m minimum road width
- Minor Collector – 8.9m minimum road width
- Local Through Streets – 8.9m and 6.9m

10.2.2 Tasmanian Approved B Double Route Network

The roads within the study area not part of the Tas. 26m B Double network, see Appendix B. Design intersection upgrades to cater for general access vehicles as appropriate e.g

- Triaxle semi-trailers
- Coaches (14m)
- Buses (11m)
- Medium Rigid Vehicles (8.8m) e.g firefighting or garbage trucks.

10.2.3 Vulnerable Road users.

Needs of cyclists and pedestrians to be considered in separate report.

10.3 Design of new urban networks

10.3.1 Design Layout – Tributary

Introduce loop roads into the road network plan to increase:

- land used development opportunities
- internal traffic circulation and access efficiency
- integration with surrounding road network,

10.3.2 Safety in new subdivisions

- Distinguish between the arterial, local street and pathway networks as each have different road functions and network needs.
- Preserve sight lines (avoid planting trees and shrubs, building fences and placing infrastructure that limits sight distance) for junctions and accesses.
- Avoid long straights as this encourages speeding.
- Provide safe pedestrian facilities.
- Provide roundabouts at busy intersections and not allow cross intersections.
- Consider median turn lanes on major collector / arterial roads.
- Stagger T junctions to advantage to allow head-to-head right turns.

10.3.3 Residential area planning

- Arterial networks should bound residential precincts.
- Effective street lengths should be less than 200-250m.
- Where demand justifies, cater for pedestrian and cycle demands separately.
- Minimise traffic on residential streets.
- Number of lots abutting streets with minimal traffic flows should be maximised.

10.4 Liveability, Safety and Amenity Guidelines

Residential precincts need to be bounded by traffic routes and/or natural barriers.

Cyclist and pedestrian demands should be catered for separately.

To maximise the liveability, safety and amenity of the local area, road and street network layout should be such that:

- A minimum of 60% of lots should abut residential streets with less than 300vpd passing traffic.
- A minimum of 80% of lots should abut residential streets with less than 600 vpd passing traffic.
- A maximum of 5% of single dwelling lots should abut residential streets with between 1,000-2,000 vpd passing traffic.
- A maximum of 1% of single dwelling lots should abut local streets or collectors with less than 3,000 vpd passing traffic, and
- No single dwelling lot should abut a route with more than 3,000 vpd passing traffic.

10.5 Road Design

Based on speed limit or General Urban Speed Limit (GUSL) – 50km/h as applicable.

10.5.1 Arterial Roads

- Simplify access to major intersections and minimise residential access.

10.5.2 Collector Roads

- Reduce the *effective length* of the road to less than 200-250m, by installing traffic calming devices, such as roundabouts and median islands etc.
- Restrict overtaking by use of median islands, barrier lines or changes in road priority.
- Use collector roads to provide access to enclaves e.g. residential and light industrial to cater for transport efficiency and accessibility.

10.5.3 Residential Streets

- Limit distant visibility with Urban Design. Adequate sight distance visibility should be maintained for access and junction safety.
- Good night-time visibility must be maintained.

- Local streets can be designed by landscape architects and urban designers, with construction materials, road geometry, texture etc. that indicate to a driver that they are driving within a local area.
- Local streets should aim to have an effective length of 250m or less in order to prevent vehicles accelerating to high speeds.

10.6 Services

Road reservation widths should be selected to suit needs of road and services. Service infrastructure includes above and below ground services in addition to overland flow paths for stormwater runoff which may vary in width depending on topography.

Service design layers should be superimposed on proposed outline development plans to establish where wider road reservations may be required.

10.7 Road users

10.7.1 Design Vehicle

- Arterial and Major Collector roundabouts - tri-axle semi-trailer combinations.
- Roundabouts on residential streets should be designed for metro buses or 8.8m rigid trucks as applicable.

10.7.2 Provide pedestrian refuge islands on Collector Roads.

10.7.3 Provide separate off-road cycling paths or shared use trails.

This especially applies in residential areas.

10.8 Intelligent Transport Systems

See Appendix D for background information.

10.9 Local Area Traffic Management (LATM)

See Appendix E for typical process to follow for implementing LATM and typical traffic management devices applicable.

11. Road Network Plan – Carrick

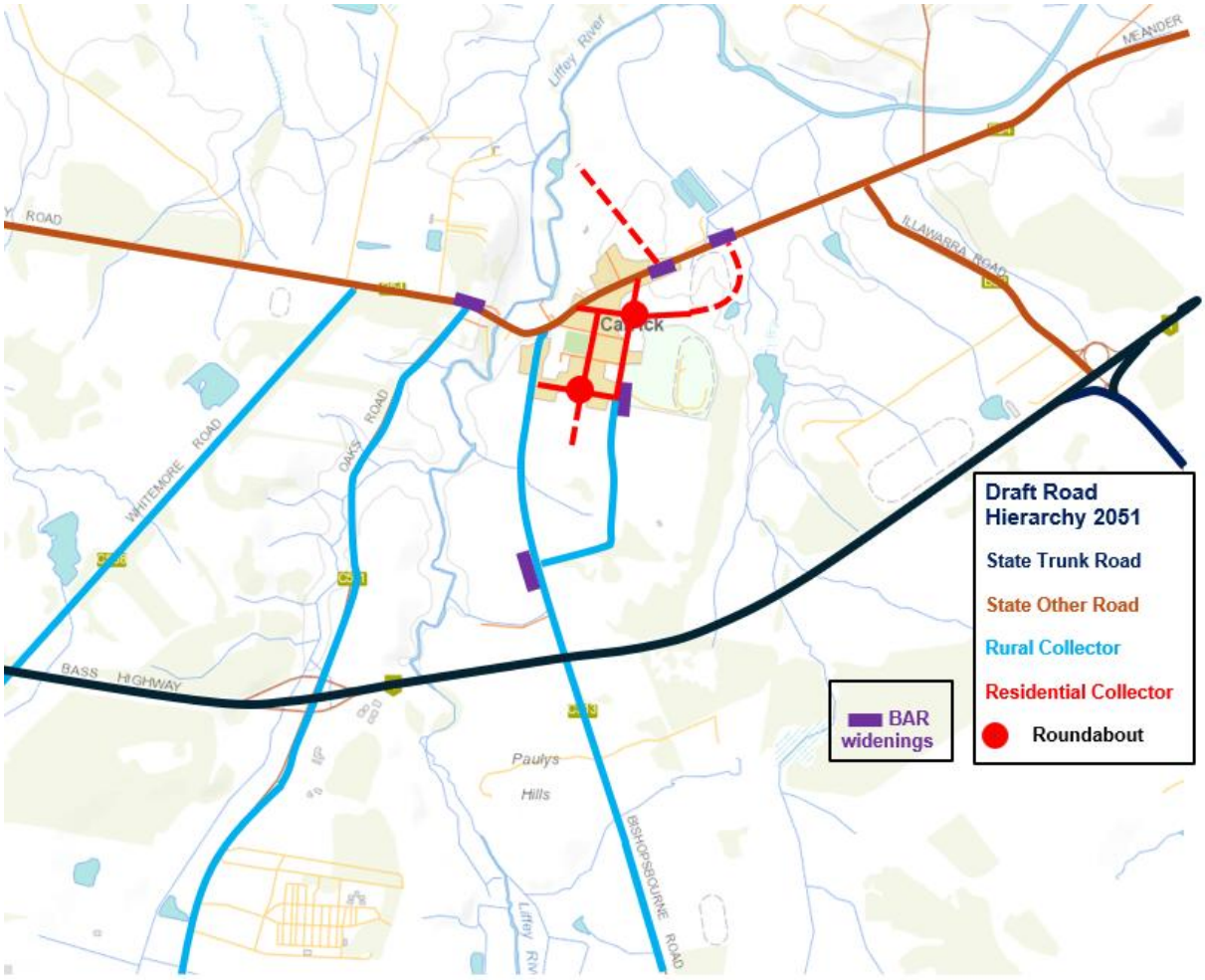
11.1 Carrick Road Network Plan

The following road network plans have been prepared based on:

- Anticipated growth areas and compound annual growth rate of 0.7%
- Recent traffic data
- Reported Crash Data
- Examination of the existing road infrastructure

The Target Road Network Plan for Carrick is shown in Figure 11.1.

Figure 11.1 – Target Road Network Plan – Carrick



11.2 Potential Intervention Treatments for Carrick

The recommended interventions are summarised in Figure11.2.

Figure 11.2 – Recommended interventions for Carrick

Priority Road	Side Road	Existing Intersection 2024	Proposed Intersection	Proposed Intervention
Meander Valley				
	Whitemore Road	Simple Junction	Simple Junction	
	Oaks Road	Simple Junction	BAR	2035
	Church Street	BAR	BAR	
	Arthur Street	Simple Junction	Simple Junction	
	South Street	BAR	BAR	
	Liffey Street	BAR	BAR	
	Simmons Street	BAR	BAR	
	East Street	BAR	BAR	
	Proposed North Rd		BAR	WD
	Liffey Street (East)		BAR	WD
	Illawarra Road	CHR(s)	CHR(s)	
Church Street				
	Percy Street	Simple Junction	Simple Junction	
	Charlies Lane	Simple Junction	BAR	2045
Ashburner Street				
	Liffey Street	Simple Junction	Simple Junction	
	South Street	Cross Int.	Cross Int. (PC)	2025
	Seymour Street	Cross Int.	Cross Int.	
	Percy Street	Simple Junction	Roundabout	WD
East Street				
	Liffey Street	Cross Int.	Roundabout	WD
	South Street	Simple Junction	Simple Junction	
	Seymour Street	Simple Junction	Simple Junction	
	Percy Street	Simple Junction	BAR	2040

WD	With Development
PC	Prioirty Change

11.3 Key Streets within Carrick

Certain streets at Carrick are identified as key to safe and efficient transport development. Key roads are those with a growing collector function and include:

- Church Street
- Liffey Street
- Ashburner Street
- East Street – Charlies Lane
- Percy Street.

South Street is a potential alternative to Liffey Street but not considered a strong alternative for the following reasons:

- short in length (450m) and does not have a collector function
- has no growth prospects, does not provide access to developing areas and is unlikely to be extended
- does not provide access to strategic facilities or locations
- the junction with MVR is not at a strategic location within Carrick
- functions as a residential street

Liffey Street has development potential and is likely to be extended to the East and intersect with MVR to the East as well as the West reinforcing the streets function as a collector road.

Though Carrick Inn is located opposite the MVR / Liffey Street junction, the building is setback sufficiently from the edge of MVR for the junction to operate as BAR (and in future with a formal right turn lane) with the current on street parking continuing by the Inn as is currently the case.

There is currently some 9m of sealed road width from the MVR centreline to the face of kerb outside the hotel:

- 6.0m would be required for through traffic and a BAR or formal right turn lane.
- 2.5m is recommended for comfortable on street parallel parking.

There is adequate width for the safe and efficient operation of the MVR / Liffey Street junction and hotel on street parking.

11.4 Intervention Justifications at Carrick

11.4.1 MVR / Oaks Road junction - Proposed BAR 2035

A BAR is recommended for the following reasons:

- Oaks Road interchange connects Bass Highway to Carrick. The Oaks Road junction is substandard given Oaks Roads function in the road hierarchy. Figure 11.4.1 shows the existing junction layout.

- The MVR / Oaks Road junction has 5 reported crashes over the last 5 years including a Serious Injury and a Minor Injury crash.

Figure 11.4.1 – Aerial view of MVR / Oaks Road junction

11.4.2 MVR / Proposed Northern Road junction – Proposed BAR

A BAR intersection is recommended for the following reasons:

- The proposed junction warrants a BAR junction standard given the function of the proposed road and MVR. A BAR would be easy to achieve as there is adequate existing pavement width on the MVR Eastern approach, see Figure 11.4.2

Figure 11.4.2 – Aerial view of MVR / Prop. Northern Road junction

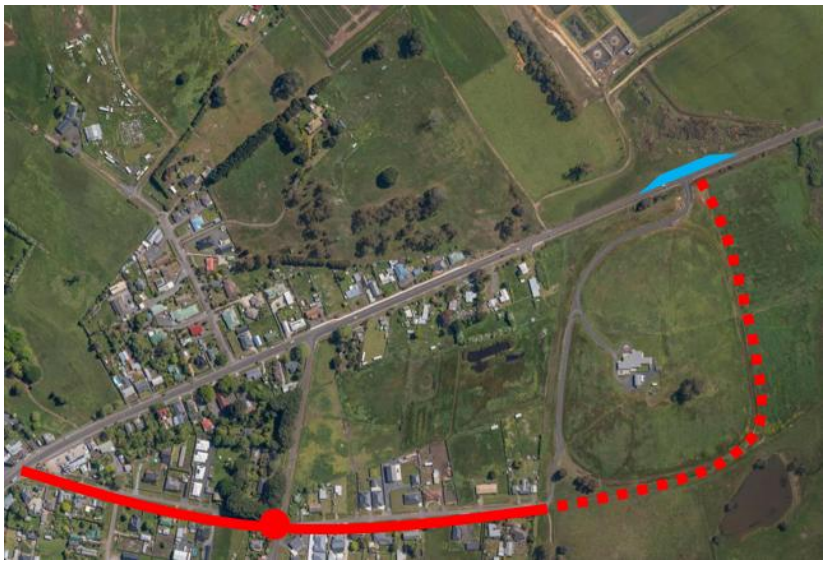
Source: *The List, DPIPWE*

11.4.3 MVR / Proposed Liffey Road junction (East) – Proposed BAR

A BAR intersection is recommended for the following reasons:

- The proposed junction warrants a BAR junction standard given the function of the proposed road and MVR. A BAR would be easy to achieve as there is adequate existing pavement width on the MVR Eastern approach, see Figure 11.4.3

Figure 11.4.3 – Aerial view of MVR / Prop. Northern Road junction



11.4.4 Ashburner Street / South Street intersection – Proposed Priority Change 2025

A change in intersection priority, see Figure 11.4.4 is recommended:

- South Street is parallel to Liffey Street which is the preferred East – West alignment due to development potential further East and better connection to developable land.

- Changing priority at the Ashburner Street / South Street intersection helps calm traffic the intersection and promotes Liffey Street as the preferred East – West link.

Figure 11.4.4 – Aerial view of Ashburner Street / South Street intersection

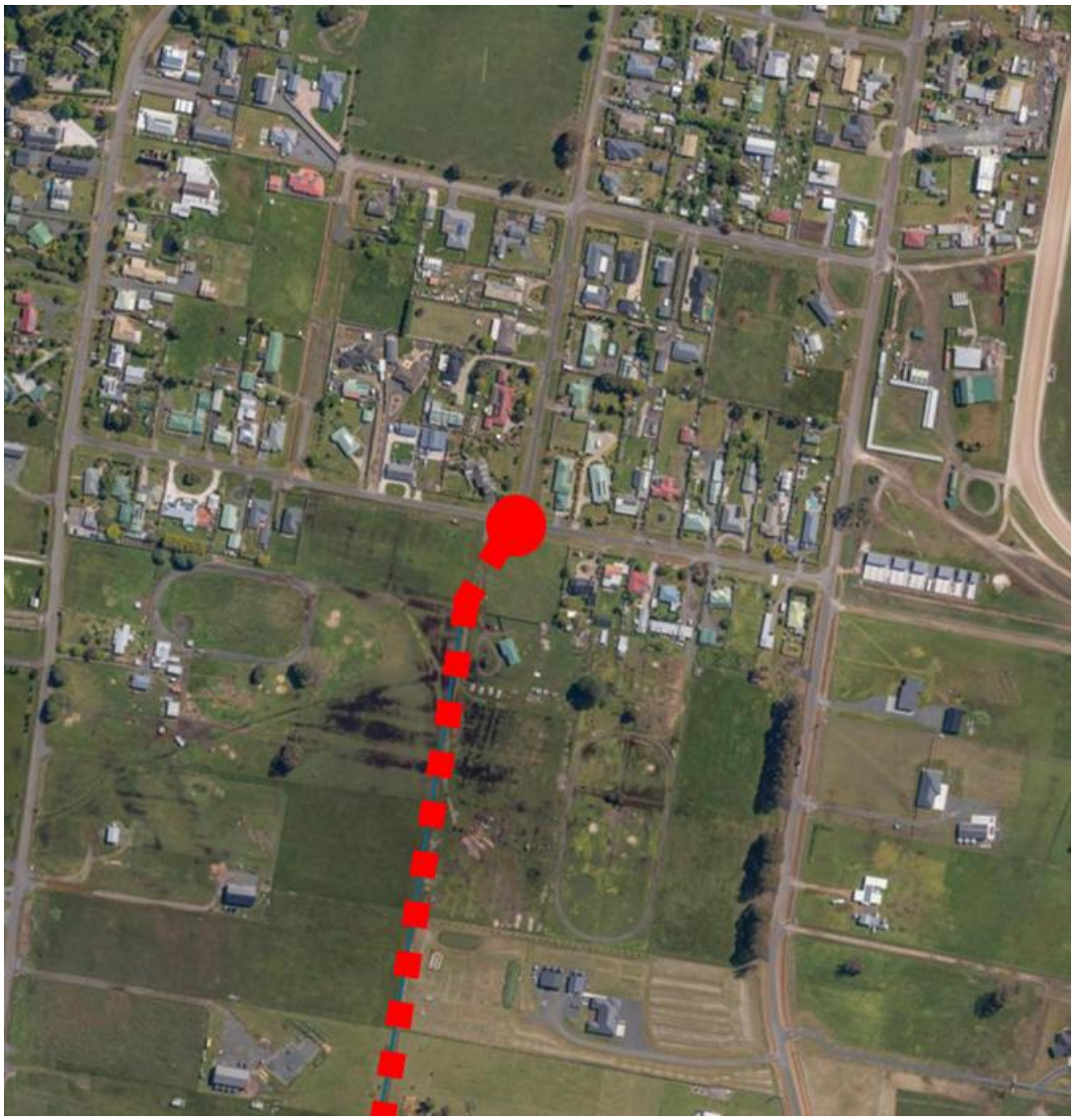
11.4.5 Ashburner Street / Percy Street junction – Proposed Roundabout

A roundabout is recommended for the following reasons:

- Creation of cross intersections should be avoided to minimise crash risk. Roundabouts effectively reduce crash risk at intersections.

- In this case extension of Ashburner Street further South is recommended if possible. to support subdivision / land use development, which creates four leg intersection and accordingly a roundabout is a suitable intersection management option, see Figure 11.4.5.

Figure 11.4.5 – Aerial view of Ashburner Street / South Street intersection



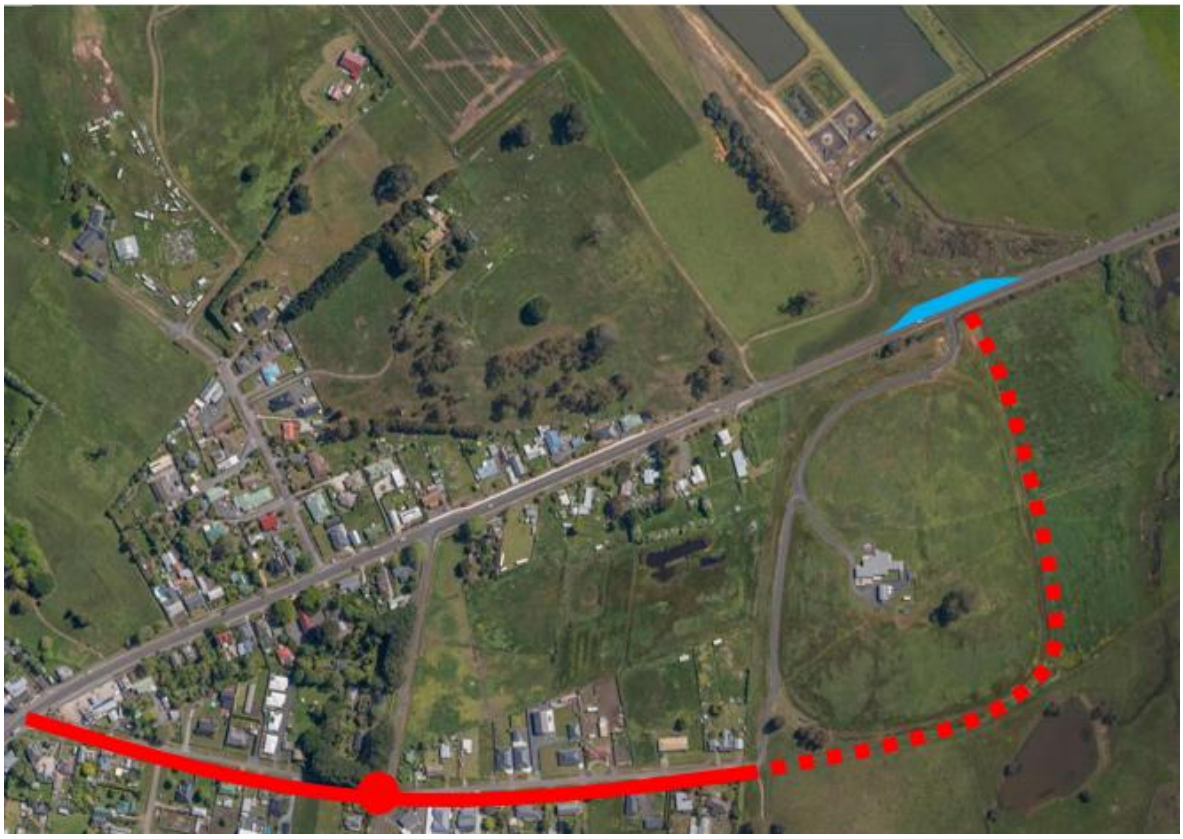
11.4.6 East Street / Liffey Street intersection – Proposed Roundabout

A roundabout is recommended for the following reasons:

- Creation of cross intersections should be avoided to minimise crash risk. Roundabouts effectively reduce crash risk at intersections.

