Road Planning and Design Manual
Edition 2: Volume 3

Supplement to Austroads Guide to Road Design Part 4B: Roundabouts

October 2024

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Relationship with Austroads Guide to Road Design – Part 4B (2023)

The Department of Transport and Main Roads has, in principle, agreed to adopt the standards published in the Austroads *Guide to Road Design* (2023) *Part 4B: Roundabouts*.

When reference is made to other parts of the Austroads *Guide to Road Design*, Austroads *Guide to Traffic Management*, Austroads *Guide to Road Safety* or Australian Standard AS 1742 *Manual of Uniform Traffic Control Devices*, the reader should also refer to Transport and Main Roads related manuals:

- *Road Planning and Design Manual* (RPDM)
- Queensland *Guide to Traffic Management* (QGTM)
- Queensland *Guide to Road Safety* (QGRS)
- Queensland *Manual of