- In this case extension of Liffey Street to the East is recommended, if possible, to support subdivision / land use development, which creates a four-leg intersection and accordingly a roundabout is a suitable intersection management option, see Figure 11.4.6.

Figure 11.4.6 – Aerial view of East Street / Liffey Street intersection



11.4.7 East Street / Percy Street junction – Proposed BAR 2040

A BAR intersection is recommended in future for the following reasons:

- The proposed junction warrants a BAR junction standard given the function of East Street and Percy Street as collector function roads, see Figure 11.4.7.

Figure 11.4.7 – Aerial view of East Street / Percy Street intersection

11.4.8 Bishopsbourne Road / Charlies Lane Junction – Proposed BAR 2045

A BAR intersection is recommended in future for the following reasons:

- The proposed junction warrants a BAR junction standard given the function of East Street and Percy Street as collector function roads, see Figure 11.4.8.

Figure 11.4.8 Aerial view of Bishopsbourne Road / Charlies Lane junction

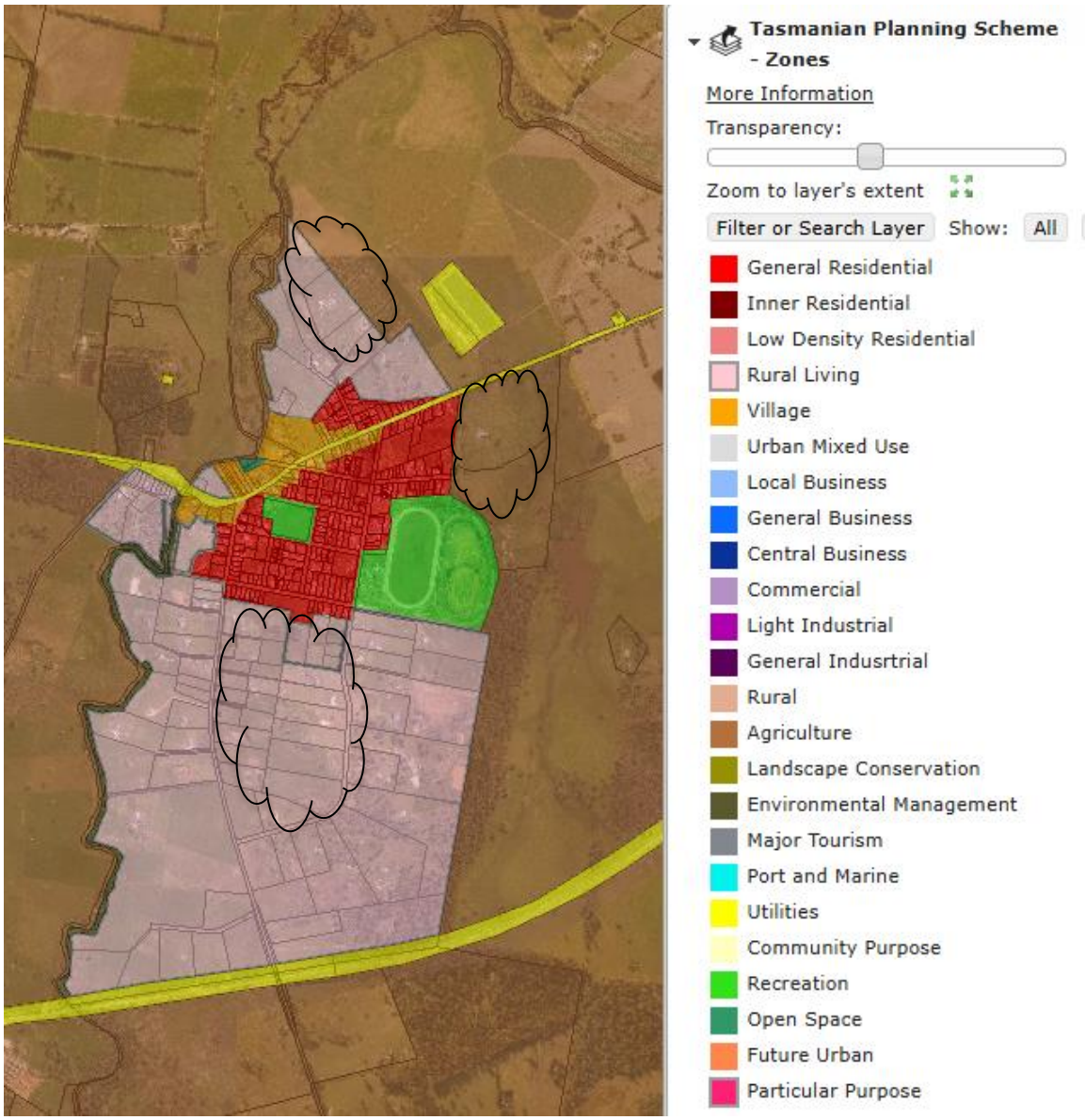
11.5 Carrick Structure Plan

The proposed Carrick Structure Plan responses to the primary objectives of the MVCSP Strategic Directions are as follows:

11.5.1 Development of land use capacity of the area

Areas with development potential via rezoning or subdivision have been identified as shown in Figure 11.5 with areas to the North, East and South of Carrick.

Figure 11.5 – Current land uses as per TPS and potential rezoning opportunities



11.5.2 Cost-effective transport infrastructure to support development

An appropriate functional road hierarchy for cost effective development has been prepared, see Figure 11.1.

Potential new links and proposed intersection treatments are identified to cater for cost effective transport infrastructure that allows for safe and efficient transport.

11.5.3 Safe and efficient access

The identified links and intersection treatments provide direct access to Carrick CBD on Meander Valley Road, East of Liffey River and the Bass Highway. See Figure 11.2 which identifies potential road network improvements to support safe and efficient development based on traffic engineering principles and Austroads Guidelines.

11.5.4 Integration

The proposed Carrick Road Network Plan responds to constraints (brownfield areas) and opportunities (greenfield areas) to achieve the best integration possible for the situation.

12. Pathway Network Plan – Carrick

12.1 Carrick Pathway Network Plan

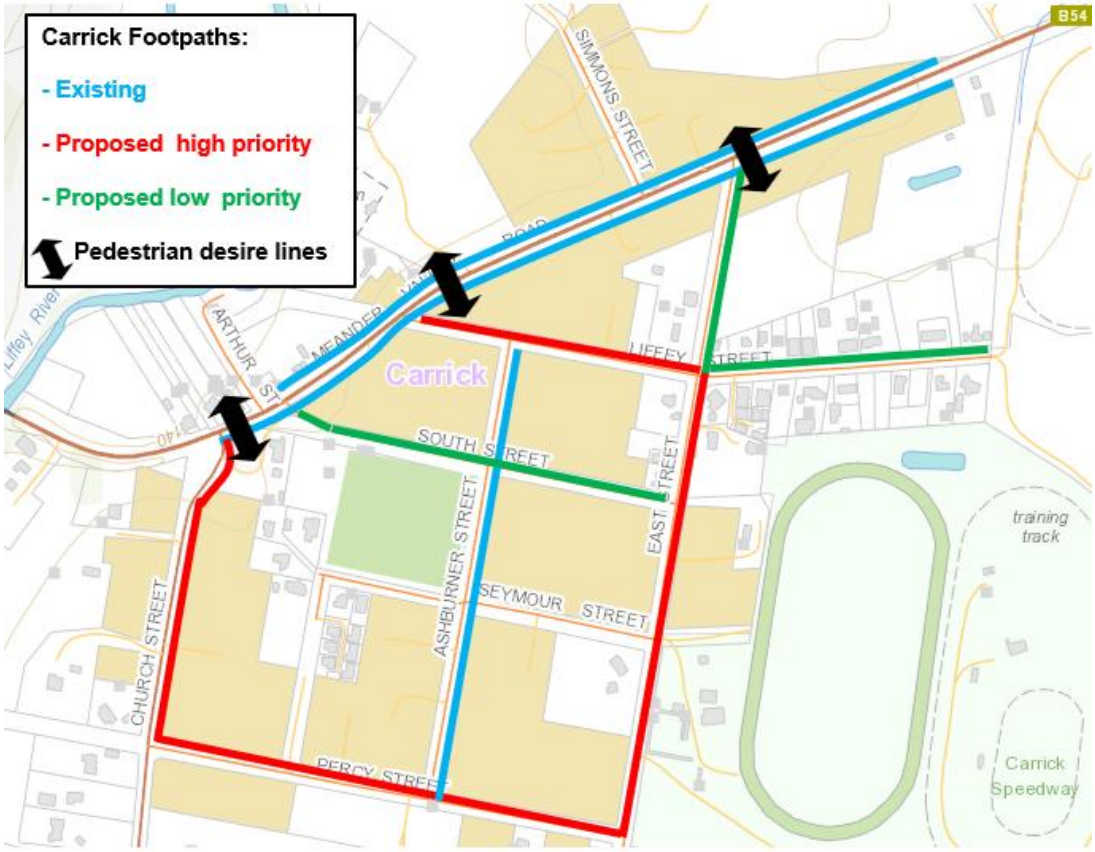
Meander Valley Road has footpaths both sides through Carrick. The residential streets do not have footpaths but have flat and well-maintained grassed pedestrian friendly roadsides. Due to the limited provision of pedestrian infrastructure at Carrick, strategic application of limited resources is required to fairly and holistically improve provisions for pedestrians.

The suggested strategy is to concentrate on providing footpaths along streets with a collector function and natural desire lines providing connectivity with the Carrick CBD and attractions.

Figure 12 shows recommended pedestrian facility targets based on:

- The generally pedestrian user-friendly nature of the roadsides in Carrick
- Pedestrian desire lines on Council Streets
- Pedestrian desire lines across MVR

Figure 12 – Carrick Pathway Network Plan



12.2 Warrants for pedestrian facilities

Understanding pedestrian demand (desire lines) is key to making efficient use of resources for pedestrians and cyclists. The scope of this study does not extend to determination of actual desires lines. Accordingly, the recommended facilities shown in Figure 12.1 should be used as a starting point and guideline. Observation surveys are recommended to further clarify pedestrian demand. The recommended strategy is as follows from Figure 12.1:

- Provide paths along collectors with higher pedestrian demand - highlighted red
- Provide paths along streets with lower pedestrian demand - highlighted green
- Consider retrofit of pedestrian facilities for crossing MVR.

Pedestrian facilities options for crossing MVR could consist of:

- Pedestrian Warning signage on approaches to pedestrian desire lines
- Pedestrian refuge islands centrally positioned within MVR with access ramps provided at side road approaches and streetlighting for illumination at night.
- As part of other traffic management devices e.g. roundabout splitter islands

There are criteria for the type of pedestrian facility that should be provided at a site. The primary criteria are:

- Traffic flow rates (vehicles per hour)
- Pedestrian flow rates (pedestrians per hour)
- Width of road crossed
- Reported crash history

For MVR with estimated AADT 4,300 vpd (2046) i,e 430 vph and road width of 14m pedestrian warrants would generally be:

- Pedestrian Warning signs if < 30 pph
- Pedestrian Warning signs or refuge islands if 30 to 60 pph
- Pedestrian refuge if > 60pph

Decision making is influenced by the above criteria, risk assessment and consideration of the whole situation. Most likely some Pedestrian Warning signs would be appropriate for MVR unless there are site observations indicating pedestrian activity sites of over 60pph in which case pedestrian refuge islands should be considered.

13. Carrick Gateway Options

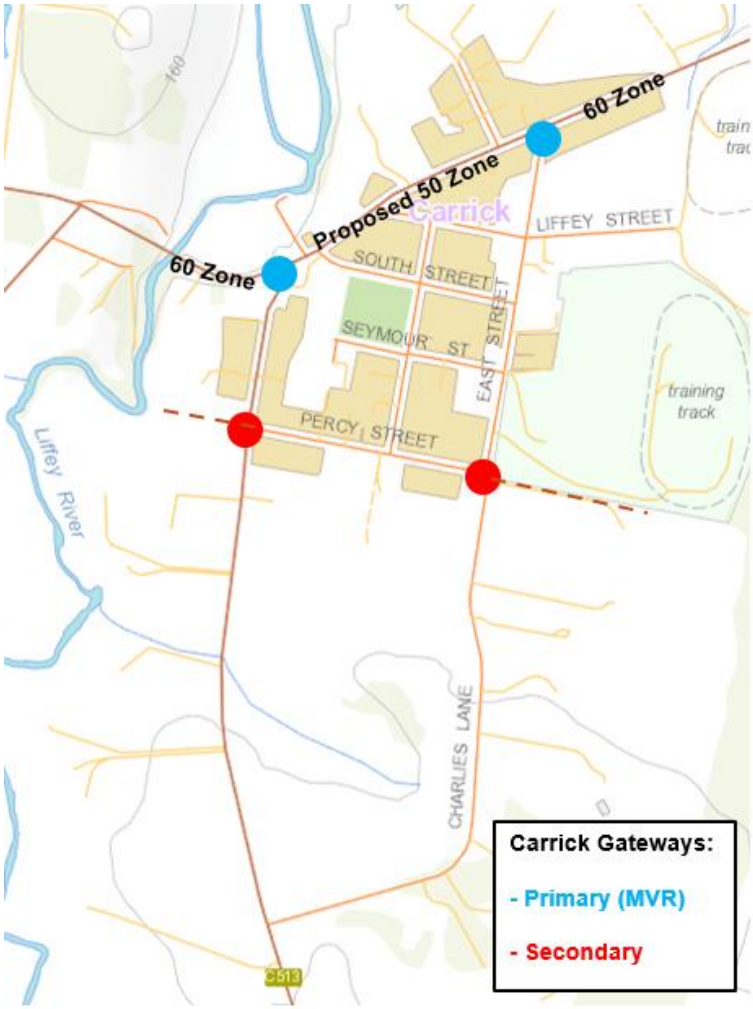
13.1 General Concept

To support calmed traffic behaviour within Townships Gateway or Portal treatments may be used. These devices serve to calm traffic and flag for road users they are within the town centre where lows speeds are required, and vulnerable road user activity occurs.

60km/h zones commence at Liffey River Bridge to the West and East of East Street. Introduction of a 50km/h zone between Church and East Street would support a central Carrick CBD. Zone and Urban Design objectives. Figure 13.1 shows an overarching concept that could be considered for Carrick accordingly.

MVR is the primary route through Carrick and best suited to establishment of Gateways. Secondary longer-term options include the Church and East Street approaches to Carrick which would further define central Carrick.

Figure 13.1 – General Carrick Gateway Concept

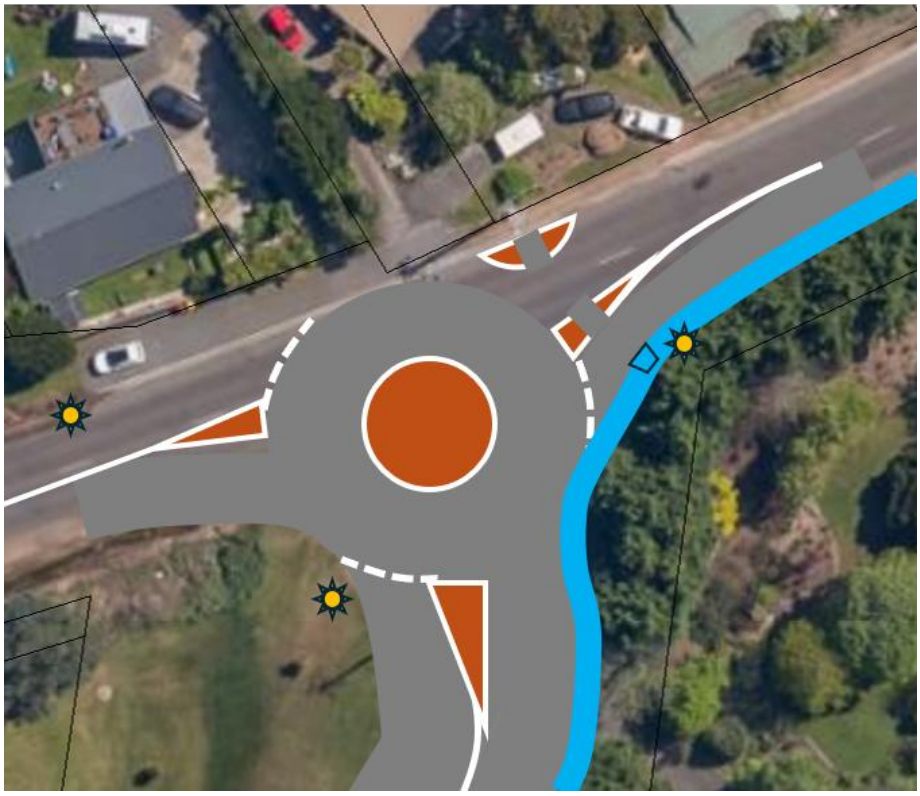


13.2 MVR / Church Street Gateway Concepts

The available road reservation width at the MVR / Church Street junction allows retrofit of a roundabout at a natural and suitable point for definition of entrance to the central township.

There are numerous Gateway options including Urban Design treatments, pedestrian facilities to cross MVR or more formalised treatment such as a roundabout which physically calms traffic and provides for pedestrians, see Figure 13.2.

Figure 13.2 – Primary MVR / Church Street Gateway Concept

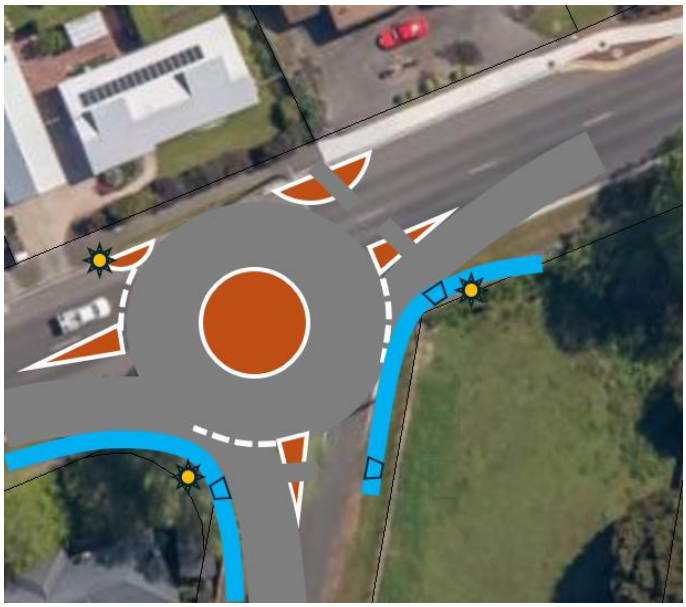


13.3 MVR / East Street Gateway Concept

There may be sufficient road reservation width at the MVR / East Street junction to allow retrofit of a Gateway at a natural and suitable point for definition of entrance to the central township.

There are numerous Gateway options including Urban Design treatments, pedestrian facilities to cross MVR or more formalised treatments such as a roundabout which physically calms traffic and provides for pedestrians, see Figure 13.3.

Figure 13.3 –Primary MVR / East Street Gateway Concept



13.4 Secondary Gateway Concepts

The secondary gateway sites shown in Figure 13.1 are lower priority sites that could be considered in the future that provide other benefits including:

- Traffic calming of long straight road approaches to Carrick that may be subject to speeding.
- Opportunities for side road links to subdivision sites.

14. Recommendations and Conclusions

14.1 Assumptions

This report develops a road network plan for management of roads at Carrick. Ongoing traffic growth and demand for land use development triggers the need to revisit the road network planning to cater for sustainable development at Carrick.

This report begins with a review of traffic activity levels and reported crash history broadly across the road network focussing on the links and intersections at Carrick.

Forecast population growth for the region is 2.7% and at this level of growth typical compound annual traffic growth of 0.7% is indicated for Carrick.

Historic and current traffic volumes on the major road have been collated and projections made for operation in 2046.

From consideration of current traffic and projected traffic growth rates there are no traffic capacity issues likely in the next 20 years as traffic levels are typically less than 10% of capacity apart from MVR with AADT of 3,600vpd (2023) operating at some 18% of capacity and Bass Highway (10,800 vpd (2023) which operate at some 25% of capacity.

Typically, the volume of traffic at Carrick intersections is in the low range where intersections operate at Level of Service A. Accordingly minimal intersection analysis has been necessary to assess intersection performance.

The MVR junctions with Church Street and East Street intersections were analysed with SIDRA Intersection Analysis software because they are the busier intersections and were found to be operating at LOS A by 2046.

Accordingly, there are no traffic capacity issues expected over the next 20 years and emphasis has therefor been on providing for link upgrades and safe operation of the network and identification of sites where traffic safety and operation can be improved.

The road network planning approach taken in this report has been to provide for a sustainable road transport system with the following goals:

Development of land use capacity

- Caters for ultimate development potential, see Figure 1.
- Responds to topographic and environmental constraints.

Provision of cost-effective transport infrastructure to support development

- Reviews the existing road network servicing Carrick to identify key links and/ or nodes improvement opportunities to support future development:
- Recommends appropriate traffic management facilities.

Safe and efficient access

- Considers transport efficiency, access and traffic safety to ensure a sustainable road network is provided that can support future subdivision and development.
- Appropriate road connections for new subdivisions, residential areas, educational facilities, medical and commercial centres.

Integration

- Responds to constraints (brownfield areas) and opportunities (greenfield areas) to achieve the best integration possible for the situation.
- The proposed road network plan enables development and appropriate integration with surrounding suburbs.

14.2 Carrick Road Network Plan

The proposed road network plan includes a draft functional road hierarchy, see Figure 14.2.1 & intervention plan to sustain transport efficiency, access & safe operation, see Figure 14.2.2.

Future Residential Collector Road functions are identified for Church Street, East Street - Charlies Lane, Liffey Street and Percy Street. Upgrading of these roads to appropriate Collector Road standards are recommended which would allow BAR right turn facilities for side roads, mainly at the Meander Valley Road junctions.

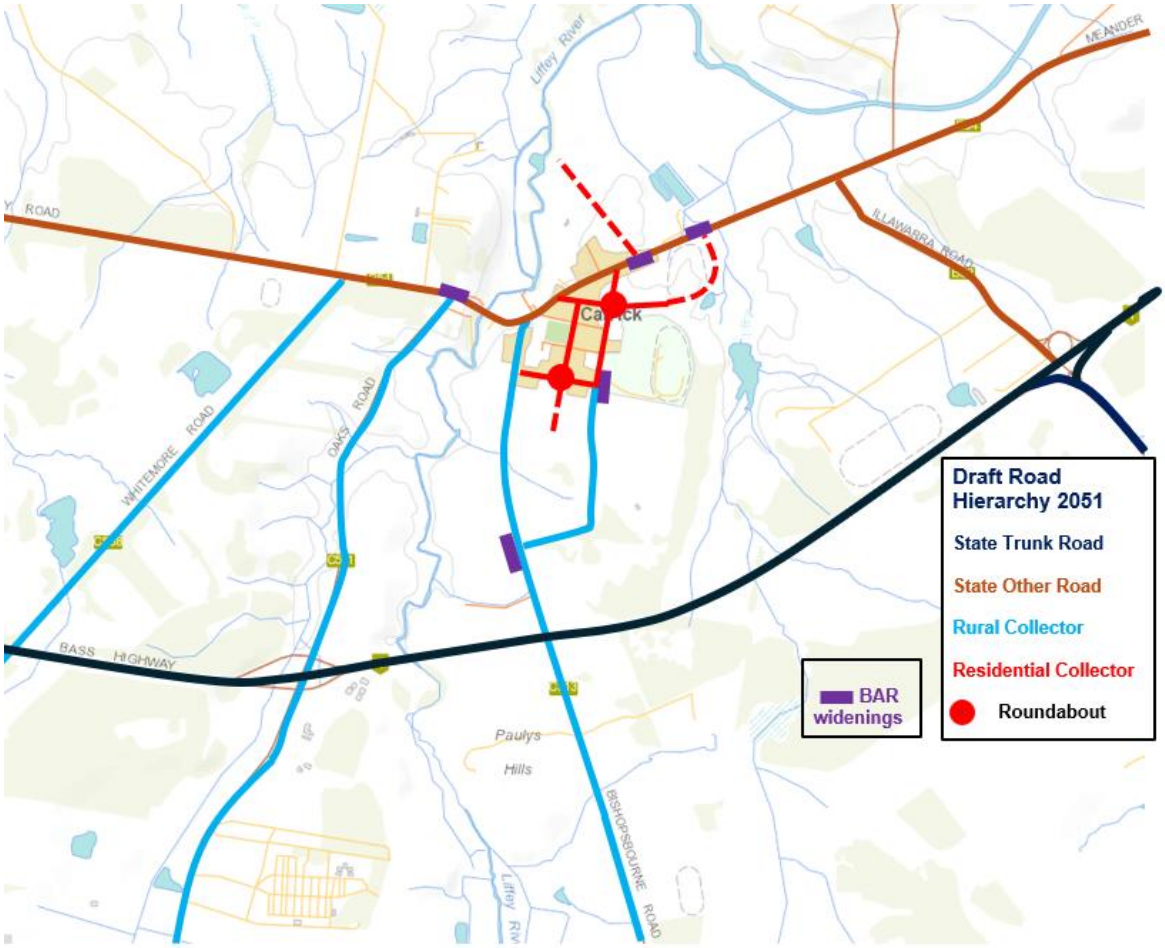
Anticipated traffic volumes on the urban roads typically do not exceed 650vpd and accordingly do not warrant LGAT collector road standard until AADT reaches 3000vpd.

Carrick is predominantly a rural village with a rural feel due to the rural standard of many of the local roads. One of the recommendations of a Carrick Character Study nearly finalised, includes exclusion of application of the LGAT Standard Drawings. This would enable reduced road widths in Carrick to maintain the character of the township. The sealed road width do not allow width for on street parking, but cars can park where grassed, or gravel roadsides are available. The location of roadside drains and reticulated mains also limit road widening opportunities.

In having regard to these matters, it is appropriate that streets within Carrick are, as a guide:

- sealed residential collector roads to 6.9m width with local widening to 8.9m for retrofit of BAR junctions or sealed parking areas.
- Residential streets to 5.5- 6.0m wide.

Figure 14.2.1 – Target Road Network Plan for Carrick



Key features include:

- Provision for development of Liffey Street as a collector function road with associated junction and roundabouts to manage future intersections.
- Recognition of the need for targeted widening of residential collector roads.
- Recognition of road functions within Carrick and intersection treatments to improve transport efficiency and traffic safety.

The identified interventions to support future safe and efficient operation are summarised in Figure 14.2.2. Section 11 contains justifications for each intervention.

Figure 14.2.2 – Proposed interventions – Carrick Road Network

Priority Road	Side Road	Existing Intersection 2024	Proposed Intersection	Proposed Intervention
Meander Valley				
	Whitemore Road	Simple Junction	Simple Junction	
	Oaks Road	Simple Junction	BAR	2035
	Church Street	BAR	BAR	
	Arthur Street	Simple Junction	Simple Junction	
	South Street	BAR	BAR	
	Liffey Street	BAR	BAR	
	Simmons Street	BAR	BAR	
	East Street	BAR	BAR	
	Proposed North Rd		BAR	WD
	Liffey Street (East)		BAR	WD
	Illawarra Road	CHR(s)	CHR(s)	
Church Street				
	Percy Street	Simple Junction	Simple Junction	
	Charlies Lane	Simple Junction	BAR	2045
Ashburner Street				
	Liffey Street	Simple Junction	Simple Junction	
	South Street	Cross Int.	Cross Int. (PC)	2025
	Seymour Street	Cross Int.	Cross Int.	
	Percy Street	Simple Junction	Roundabout	WD
East Street				
	Liffey Street	Cross Int.	Roundabout	WD
	South Street	Simple Junction	Simple Junction	
	Seymour Street	Simple Junction	Simple Junction	
	Percy Street	Simple Junction	BAR	2040

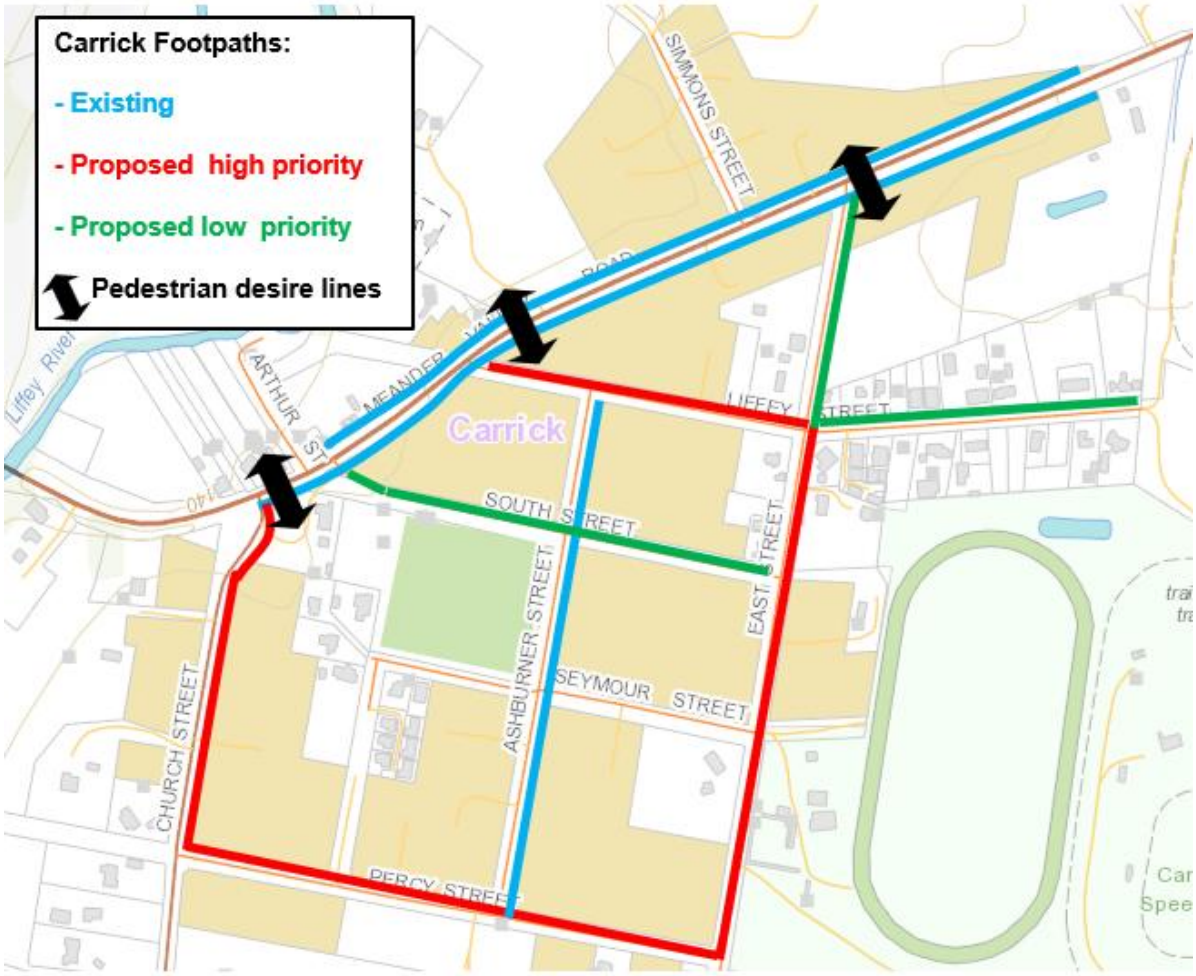
WD	With Development
PC	Prioirty Change

14.3 Carrick Pathway Network Plan

Meander Valley Road has footpaths both sides throughout Carrick. The residential streets do not have footpaths but have flat and well-maintained grassed pedestrian friendly roadsides. Due to the limited provision of pedestrian infrastructure at Carrick, strategic application of limited resources is required to fairly and holistically improve provisions for pedestrians.

The suggested strategy is to concentrate on providing footpaths along streets with a collector function and natural desire lines providing connectivity with the Carrick CBD and attractions, see Figure 14.3.

Figure 14.3 – Proposed Carrick Pathway Network

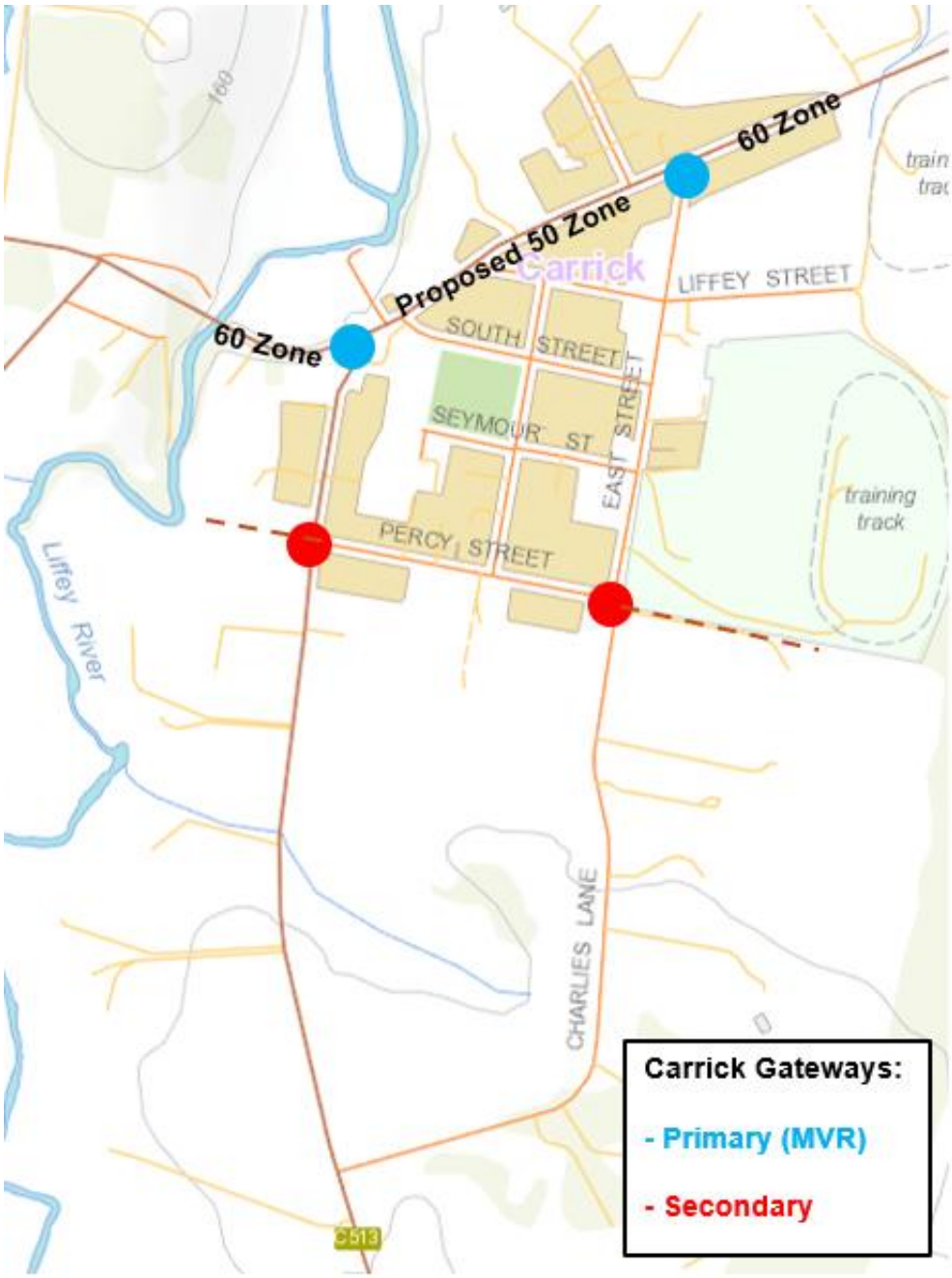


14.4 Carrick Gateway Concept

To support calmed traffic behaviour within Township CBD zones Gateway or Portal treatments are suggested. These devices serve to calm traffic and flag for road users they are within the town centre where lows speeds are required, and vulnerable road user activity occurs.

MVR is the primary route through Carrick and best suited to establishment of Gateways, see Figure 14.4. Secondary longer-term options include the Church and East Street approaches to Carrick which would further define central Carrick.

Figure 14.4 – Carrick Gateway Concept



14.5 Carrick Strategic Plan

The proposed Carrick Structure Plan responses to the primary objectives of the MVCSP Strategic Directions as follows:

Development of land use capacity of the area

Areas with development potential via rezoning or subdivision have been identified as shown in Figure 11.4.1 with areas to the North, East and South of Carrick.

Cost-effective transport infrastructure to support development

An appropriate functional road hierarchy for cost effective development has been prepared, see Figure 14.2.1.

Potential new links and proposed intersection treatments are identified to cater for cost effective transport infrastructure that allows for safe and efficient transport.

A Carrick Gateway Concept is suggested to further support traffic safety and efficiency, see Figure 14.4.

Safe and efficient access

The identified links and intersection treatments provide direct access to Carrick CBD on Meander Valley Road, East of Liffey River and the Bass Highway. See Figure 12.2 which identifies potential road network improvements to support safe and efficient development based on traffic engineering principles and Austroads Guidelines.

The suggested Carrick Pathway Network, see Figure 14.3 caters for safe and efficient pedestrians and cyclist activity.

Integration

The proposed Carrick Road Network Plan responds to constraints (brownfield areas) and opportunities (greenfield areas) to achieve the best integration possible for the situation.

Appendices

Appendix A - DPAC Local Government Road Hierarchy June 2015

2.4 The Tasmanian Local Government Road Hierarchy – Urban roads

Classification	1. Arterial	2. Collector	3. Link	4. Local access	5. Minor access	6. Unformed
Functional Criteria						
Function/ predominant purpose	Provide the principal links between urban centres, or between urban centres and rural regions.	Connect arterial roads to local areas and supplement arterial roads in providing for traffic movements between urban areas, or in some cases rural population centres.	Provide a link between the arterial or collector roads and local access roads.	Provide access to residential properties and in some cases commercial properties, at a local level.	Provide access to residential properties and irregular access to community facilities such as parks and reserves.	Roads not maintained by the council or non-constructed/maintained road reserves or roads that have a very low level of service.
Connectivity description	High connectivity - connecting precincts, localities, suburbs, and rural population centres.	High connectivity – supplements arterial roads in connecting suburbs, business districts and localised facilities.	Medium connectivity – connects traffic at a neighbourhood level with collector and arterial roads.	Low – connects individual properties within a neighbourhood to link roads.	Low – provides access to properties.	Future roads or roads that have a very low level of service.
Guidance Metrics						
Average Annual Daily Traffic (AADT)	>10 000 vehicles per day (vpd)	3 000 - 10 000 vpd	1 000 - 3 000 vpd	50 - 1 000 vpd	<50 vpd	N/A
Heavy vehicles permitted	Yes - thoroughfare	Yes - thoroughfare	Yes - some through traffic	No thoroughfare, local access only	No thoroughfare, local access only	N/A
Average Annual Daily Truck Traffic or Equivalent Heavy Vehicles (AADTT / EHV)	>1 000 AADTT or >10% EHV	250 - 1 000 AADTT or >10% EHV	<250 AADTT or >10% EHV	N/A	N/A	N/A
Public transport route	Yes	Yes	Yes	No	No	N/A
Carriageway form	2 or 4 lanes	2 lanes	2 lanes	1 or 2 lanes	Typically 1 lane	N/A
Running surface	Sealed	Sealed	Sealed	Sealed/unsealed	Sealed/unsealed	Unformed

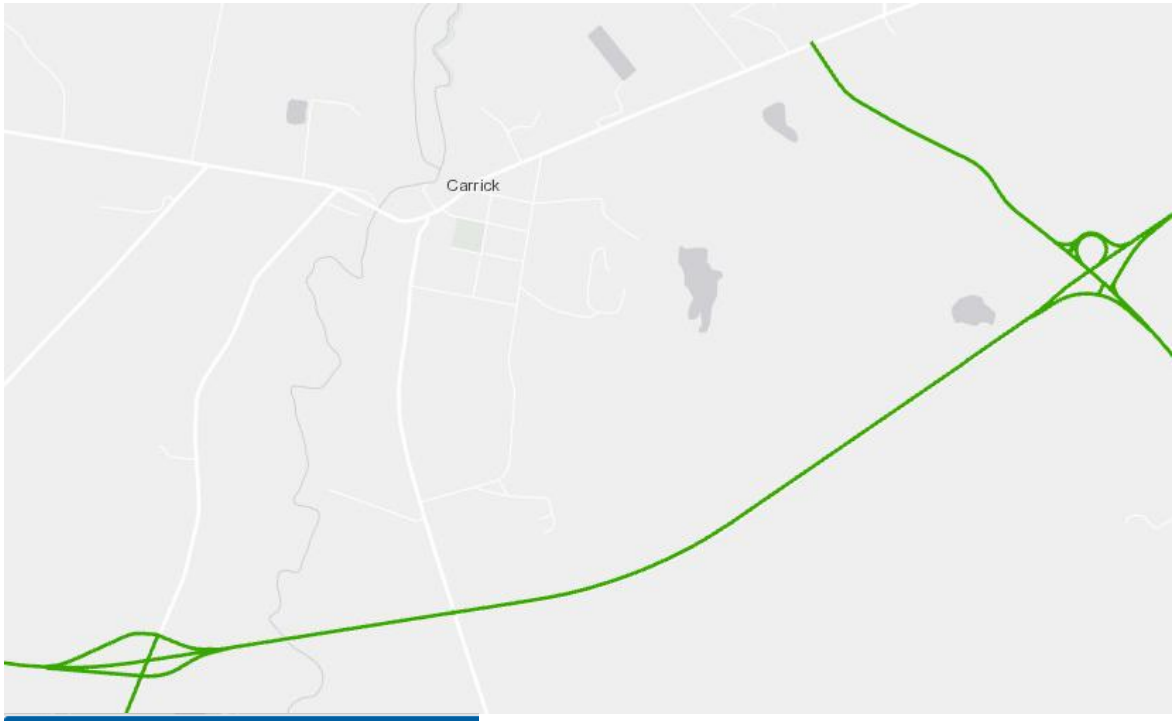
Local Government Road Hierarchy

2.5 The Tasmanian Local Government Road Hierarchy – Rural roads

Classification	Arterial	Collector	Link	Local access	Minor access	Unformed
Functional Criteria						
Function/ predominant purpose	Provide the principal links between rural population centres and regions.	Connect arterial roads to local areas and supplement arterial roads in providing for traffic movements between rural population centres.	Provide a link between the arterial or collector roads and local access roads.	Provide access to residential properties and in some cases commercial properties, at a local level.	Provide secondary access to residential properties and irregular access to community facilities such as parks and reserves.	Roads not maintained by the council or non-constructed/maintained road reserves or roads that have a very low level of service.
Connectivity description	High connectivity - connecting rural population centres.	High connectivity – supplements arterial roads in connecting towns, rural centres and localised facilities.	Medium connectivity – connects traffic at a neighbourhood level with collector and arterial roads.	Low – connects individual properties within a neighbourhood to link roads.	Low – provides access to properties.	Future roads or roads that have a very low level of service.
Guidance Metrics						
Average Annual Daily Traffic (AADT)	>2000 vehicles per day (vpd)	300 - 2000 vpd	100 - 300 vpd	30 - 100 vpd	<30 vpd	N/A
Heavy vehicles permitted	Yes - thoroughfare	Yes - thoroughfare	Yes - some through traffic	No thoroughfare, local access only	No thoroughfare, local access only	N/A
Average Annual Daily Truck Traffic or Equivalent Heavy Vehicles (AADTT / EHV)	>300 AADTT or >20% EHV	60 - 300 AADTT or >10% EHV	<60 AADTT or >10% EHV	N/A	N/A	N/A
Public transport route	Yes	Yes	Yes	No	No	N/A
Carriageway form	2 or 4 lanes	2 lanes	2 lanes	1 or 2 lanes	Typically 1 lane	N/A
Running surface	Sealed	Sealed	Sealed/unsealed	Sealed/unsealed	Sealed/unsealed	Unformed

Local Government Road Hierarchy

Appendix B - Tas. 26m B Double Network



Legend

Network Access - State Growth

B Double (26m) Structures with conditions

- Conditionally approved B-Double overpass
- Conditionally approved B-Double bridge
- Restricted Structure

B Double (26m)

- 26m B-Double access
- Conditionally Approved 26m B-Double access
- Restricted Road

Network Access - not State Growth

B Double (26m) Structures with conditions

- Conditionally approved B-Double overpass
- Conditionally approved B-Double bridge
- Restricted Structure

B Double (26m)

- 26m B-Double access
- Conditionally Approved 26m B-Double access
- Restricted Road

Source:maps.stategrowth.tas.gov.au/portal/apps/webappviewer

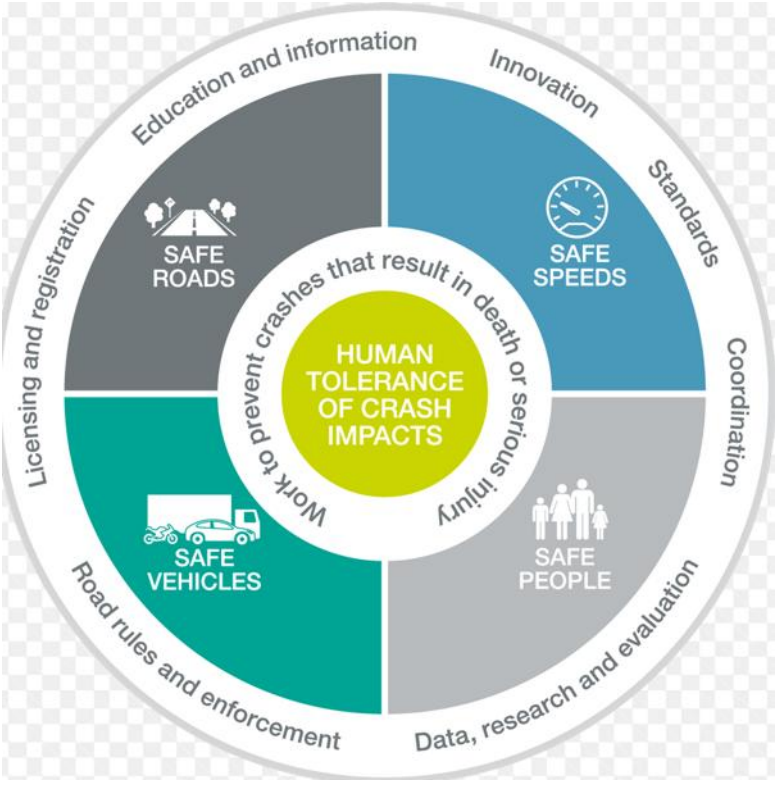
Appendix C - Road Network Guidelines

C.1 - Traffic Networks as a System

Consider the transport network as a system, see Figure C.1, in terms of:

- all road users i.e. light vehicles, heavy vehicles, public transport (buses and taxis etc), motor cyclists, cyclists and pedestrians.
- Road infrastructure, speed management, nature of vehicles and driver behaviour
- Most common crash types, head on, leaving the road, intersection, other and vulnerable road users (pedestrian, cyclists and motorcyclists)
- Road regulations

Figure C.1 – Safe System Model



Prepare Safe System Assessments in accordance with Austroads Safe System Assessment Framework for existing situations and proposals to:

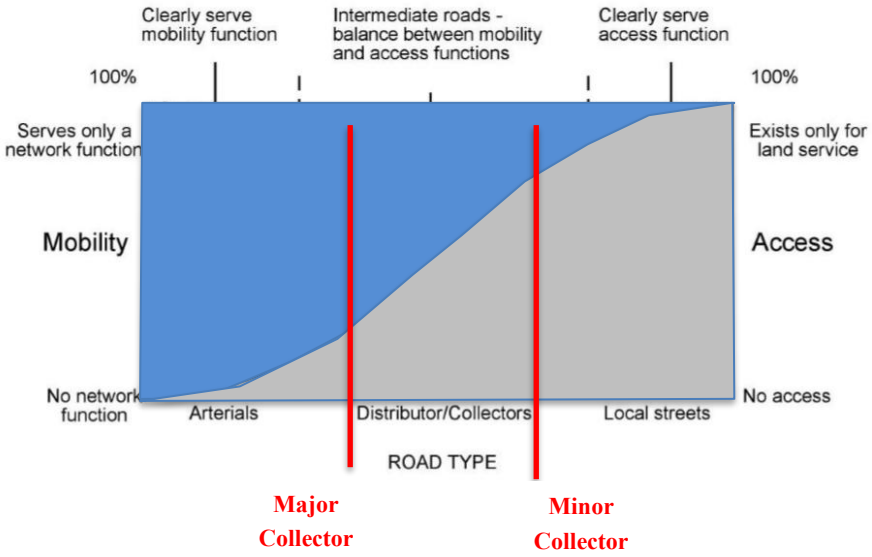
- Identify crash risk.
- Determine effectiveness of proposals in treating crash risk. Useful for assessing retrofits or proposals.

C.2 - Network Management

Role and function of road

Understand the roles and functions of the proposed roads to identify objectives. Figure C.2 shows how function varies with road type.

Figure C.2 – Road Type and Function: mobility vs access



Arterials (AADT > 10,000vpd)

- Primarily have a mobility function, transport efficiency is important.

Collector Roads (2,000 < AADT < 10,000 vpd)

- Can widely range in function. Normal collector roads (AADT ~ 5,000 vpd) are a hybrid with both functions.
- Major Collectors are closer to arterials in function and may become arterials and this should be borne in mind with subdivision design and TIAs.
- Minor Collectors have a strong local access function and not likely to grow in mobility function.

Local Streets (AADT < 2,000vpd)

- Primarily have an access function. Residential amenity is important.

Road types

- **State Government (DPAC) - Local Government Road Hierarchy (2015).**

  This document was published during June 2015 and defines urban and rural road types. Categories specified include Arterial, Collector, Link, Local Access, Minor Access and Unformed / Reserved Roads. These are defined in terms of functional criteria and guiding metrics, see Appendix A.

- **LGAT Standard Drawings (2012)**

  These standards also define urban and rural road types in terms of a range of functional criteria and guiding metrics. Road types specified include:

  - Urban: Arterial, Sub Arterial, Collector and Local Roads.
  - Rural Unsealed: US1...US4
  - Rural Sealed: S1....S5

Identify relevant road categories and typical sections from LGAT standard drawings.

Tasmanian Approved B Double Route Network

The Tasmanian B Double route is available at the following link:

https://www.transport.tas.gov.au/vehicles/heavyvehicles/access/pages/bdoubleroutenetwork

All proposals should be checked against the Tasmanian Approved B Double Route Network to understand potential impacts.

Shared Zones

Shared Zones are specifically designed and intended to give priority to vulnerable road users and should be made to not look like a road, with the provision that light and heavy vehicles may use the area subject to the Shared Zone speed limit, usually 10-20km/h.

C.3 - Design of new urban networks

Design Layouts

There are two broad types of road network as depicted in Figure C.3.

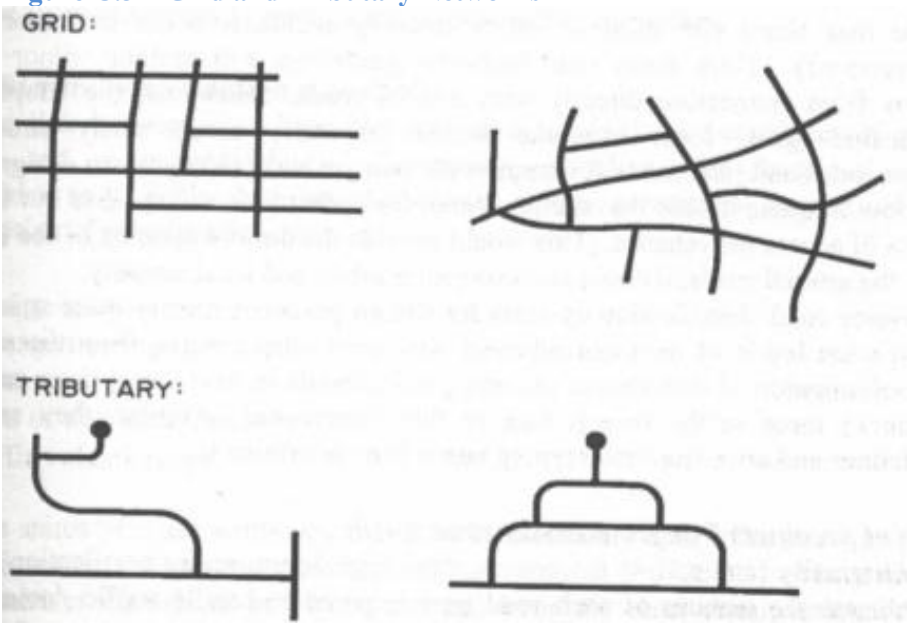
Grid

- internally and externally connected.
- Multipath, permeable, open ended and difficult to estimate traffic volume.
- Dispersed flows.
- Risk of many cross intersections.

Tributary

- with branches and hierarchy
- Specific catchment, limited choice, easy to estimate traffic volume.
- Concentrated flows.
- Low risk of cross intersections.

Figure C.3 – Grid and Tributary Networks



The preferred network depends on the situation:

- Separate enclaves are likely to be suited to Tributary layout.
- Where within existing areas consistency with a Grid layout is likely preferred.
- Council and community input is likely to influence the layout used.

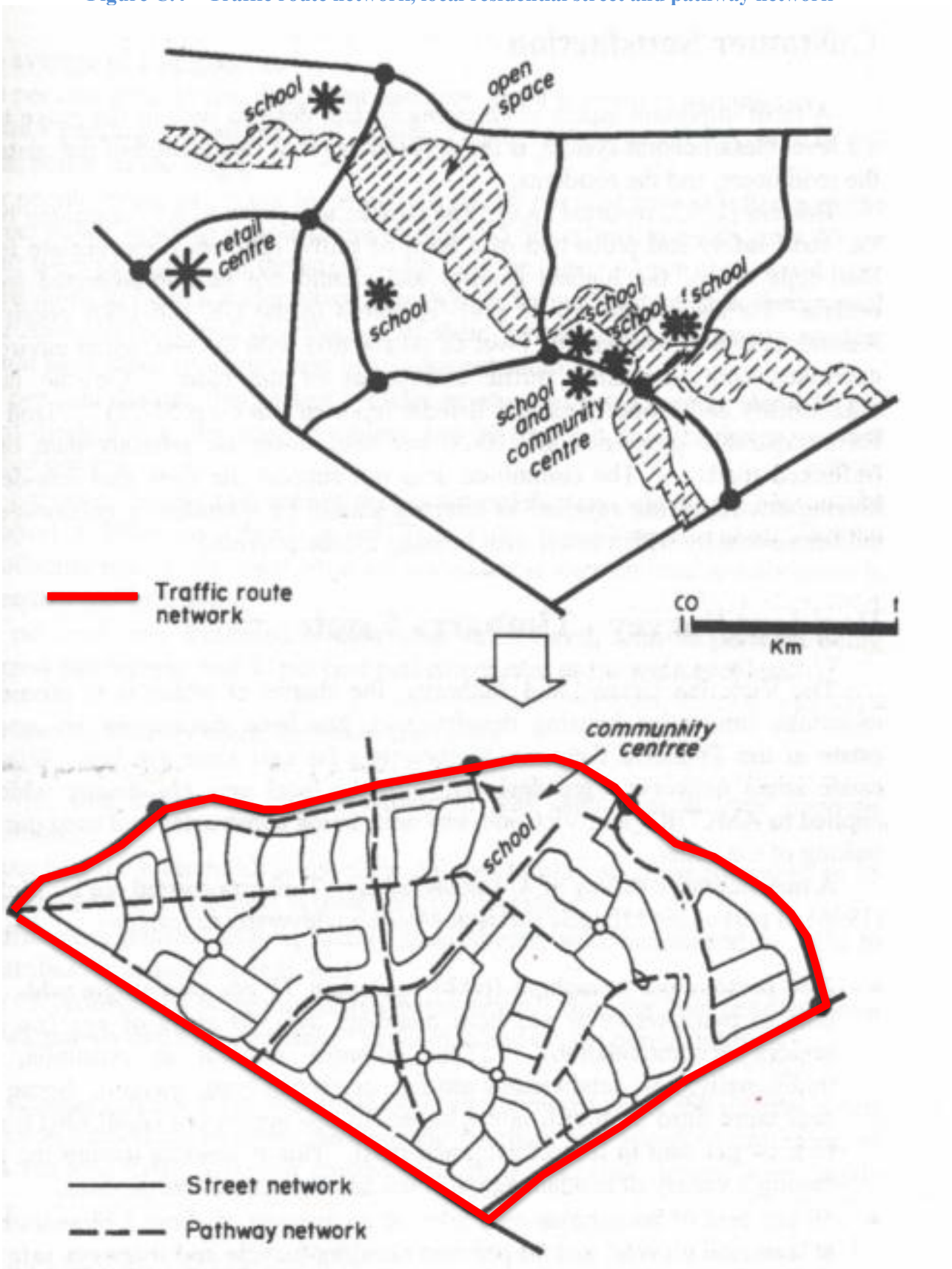
Safety in new subdivisions

- Distinguish between the arterial network, the local street network and pathway network have different road function and network needs.
- Preserve sight lines (avoid planting trees and shrubs, building fences and placing infrastructure that limits sight distance) for junctions and accesses.
- Avoid long straight streets as this encourages speeding.
- Provide safe pedestrian facilities.
- Provide roundabouts at busy intersections and do not allow cross intersections.
- Provide median turn lanes on major collectors and arterial roads where there is high access density urban residential zone either side of the road.
- Stagger T junctions so right turns can lanes are head-to-head and not tail-to-tail where possible.

Residential area planning

- Arterial networks should bound residential precincts, see Figure C.4.
- Direct vehicular and pedestrian access should be avoided from single dwelling unit developments.
- Effective street lengths should be less than 200-250m i.e. distance between slowing or slow points.
- Where demand justifies, cater for pedestrian and cycle demand separately.
- Minimise traffic on residential streets.
- Number of lots abutting streets with minimal traffic flows should be maximised.

Figure C.4 – Traffic route network, local residential street and pathway network



Liveability, Safety and Amenity Guidelines

The basic requirements necessary for the safety and amenity of a residential area:

- Residential precincts need to be bounded by traffic routes and/or natural barriers to minimise conflict.
- Direct vehicular and pedestrian access should be avoided from single dwelling units onto road with over 2,000 vehicles per day.
- Effective street lengths should be less than 200-250m in order to achieve typical vehicle speeds of 40km/h.
- Cyclist and pedestrian demands should be catered for separately using path or cycle networks. See Section 3.2.3

To maximise the liveability, safety and amenity of the local area, road and street network layout should be such that:

- A minimum of 60% of lots should abut residential streets with less than 300vpd passing traffic.
- A minimum of 80% of lots should abut residential streets with less than 600 vpd passing traffic.
- A maximum of 5% of single dwelling lots should abut residential streets with between 1,000-2,000 vpd passing traffic.
- A maximum of 1% of single dwelling lots should abut local streets or collectors with less than 3,000 vpd passing traffic, and
- No single dwelling lot should abut a route with more than 3,000 vpd passing traffic.

These guidelines are adopted from *TE&M Chapter 2.2: Design of New Urban Networks*.

Road Design

Road design depends upon three considerations: road type, traffic volume, design speed and amenity standards:

- General Urban Speed Limit (GUSL) – 50km/h
- School Zones – 40km/h
- Shared Zones – 10/20km/h
- General Sealed Rural Road Speed Limit – 100km/h
- General Unsealed Rural Road Limit – 80km/h

Arterial Roads

- Aim to limit residential access onto arterial roads.
- Make clear physical distinction between arterials and local streets.
- For larger-scale new developments adjacent to an arterial road, it is preferable to minimise the number of access road junctions on the arterial road.
- Median Turn Lanes on Arterial and major Collector **Roads** are recommended where there is on street parking and a high density of residential access both sides of the road. The turn lane enables turning traffic to hold safely before entering accesses or side roads. This type of treatment reduces crash risk and provides facilities for pedestrians to cross the road. Pedestrian refuges and / or islands should be placed at ~ 200m intervals to prevent the median lane being confused with a through lane or overtaking lane.

Collector Roads

Collector roads should be used as a link between arterial roads and access roads. These roads should be relatively direct and have priority over most of the access roads to maintain function, however the following traffic calming techniques should be implemented to maintain a low-speed environment.

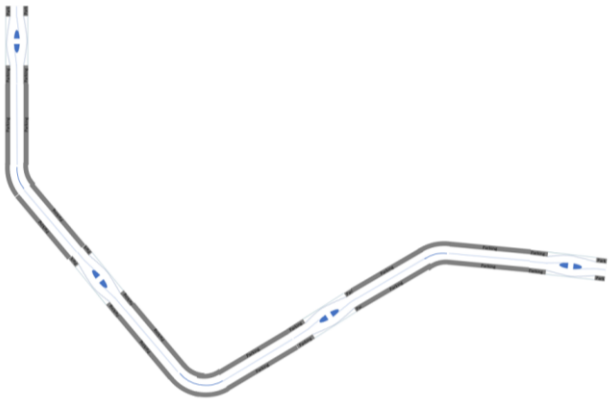
- Speed limit of 50km/h is usually appropriate for collector roads.
- Reduce the *effective length* of the road to less than 200-250m, by installing traffic calming devices, such as roundabouts and splitter islands.
- Narrowing of carriageway, or clearly defined parking lanes which confines traffic to one lane in each direction.
- Restriction of overtaking by use of median islands or barrier lines or median turn lanes with islands at regular intervals.

Figure C.5 is an example of how natural slow points and islands can be used to reduce effective road length to 250m or less, while also reducing vehicle speeds and maintaining the collector function.

Reducing effective length of Collector Roads

Traffic management devices can help to break a long continuous road into effectively shorter lengths especially in combination with roundabouts at intersections and turn lanes at junctions, solid islands and pedestrian refuge islands.

Figure C.5 – Using bends and islands to break effective length of a road



Local Streets

Generally, it is good practice for the design of local streets to follow these principles:

- Limit distance visibility with Urban Design. Long distance visibility promotes higher speeds. Adequate sight distance visibility should be maintained for access and junction safety.
- Traffic calming devices and treatments need to be forgiving to accommodate driver misjudgements, and not become a safety hazard.
- Good night-time visibility must be maintained.
- Local streets can be designed by landscape architects and urban designers, with construction materials, road geometry, texture etc. indicating to the driver that they are driving in a local area.
- Local streets should aim to have an effective length of 250m or less in order to prevent vehicles accelerating to high speeds.

These design principles are adapted from *TE&M Chapter 3.5: Local Area Traffic Management.*

Cross Sections

LGAT typical sections for urban & rural roads should be used as a guide to road design.

Services

Road reservation widths should be selected to suit needs of road and services. Service infrastructure includes above and below ground services in addition to overland flow paths for stormwater runoff which may vary in width depending on the slope of the topography.

Service design layers should be superimposed on proposed outline development plans to establish where wider road reservations may be required.

Specifications

Kerb and Channel

Kerb and Channel is preferable over mountable kerb profiles:

- Mountable kerbs blur separation of vehicular traffic from vulnerable road users.
- Vehicles are not permitted to park on footpaths or nature strips under the Tasmanian Road Rules.

C.4 - Road users

Design Vehicle

Public roads should provide at least general access which means access for tri-axle semi-trailer combinations.

Roundabouts on Council Road bus routes should allow buses to either negotiate without mounting the core or by providing a low-profile mountable core.

Roundabouts on residential streets should be designed for 8.8m rigid trucks with a solid raised core or be fully mountable for semi-trailers.

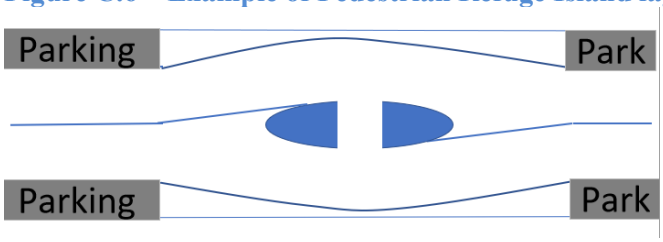
Pedestrians

Where pedestrian refuge islands are required, they are to be designed in accordance with DSG or LGAT standards. Pedestrian crossing facilities should be conspicuous and obvious to drivers. See Figure C.6 for positioning example.

Pedestrian refuge Islands as a traffic calming devices:

- For 50km/h zones provide island widths of 1.5m & path width of at least 1.5m
- For 60km/h zones provide island widths of 1.5m & path width of 2.0m
- For 80m/h zones provide island widths of 2.0m & path width of 3.0m
-

Figure C.6 – Example of Pedestrian Refuge Island layout.



Cyclists

Off-road cycling paths or shared use trails are preferred to reduce or eliminate crashes. Cyclist facilities may be considered for collector roads but are generally not required on access roads and local areas with a low-speed environment.
For on street cycling facilities the desirable width for cyclists is 1.5m with 1.2m as an absolute minimum.

Where there is on street parking an edge line 3.7m from the kerb is desirable (2.2m for parking and 1.5m for cyclists). This allows a cyclist to pass a parked car safely. According to *GTM8 Chapter 8*, where cyclists share the lane with vehicular traffic the lane width should be either:

- Greater than 3.7m to allow for safe passage of a cyclists.
- Less than 3.0m to prevent overtaking.
- Widths of between 3.0m-3.7m create squeeze points and result in conflicts.

The provision of cycling facilities, using edge lines, cyclist symbols and No Stopping restrictions, is a low cost and efficient way to provide for cyclists.

As a guide 1.5m of width is recommended with a general minimum of 1.2m. However, the width should be taken to be the characteristic width. There may be pinch points or short tapers where the facility is less than 1.2m in width. Refinements, which can be costly and delay the project, can be made at a later stage if necessary.

Cycling facilities are distinct from Cycling Lanes in that Austroads Cycling Lanes are signposted and a dedicated facility. Cycling facilities are created with edge lines and pavement markings only. The City of Launceston primarily provides Cycling Facilities, see Figure C.7.

Figure C.7– Elphin Road, Launceston – example of cycling facilities

Public Transport

Bus bays are to be provided in accordance with LGAT standards. Road geometry and design of LATM devices on planned bus routes should accommodate bus turning paths.

Motorcyclists

Motor cyclists are vulnerable road users and should be considered in road design, especially routes that attract motorcycling traffic or have motorcycling crashes.
Motorcycles rely on wheel traction with the road surface. Consistent road surfaces free of loose material, uneven service pit lids and polished sealing aggregate reduce risk of loss of control crashes.

Crash barriers are a potential hazard for motorcyclists. Mitigations are available to reduce severity of impact with barrier fence posts e.g. rub rail and crash cushions.

Ideally clear zones should be free of infrangible infrastructure and hazards particularly where motorcyclists are most likely to leave the road e.g. outside of bends.

Appendix D - Intelligent Transport Systems

D.1 - Technology

Vehicle to Vehicle Technology

This allows communications between vehicles and collision avoidance with autonomous emergency braking.

Vehicle to Road Technology.

Systems are operating now that allow detection of vehicles with mobile phones via technology fitted at traffic signal sites. Such systems allow vehicle speed and location data to be recorded and used for:

- Transport planning – by providing origin / destination data.
- Traffic management – to manage traffic congestion.
- Driver information – to avoid congested routes due to works or crashes etc.

Deployment of this technology has begun in Tasmania (e.g. Add Insight) at signalised intersections on State Roads and is likely to be further deployed on Council Roads.

Vehicle to Cloud Technology

Under development.

D.2 - Road Technology

Signalised intersections

Signalised intersection technology is changing. Currently in ground detector loops are used for identifying vehicle presence. In future presence detection could be via a number of methods e.g. number plate recognition.

Co-ordination of signalised intersections

Currently signalised intersection co-ordination is managed in Australia using SCATS technology. This enables peak flow on arterials to be managed for optimum flow efficiency i.e. allow platoons of traffic to flow through intersections with the least possible delay.

Variable speed limits.

Variable electronic speed limits are gradually being deployed on state and council roads in Tasmania, some examples include:

- Tasman Highway on the eastern shore in Hobart has a variable speed limit system.
- East Tamar Highway, Dilston northern junction
- Electronic 40 km/h Shopping Zone at Main Road Moonah, see Figure F.1.
- Electronic 40 & 50 km/h School Zones

Figure F.1 – Electronic 40km/h Shopping Zone, Main Road, Moonah

Source: Google Maps

Electronic Warning signs

Electronic warning signs are used on Tasmanian roads. The East Tamar Highway, Dilston northern junction is an example.

Appendix E - Local Area Traffic Management

E.1 - Introduction

Low-speed traffic environments are critical within a residential area to minimise crash risk and severity. Local area traffic management (LATM) is normally an approach and process for treating existing subdivisions and retrofitting calming devices. LATM is most often a response to legacy issues and lack of traffic engineering input at the subdivision planning and design stage.

However, the LATM process is also helpful for new subdivision proposals, especially where the proposal augments an existing subdivision.

Essentially high-speed environments are problematic and new developments should adopt designs that proactively promote a low-speed environment.

E.2 - Process

Identify problem (public consultation and data)

Understand community perceptions and input and seek to validate actual issues with data. Community input is valuable for understanding local issues otherwise not considered.

Formulate options.

Evaluate options.

Detail Design.

Implement and monitor.

Once LATM has been introduced monitoring of performance is necessary to gauge effectiveness and what adjustments may be necessary.

E.3 - Devices

Road humps

Road humps are generally used as a retrofit treatment for existing roads where the speed environment is undesirable. New developments should not be designed to include road humps, rather long collector roads should be managed with roundabouts and channelization at junctions etc to reduce the *effective length* of the road, see section 4.4.3.
Flat Top Road Humps or Road Cushions may be used for bus routes.

Watts Profile Road Humps are used for other than bus routes.

Raised Plateaus

Raised plateaus slow traffic on all approaches to an intersection. Their effectiveness is localised to the intersection and aims to reduce cross traffic crash severity rather than reducing speeds in the wider area. Are used in conjunction with Flat Top Road Humps.

Roundabouts

Roundabouts are an effective traffic calming device especially on collector roads.
They are appropriate for intersections of roads with similar traffic function.

Threshold treatments

Threshold treatments are intended to inform drivers that they are entering a local area.
Threshold treatments at:

- boundaries between different land uses (e.g. commercial and residential) and
- interfaces with the arterial road network.

They are effective when combined with other LATM treatments such as road narrowing, median treatments, and speed limit signage.

Appendix F – DSG Traffic Count Data

Meander Valley Road

A2025150 - Meander Valley Secondary Road 185m E Of Oaks Rd
City: Carrick
Route number: A2025

Site Data

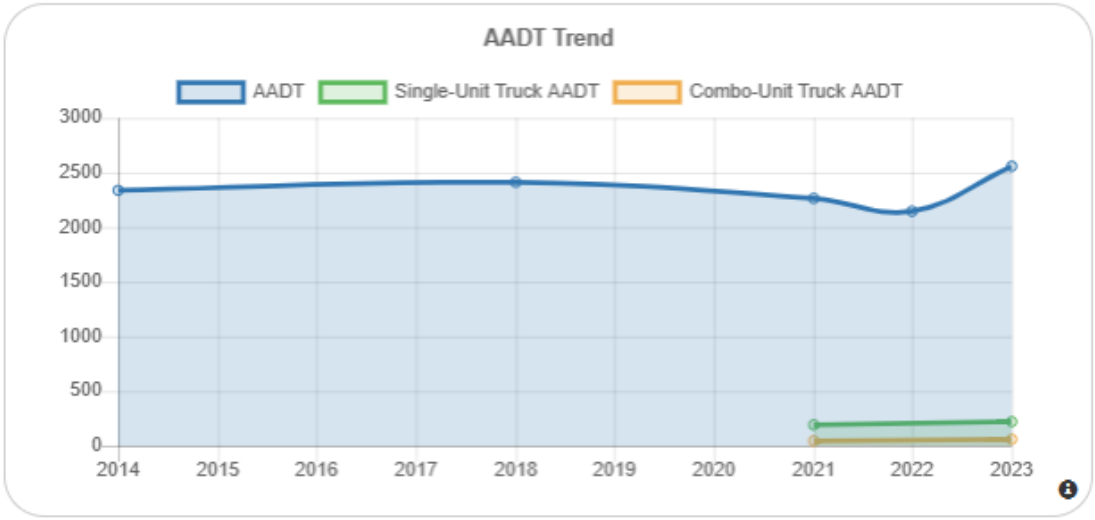
80 km/h

Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
East	1,161	1,141	9,127
West	978	961	7,685
Total	2,139	2,102	16,812

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	2,333	-	-	-	2,413	-	-	2,269	2,149	**2,557**
% HV	6.2%	-	-	-	11.2%	-	-	10.8%	-	**10.8%**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Combo-Unit Truck AADT
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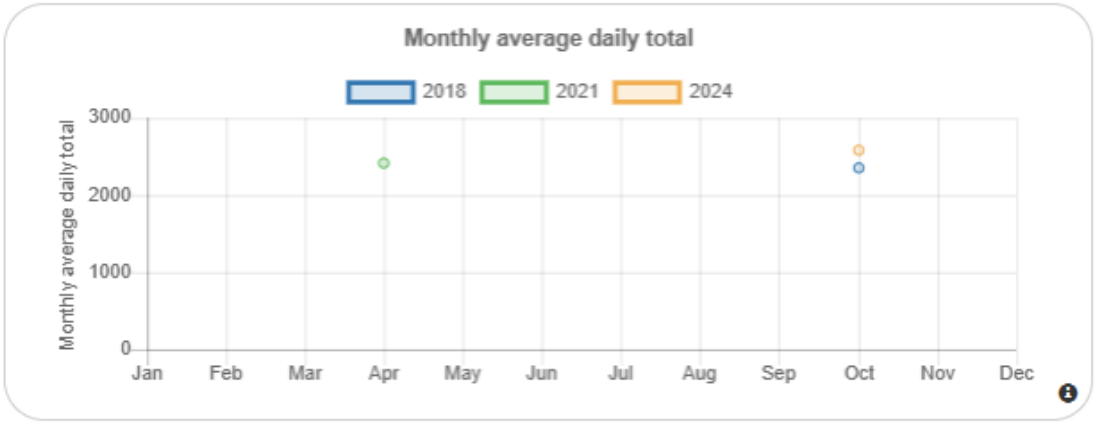
2023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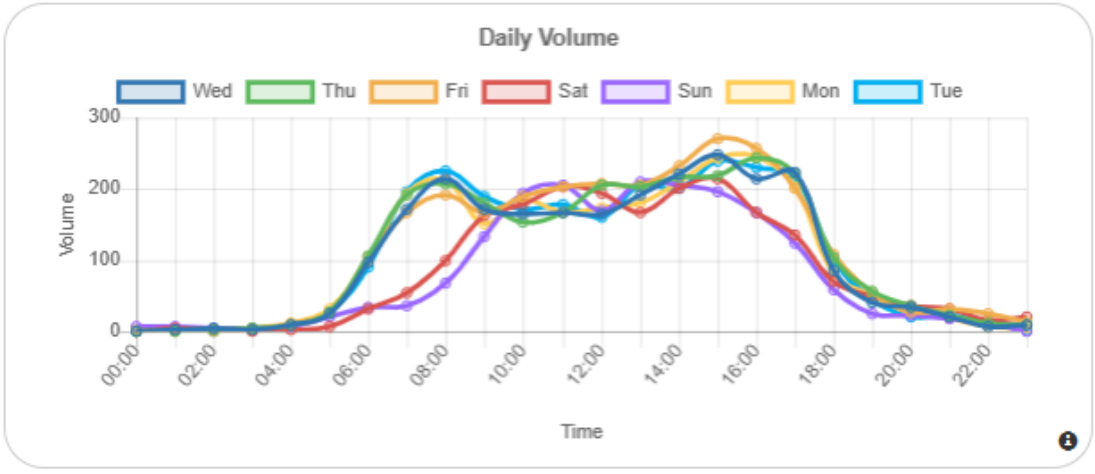
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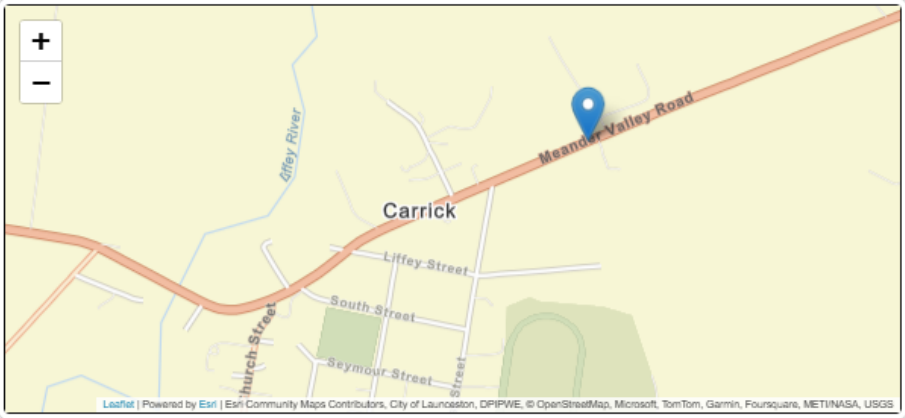
Time

A2025140 - Meander Valley Secondary Road 270m E of East St
City: Carrick
Route number: A2025

Site Data

60 km/h

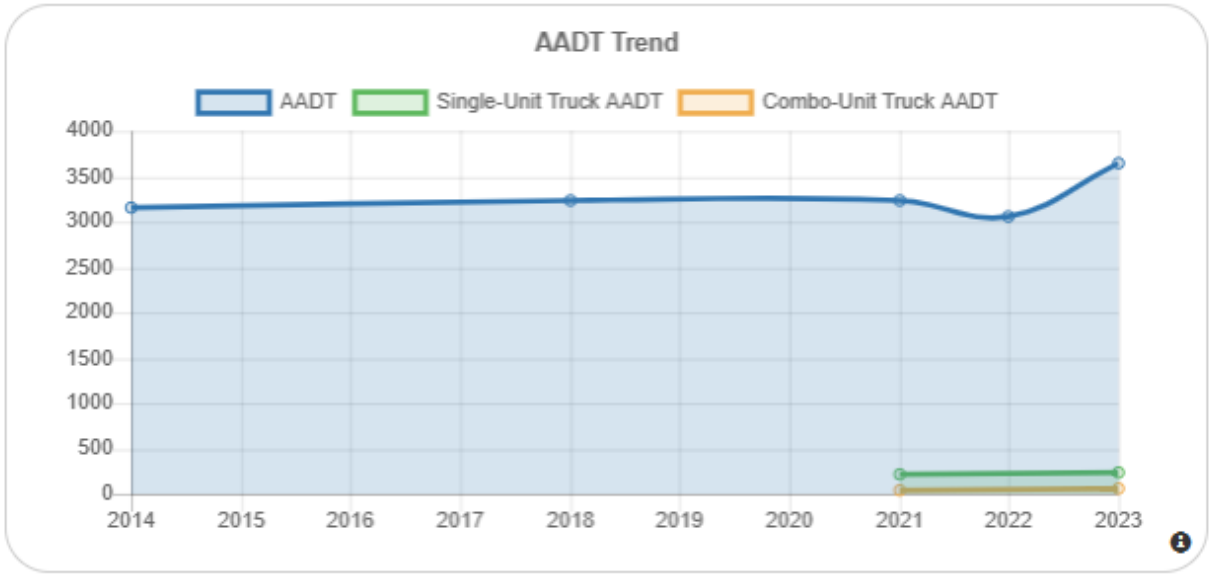


Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
East	1,590	1,592	12,733
West	1,398	1,405	11,241
Total	2,988	2,997	23,974

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	3,154	-	-	-	3,228	-	-	3,236	3,064	**3,646**
% HV	6.6%	-	-	-	10.1%	-	-	8.2%	-	**8.1%**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Single-Unit Truck AADT
Combo-Unit Truck AADT
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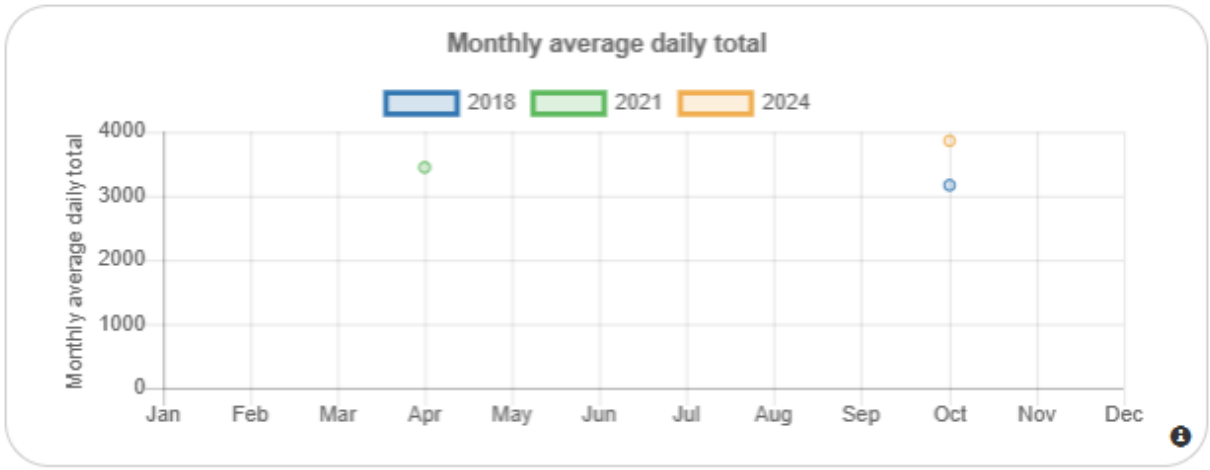
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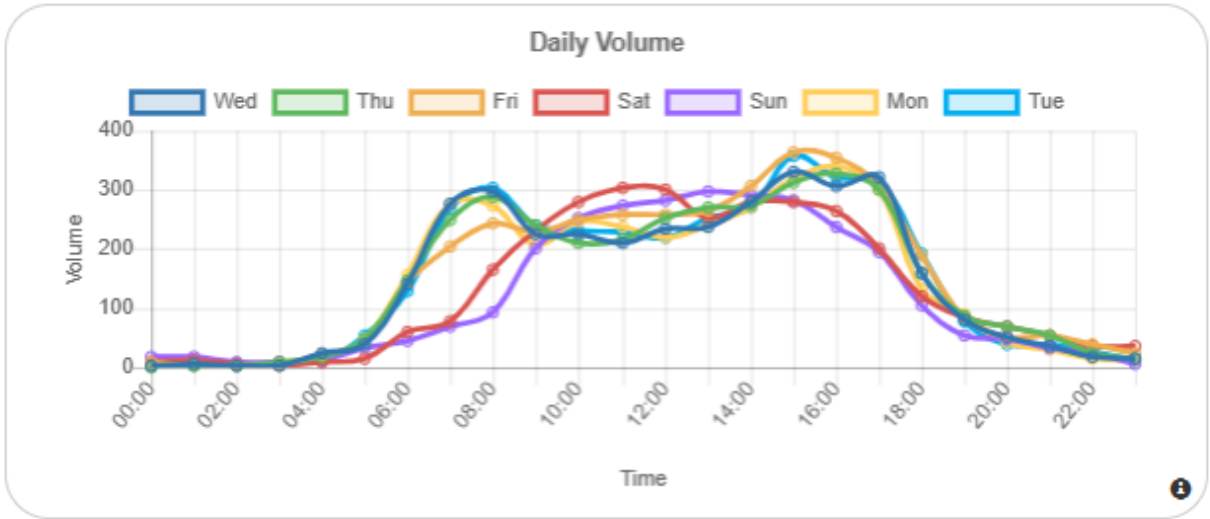
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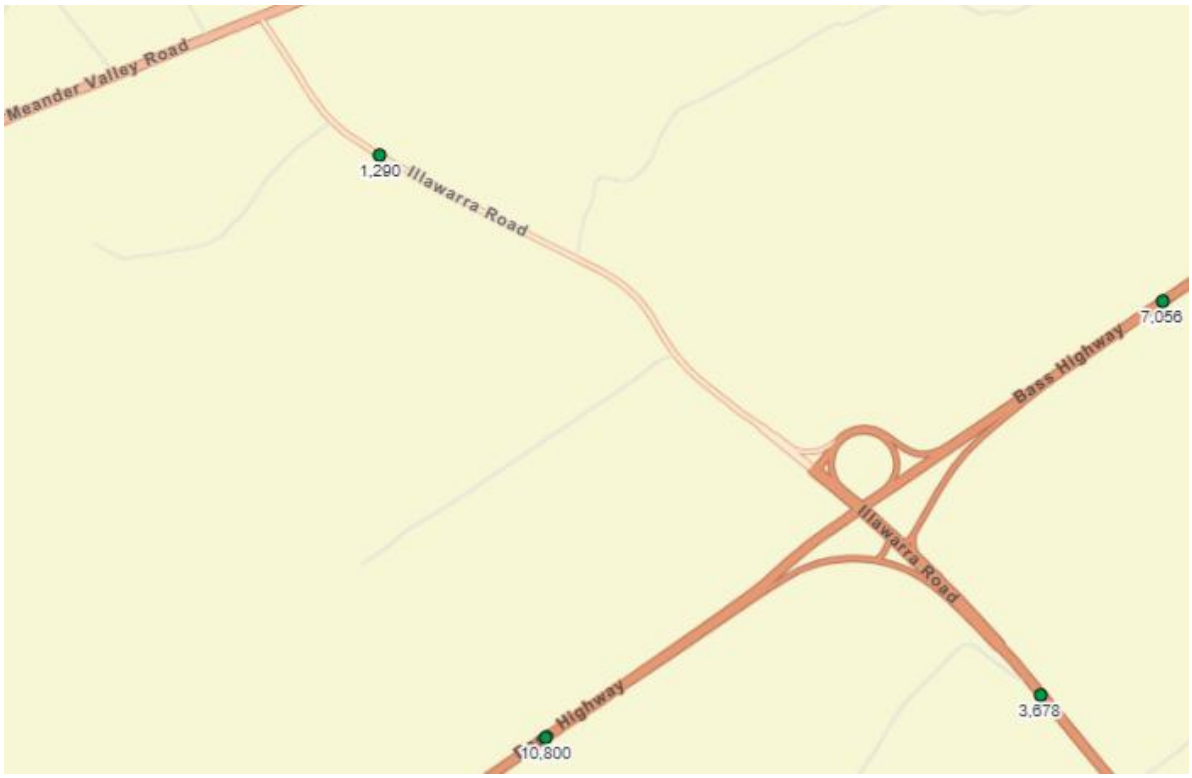
Time

Illawarra Road and Bass Highway

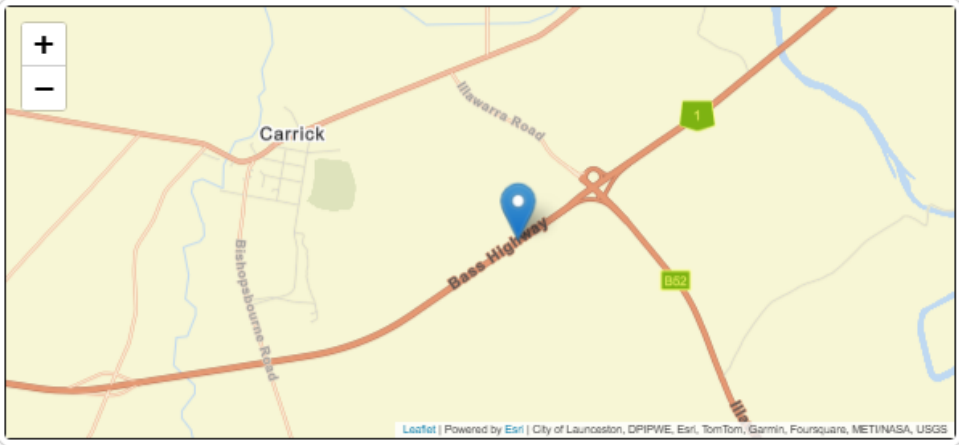


Bass Highway

A0249135 - Bass Highway 918m W Of Illawarra MR
City: Carrick
Route number: A0249

Site Data

110 km/h

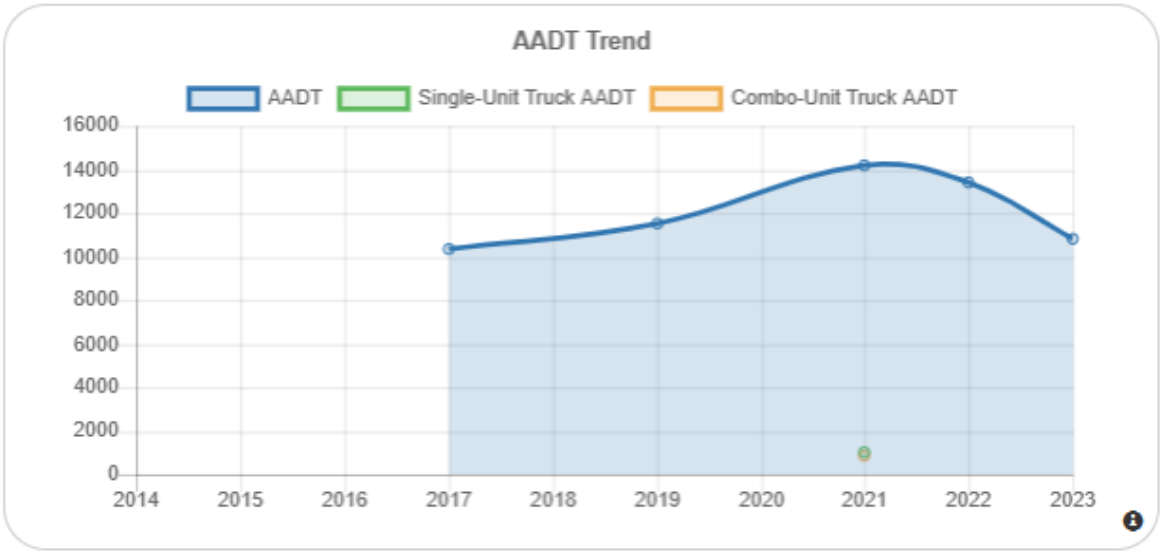


Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
East	5,764	5,448	43,583
West	5,997	5,744	45,949
Total	11,761	11,192	89,532

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	-	-	-	10,359	-	11,525	-	14,182	13,429	10,800
% HV	-	-	-	17.3%	-	19.1%	-	13.3%	-	-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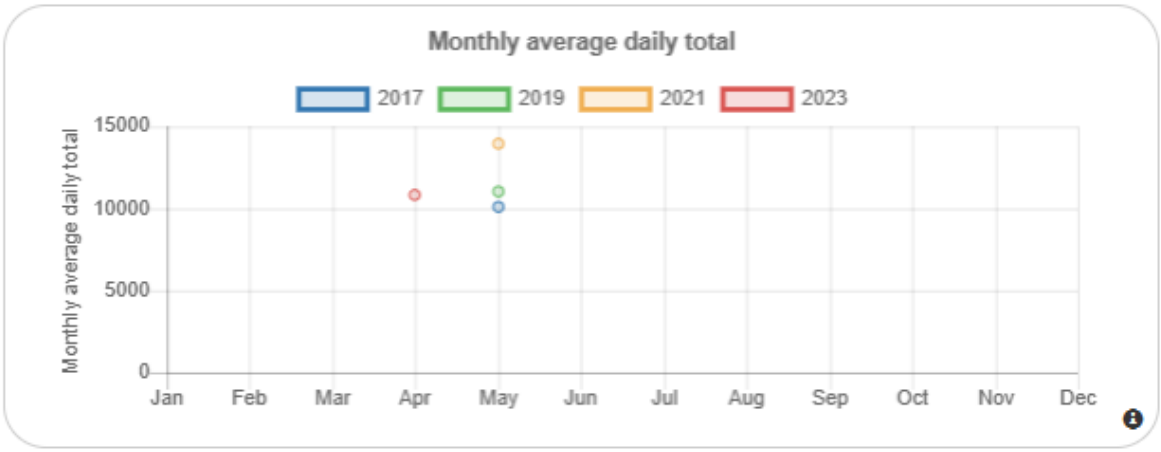
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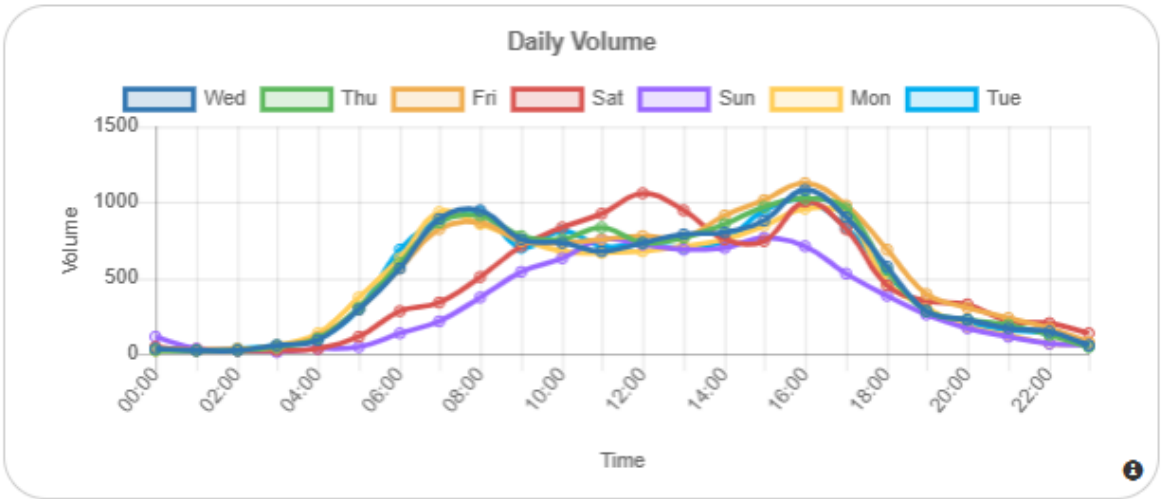
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Time

A0249130 - Bass Highway 859m E Of Illawarra MR Interchange
City: Carrick
Route number: A0249

Site Data

110 km/h

Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
East	4,036	3,857	30,859
West	4,127	3,985	31,882
Total	8,163	7,842	62,741

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	-	-	-	9,553	-	9,833	-	11,125	8,820	7,056
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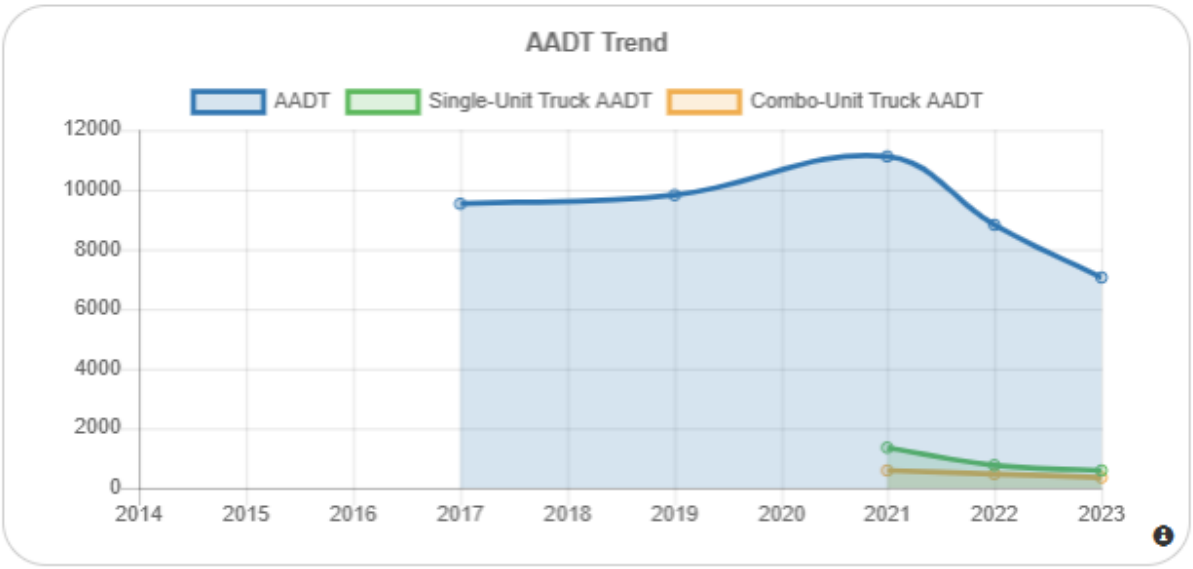
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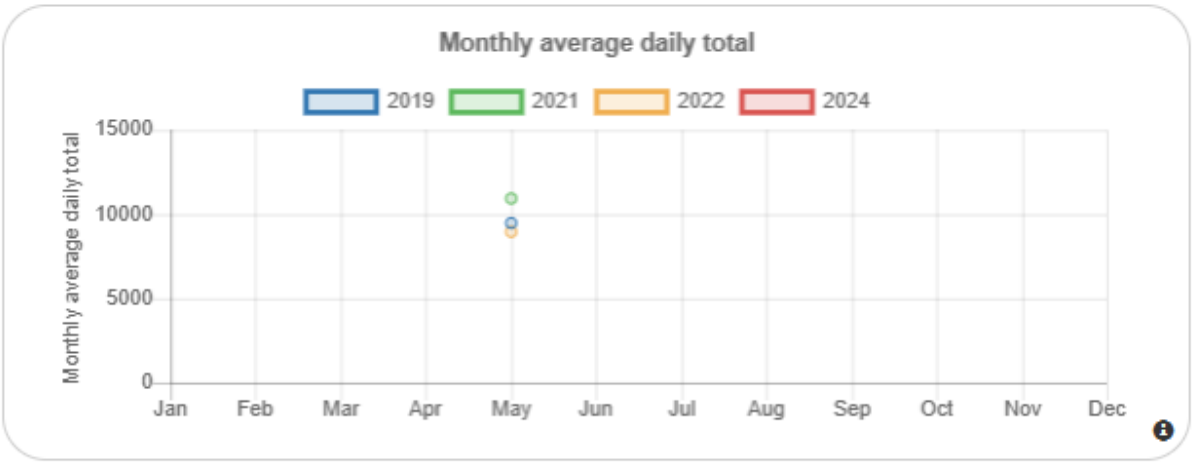
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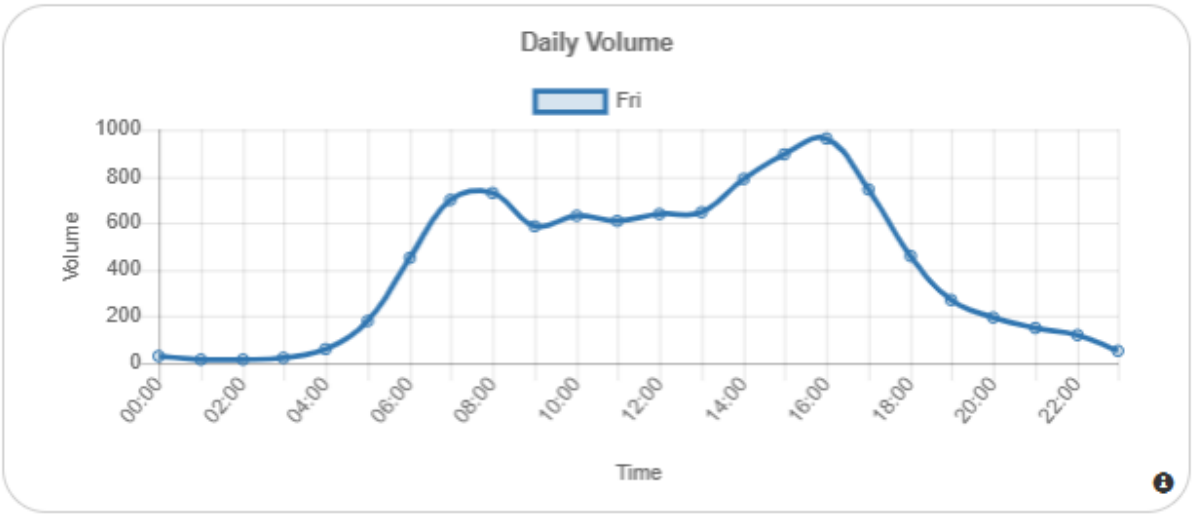
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Illawarra Road

A1468130 - Illawarra Main Road 430m S Of Meander Valley SR
City: Carrick
Route number: A1468

Site Data

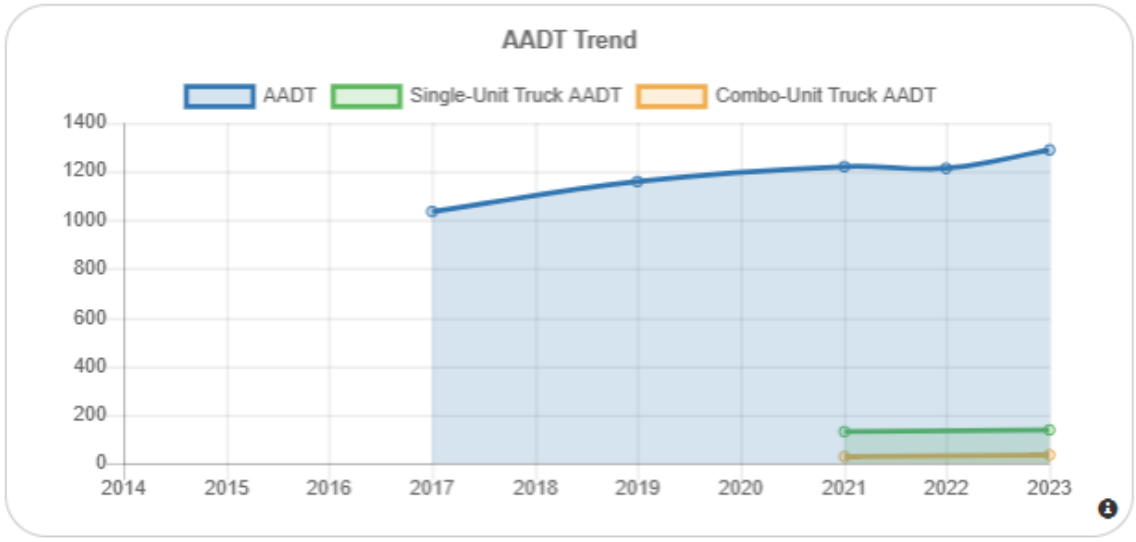
100 km/h

Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
North	610	621	4,968
South	520	523	4,184
Total	1,130	1,144	9,152

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	-	-	-	1,037	-	1,160	-	1,225	1,217	**1,290**
% HV	-	-	-	18.0%	-	11.2%	-	12.9%	-	**12.9%**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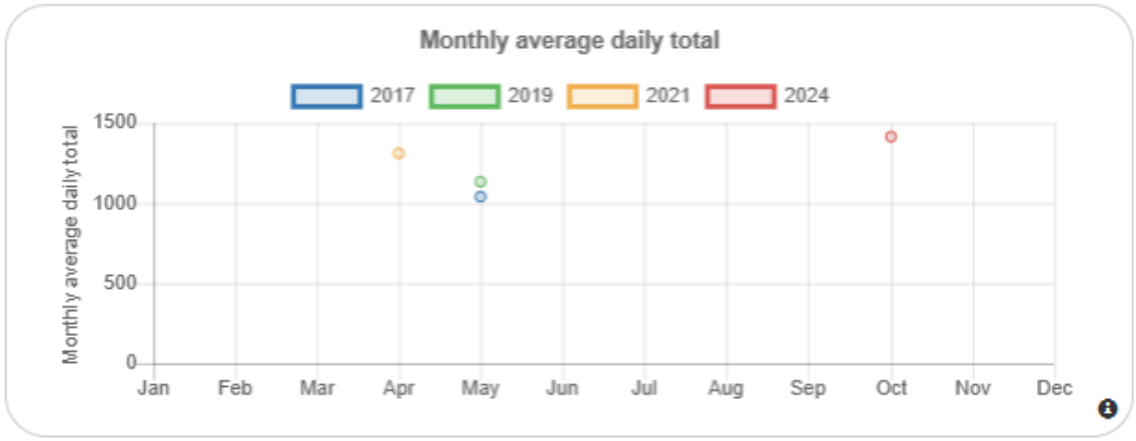
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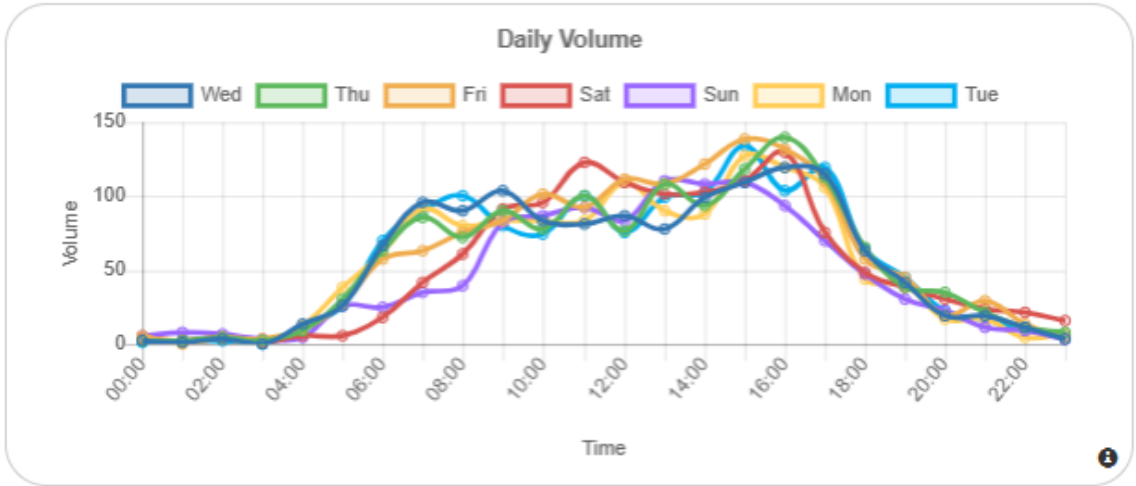
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Time

A1468125 - Illawarra Main Road 600m S Of Bass Hwy
Route number: A1468

Site Data

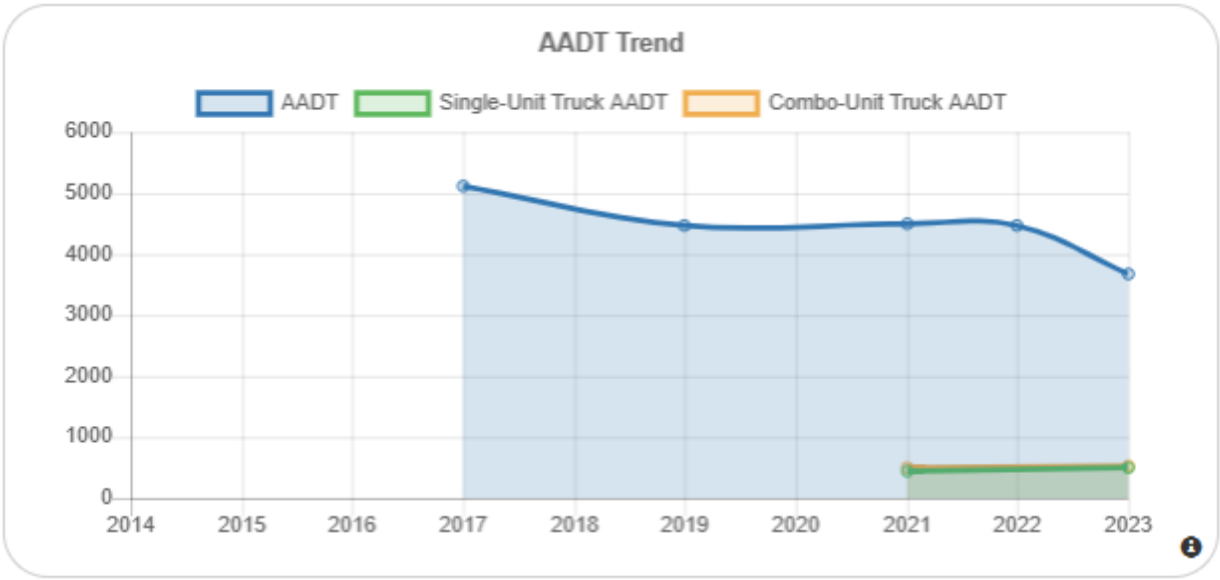
100 km/h

Traffic Statistics by Direction

Direction	Weekday average total traffic	7-day average traffic	Weekly traffic total
North	1,819	1,833	14,666
South	1,738	1,714	13,714
Total	3,557	3,547	28,380

Annual Statistics

Data Item	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
AADT	-	-	-	5,125	-	4,459	-	4,508	4,478	3,678
% HV	-	-	-	16.9%	-	21.7%	-	20.8%	-	27.5%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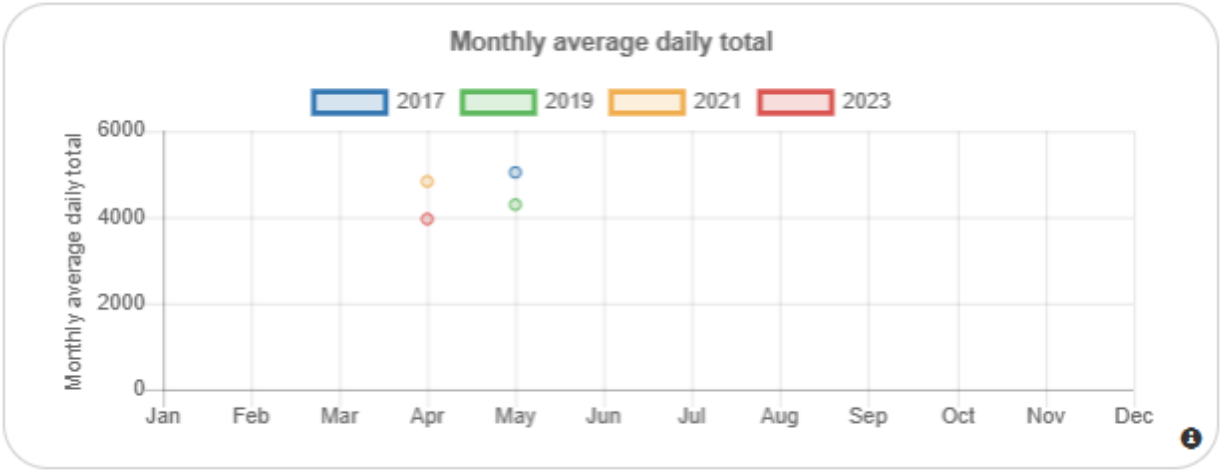
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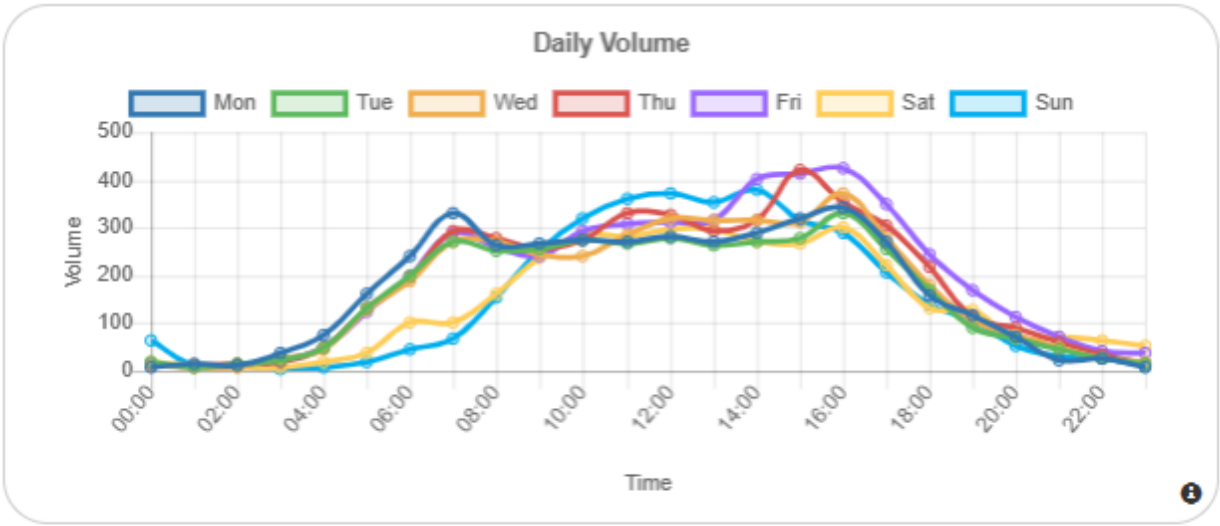
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Time

Appendix G – Council Traffic Count Data

FW: Carrick RNP - Request for Traffic Data

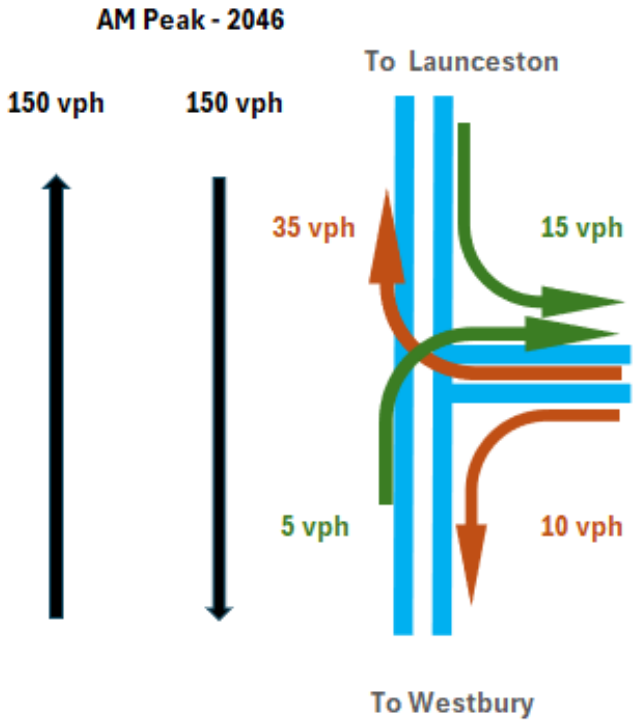
PJ Peter Jones <peterj@mvc.tas.gov.au>
To Richard Burk
Cc Thomas Wagenknecht

This message was sent with High importance.

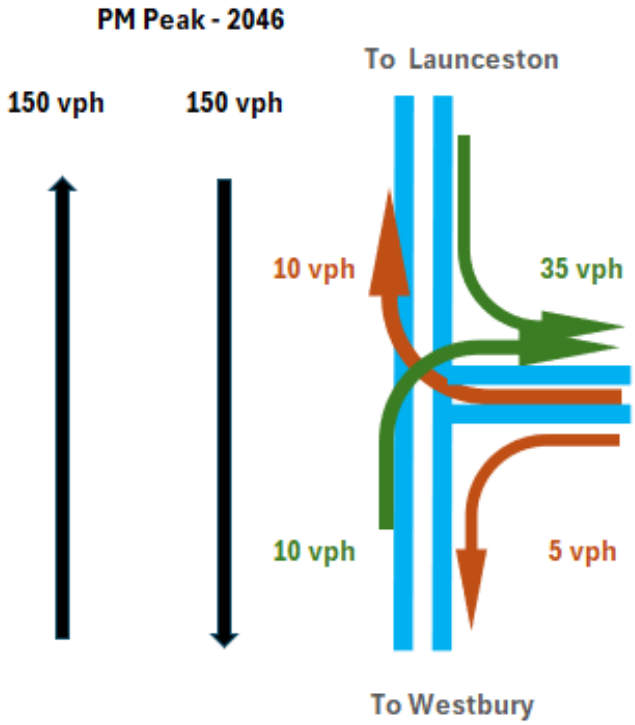
Road Name	Start	Finish	Location of Counter	Date (mm/yy)	AADT	AADTT	EHV	85%ile Speed	Direction
Oaks Road	Bass Highway	Whitemore Road	3.5 km South	Feb-10	750	101	14%	109	Combined
Oaks Road	Whitemore Road	Pitts Lane	1.35 km north of Pitts Lane	Sep-10	592	34	7%	106	Combined
Oaks Road	Pitts Lane	Louisa Street	1 km south Pitts Lane	Sep-10	503	34	7%	97	Combined
Oaks Road	monds lane	Bass Highway	140m from Meander Valley Road	Sep-12	204	25	12%	79.54	Combined
Oaks Road	monds lane	Bass Highway	140m from Meander Valley Road	Oct-12	237	26	11%	79.57	Combined
Oaks Road	monds lane	Bass Highway	140m from Meander Valley Road	Nov-12	231	24	10%	78.69	Combined
Oaks Road	monds lane	Bass Highway	140m from Meander Valley Road	Dec-12	246	24	10%	79.23	Combined
Oaks Road	monds lane	Bass Highway	140m from Meander Valley Road	Jun-13	227	21	9%	74.87	Combined
Charlies Lane	Percy Street	Bishopsbourne Rd	approx 45m south of Percy Street int. (within 50km/hr zone)	May-18	72	20	28%	65.62	Combined
Charlies Lane	Percy Street	Bishopsbourne Rd	approx 45m south of Percy Street int. (within 50km/hr zone)	May-18	34	10	29%	64.42	Northbound
Charlies Lane	Percy Street	Bishopsbourne Rd	approx 45m south of Percy Street int. (within 50km/hr zone)	May-18	38	10	26%	66.38	Southbound
East Street	Percy Street	Seymour Street	approx 35m north of Percy Street int. (within 50km/hr zone)	May-18	201	17	9%	51.73	Combined
East Street	Percy Street	Seymour Street	approx 35m north of Percy Street int. (within 50km/hr zone)	May-18	100	5	5%	49.58	Northbound
East Street	Percy Street	Seymour Street	approx 35m north of Percy Street int. (within 50km/hr zone)	May-18	101	13	13%	53.47	Southbound
Oaks Road	Monds lane	Bass Highway Int	Approx 150m south from Meander Valley Road intersection (outside #15)	Jul-18	268	37	14%	76.5	Combined
Oaks Road	Monds lane	Bass Highway Int	Approx 150m south from Meander Valley Road intersection (outside #15)	Jul-18	141	17	12%	77.4	Northbound
Oaks Road	Monds lane	Bass Highway Int	Approx 150m south from Meander Valley Road intersection (outside #15)	Jul-18	127	20	16%	75	Southbound
Oaks Road	Monds lane	Bass Highway Int	Approx 650m south from Meander Valley Road intersection	Jul-18	266	37	14%	94.4	Combined
Oaks Road	Monds lane	Bass Highway Int	Approx 650m south from Meander Valley Road intersection	Jul-18	140	24	17%	97	Northbound
Oaks Road	Monds lane	Bass Highway Int	Approx 650m south from Meander Valley Road intersection	Jul-18	126	13	10%	89.6	Southbound
East Street	Seymour Street	South Street	Outside number 24	Aug-20	405	68	17%	63.3	Combined
East Street	Seymour Street	South Street	Outside number 24	Aug-20	200	41	21%	63.7	Northbound
East Street	Seymour Street	South Street	Outside number 24	Aug-20	204	27	13%	62.8	Southbound
Charlies Lane	Percy Street	Bishopsbourne Road	approx 50m south of Percy Street intersection	Aug-20	170	43	25%	70.7	Combined
Charlies Lane	Percy Street	Bishopsbourne Road	approx 50m south of Percy Street intersection	Aug-20	87	17	20%	69.6	Northbound
Charlies Lane	Percy Street	Bishopsbourne Road	approx 50m south of Percy Street intersection	Aug-20	83	26	31%	72.3	Southbound
Percy Street	Waterloo Street	Lyttleton Street	Outside number 35	Aug-20	119	19	16%	51.7	Combined
Percy Street	Waterloo Street	Lyttleton Street	Outside number 35	Aug-20	62	10	16%	52.9	Eastbound
Percy Street	Waterloo Street	Lyttleton Street	Outside number 35	Aug-20	58	10	17%	50.1	Westbound
Church Street	Meander Valley Road	Percy Street	outside #13	Mar-23	558	97	17.4%	61.38	Combined
Church Street	Meander Valley Road	Percy Street	outside #13	Mar-23	275	43	15.6%	61.02	Northbound
Church Street	Meander Valley Road	Percy Street	outside #13	Mar-23	283	53	18.7%	61.74	Southbound
East Street	Seymour Street	South Street	vicinity of#24	Mar-23	370	49	13.2%	60.12	Combined
East Street	Seymour Street	South Street	vicinity of#24	Mar-23	191	25	13.1%	60.21	Northbound
East Street	Seymour Street	South Street	vicinity of#24	Mar-23	179	24	13.4%	60.12	Southbound

Appendix H - Intersection Analysis

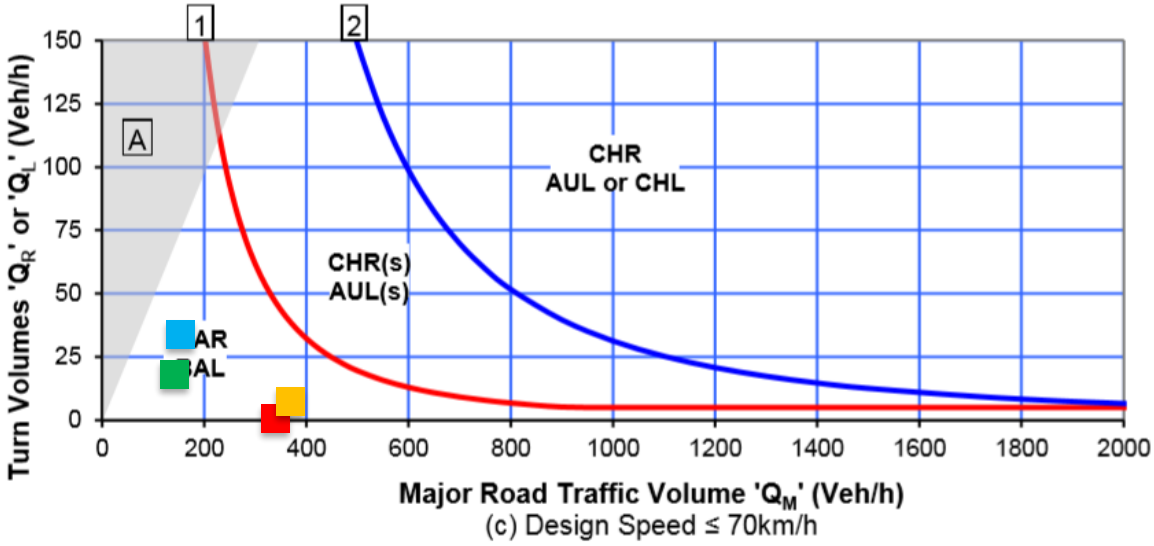
Meander Valley Road / Church Street junction



Turns Movements (vph)	MVR	
	AM	PM
Right to	5	10
Combined thru	315	335
Left to	15	35
Following thru	150	150



Austroads junction warrant 2046.



Source: Austroads GTM Part 6-2020

Turns Movements (vph)	MVR	
	AM	PM
Right to	5	10
Combined thru	315	335
Left to	15	35
Following thru	150	150

Based on the Austroad junction warrant a BAR & BAL junction are technically warranted.

The current junction has a simple layout.

Accordingly, junction upgrade is recommended by 2040.

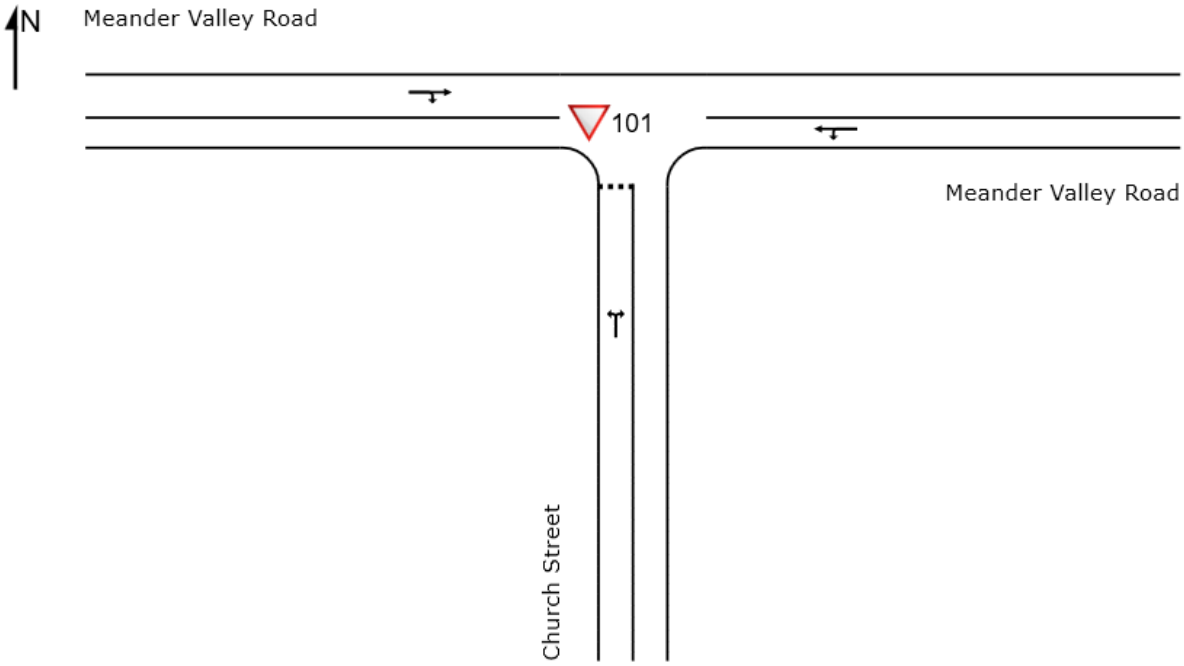
Junction Model 2046 for SIDRA Analysis

SITE LAYOUT

Site: 101 [MVR / Church Street Int AM 2046 (Site Folder: General)]

Meander Valley Road / Church St Intersection
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Movement Summaries

MOVEMENT SUMMARY

▽ Site: 101 [MVR / Church Street Int AM 2046 (Site Folder: General)]

Meander Valley Road / Church St Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m
South: Church Street										
1	L2	10	5.0	11	5.0	0.047	3.9	LOS A	0.2	1.2
3	R2	35	5.0	37	5.0	0.047	4.9	LOS A	0.2	1.2
Approach		45	5.0	47	5.0	0.047	4.7	LOS A	0.2	1.2
East: Meander Valley Road										
4	L2	15	5.0	16	5.0	0.091	4.6	LOS A	0.0	0.0
5	T1	150	5.0	158	5.0	0.091	0.0	LOS A	0.0	0.0
Approach		165	5.0	174	5.0	0.091	0.4	NA	0.0	0.0
West: Meander Valley Road										
11	T1	150	5.0	158	5.0	0.080	0.0	LOS A	0.0	0.3
12	R2	5	5.0	5	5.0	0.080	5.2	LOS A	0.0	0.3
Approach		155	5.0	163	5.0	0.080	0.2	NA	0.0	0.3
All Vehicles		365	5.0	384	5.0	0.091	0.9	NA	0.2	1.2

MOVEMENT SUMMARY

▽ Site: 101 [MVR / Church Street Int PM 2046 (Site Folder: General)]

Meander Valley Road / Church St Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m
South: Church Street										
1	L2	5	5.0	5	5.0	0.015	3.9	LOS A	0.1	0.4
3	R2	10	5.0	11	5.0	0.015	4.9	LOS A	0.1	0.4
Approach		15	5.0	16	5.0	0.015	4.5	LOS A	0.1	0.4
East: Meander Valley Road										
4	L2	35	5.0	37	5.0	0.103	4.6	LOS A	0.0	0.0
5	T1	150	5.0	158	5.0	0.103	0.0	LOS A	0.0	0.0
Approach		185	5.0	195	5.0	0.103	0.9	NA	0.0	0.0
West: Meander Valley Road										
11	T1	150	5.0	158	5.0	0.084	0.1	LOS A	0.1	0.6
12	R2	10	5.0	11	5.0	0.084	5.3	LOS A	0.1	0.6
Approach		160	5.0	168	5.0	0.084	0.4	NA	0.1	0.6
All Vehicles		360	5.0	379	5.0	0.103	0.8	NA	0.1	0.6

Appendix I - Level of Service Descriptions

Level of service A	A condition of free-flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
Level of service B	In the zone of stable flow where drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is a little less than with level of service A.
Level of service C	Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
Level of service D	Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
Level of service E	Traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause breakdown.
Level of service F	In the zone of forced flow, where the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow breakdown occurs, and queuing and delays result.

Appendix J – Meander Valley Strategic Plan

Extracts from Meander Valley Community Strategic Plan 2024 – 2034

STRATEGIC DIRECTION 1.

Cultivating a diverse, cohesive and empowered community.

Meander Valley thrives through connection. Our community loves to find more ways to come together – across generations and throughout our region. Through growing and nurturing our community and health services, quality education, artistic and cultural activities and local sporting opportunities, we can create a vibrant social environment where everyone belongs. By bringing together people of all ages and backgrounds, staying true to our local values, celebrating our diverse stories, and fostering inclusivity, we can weave together a close-knit community.

Strategic actions

1.1 We harness the strength of our differences through social inclusion, accessibility, equality and encouraging a diversity of voices to shape our communities.

1.2 We promote community wellbeing to ensure better outcomes through access to health, mental health, community services, childcare, and housing when and where we need them.

1.3 We ensure our community remains connected and informed through regular communication and by enhancing our digital literacy.

1.4 Our young people are supported, listened to, contribute to our community and are given opportunities to flourish in Meander Valley.

1.5 We identify, adapt and respond to the changing needs of our ageing population.

1.6 We support pathways for participation, contribution and volunteering to keep diverse community activities active and prioritise our unique lifestyles.

1.7 We recognise and celebrate the achievements, traditions, cultures and lifestyle of our communities by supporting and growing our range of local events.

1.8 We commit to the process of storytelling and sharing that acknowledges our varied histories.

1.9 We build awareness, respect and opportunities for First Nations peoples in Meander Valley and are proud to showcase its Aboriginal identity.

1.10 We foster community resilience by growing support networks and building the capacity to respond to change through improving emergency and natural disaster preparedness.

1.11 We value and celebrate the arts and actively support the development and contribution of the Meander Valley creative sector.

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STRATEGIC DIRECTION 2.

Valuing and protecting our natural environment.

Meander Valley flourishes on fertile ground. From the rich soil beneath our rolling fields to the beauty of the Western Tiers framing our horizon, the natural world that surrounds us plays a vital role in our lives. This patch of ours is an intricate ecosystem, home to precious native wildlife and flora. Its fertile ground sustains us, supports our community to grow and our future to flourish.

We commit to valuing, preserving and enhancing our natural resources today to protect the abundance of tomorrow. Through proactive measures and thoughtful stewardship, we can care for and strengthen our ecosystems, ensuring they remain resilient in the face of a changing climate. By respecting and nurturing our environment we invest in biodiversity and productivity that'll be there for generations to come.

Strategic actions

2.1 We prepare for the increasing impacts of climate change.

2.2 We support community action to reduce our waste.

2.3 We ensure responsible use and management of our valuable waterways.

2.4 We embed sustainable practices into business operations and act to reduce our impacts, including our carbon footprint.

2.5 Our planning services ensure appropriate development which protects and enhances the natural and built environment and safeguards cultural heritage.

2.6 We value our environment, recognising how it benefits us, and commit to protecting ecosystem function and balance.

STRATEGIC DIRECTION 3.

Creating a well-designed, sustainable built environment.

As our community grows and evolves, we recognise how important it is for our constructed spaces to adapt to support new skills, ideas and ways of life on this land – while still preserving the history that grounds us here.

By protecting the heritage buildings that hold our stories, we reinforce the foundations of our collective identity. By prioritising recreation, parks, green spaces and playgrounds as we plan for the future, we enhance our wellbeing and capacity to thrive. And, by improving our built infrastructure, we foster inclusive development improving access to safe and secure housing.

Our planning is rooted in respecting and understanding to the different patches of ground that exist across our community, ensuring we grow our region in a way that's sustainable and true to our shared community values.

Strategic actions

3.1 We promote increased housing options that accommodate a range of affordability.

3.2 We focus on the intentional planning of settlements to ensure cohesive property developments that match need and context.

3.3 We take action to protect and preserve our built heritage.

3.4 We value, maintain and plan for quality recreation places, parks, green spaces and playgrounds.

3.5 We prioritise maintenance, renewal and development of community facilities to be safe, functional, comfortable, energy efficient and fit for purpose.

3.6 We commit to maintaining, upgrading and developing critical public amenities to be safe, accessible, efficient.

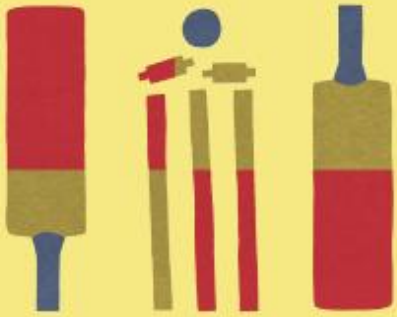
3.7 We provide responsive planning services to the community.

STRATEGIC DIRECTION 4.

Investing in infrastructure that strengthens our connections.

Our community has always found ways to come together organically – whether it's chatting in the street, joining a local group, or meeting in our memorial halls. With thoughtful planning and investment in infrastructure, we can nurture these connections and help our community grow even stronger in the future.

We will make it safer and more accessible to move around the Meander Valley, by prioritising our roads, cycling routes and pedestrian pathways. We'll also focus on creating inviting spaces for people to come together, meet and mingle with the diverse communities across Meander Valley.



Strategic actions

4.1 We activate community gathering places for people to create and foster social networks.

4.2 We value and plan for recreation spaces that are accessible for all.

4.3 Our sports facilities are maintained and available for local clubs, communities and residents to promote participation and active lifestyles.

4.4 We advocate for public transport services in Meander Valley that reflect the needs of our population.

4.5 Our road network is safe, efficient and well maintained.

4.6 We maintain, plan and create shared pedestrian and cycle paths to support safe access to key community infrastructure.

4.7 We manage our valued community facilities to be well maintained and ensure future needs are planned for.

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STRATEGIC DIRECTION 5.

Delivering responsible leadership and governance.

The future of Meander Valley is made by us all. That's why we commit to actively listening, engaging and communicating with local residents and businesses. Building collaborative, decision-making processes ensures our initiatives match the unique needs and strength of our region. By working with local businesses and industries, we can amplify their impact and grow a more resilient economy together.

The people that visit Meander Valley also help our region thrive. We want to share our abundance with the world, by promoting tourism, improving visitor services and creating events that celebrate our local identity. Together, we can help everyone feel welcome to stop by, pull up a chair and make themselves at home in Meander Valley.

Strategic actions

5.1 We encourage and facilitate community participation and engagement in decision making processes.

5.2 We build capacity in our communities to encourage initiative, leadership and ongoing solutions.

5.3 We maintain strong financial sustainability, planning for current and future generations.

5.4 We have a representative, responsive and transparent government that meets legislative and community needs.

5.5 We have leadership and advocacy on local and regional issues to other levels of government in consultation with and on behalf of our community.

5.6 We recognize, support and celebrate our competitive advantages in local business, agriculture and industry.

5.7 We encourage visitation to the area through growing a positive reputation and putting our name on the map.

5.8 There are a range of employment opportunities for our residents.

5.9 We attract, support and retain major events, festivals and celebrations that put Meander Valley on the map.

Appendix K – Potential Dwelling Yields, Carrick

Dwelling Yields of Areas Potential Suitable for Rezoning to the Low Density Residential Zone

NOTE: LDRZ has a minimum lot size of 1200m2
NOTE: 0.8 takeout rate applied uniformly to theoretical and practical yields

Development Front	Property Address	CT	Land Area (ha)	Theoretical Dwelling Yield (ignoring existing dwellings)	Existing Dwelling?	Unconstrained Land Area (Ha) (land minus dwelling and curtilage)	Likely Practical Yield (accounting for existing dwellings)
Eastern	39 Liffey St	20050/3	15.19	101	Yes	10	67
	40 Liffey St	20050/4	14.86	99	Yes	10	67
TOTAL			30	200		20	133

NOTE: Yield likely reduced due to proximity to Speedway, waterway, and possibly WTP

				0			0
Northern	11 Simmons St	157021/1	8.085	54	Yes	7.6	51
	19 Simmons St	176522/4	2.1	14	Yes	1.7	11
	21 Simmons St	1765522/3	2.312	15	Yes	1.912	13
	23 Simmons St	176522/2	4.098	27	Yes	3.598	24
	25 Simmons St	1765522/1	6.383	43	Yes	6.083	41
	22 Simmons St	176522/5	3.287	22	Yes	2.787	19
	42 Meander Valley Rd (northern portion)	136153/2	4.978	33	No	4.978	33
TOTAL			31	208		29	191

NOTE: Existing Lot & Dweling Layout highly likely to reduce practical yield, WTP & adjoining ag land also a factor

Western	3 Church St	180543/1	2.423	16	Yes	1.823	12
	48 Bishopsbourne Rd	173727/4	1.618	11	Yes	0.918	6
	42 Bishopsbourne Rd	173727/1	0.48	3	Yes	0.18	1
	44 Bishopsbourne Rd	173727/2	0.48	3	Yes	0.18	1
	46 Bishopsbourne Rd	173727/3	0.49	3	Yes	0.19	1
	54 Bishopsbourne Rd	182688/1	2.9	19	Yes	2.6	17
TOTAL			8	56		6	39

NOTE: Most of these lots are recently developed so likelihood of developing further in the near future is low

Southern	51 Bishopsbourne Rd	173102/1	3.947	26	Yes	3.447	23
	67 Bishopsbourne Rd	182018/2	0.56	4	Yes	0.06	0
	69 Bishopsbourne Rd	182018/3	1.03	7	Yes	0.53	4
	59 Bishopsbourne Rd	182018/1	1.167	8	Yes	0.667	4
	22 Percy St (portion)	169519/2	1.549	10	No	1.549	10
	30 Percy St (portion)	250947/1	1.65	11	No	1.65	11
	23 Charlies Lane	183641/2	0.41	3	Yes	0	0
	21 Charlies Lane	183641/3	0.41	3	Yes	0	0
	19 Charlies Lane	183641/4	0.41	3	Yes	0	0
	17 Charlies Lane	183641/5	0.41	3	Yes	0	0
	15 Charlies Lane	173582/00	2.1	14	Yes	1.6	11
	13 Charlies Lane	273582/19	2.16	14	Yes	1.66	11
TOTAL			16	105		11	74

NOTE: Some strong development oppportunities alongside some recently developed smaller lots

South Eastern	28 Charlies Lane	176631/2	2	13	Yes	1.5	10
	26 Charlies Lane	176631/3	2	13	Yes	1.5	10
	24 Charlies Lane	176631/4	2	13	Yes	1.5	10
TOTAL			6	40		5	30

NOTE: Existing Lot and Dwelling Layout highly likely to reduce practical yield, WTP and adjoining ag land also a factor. Also recent developments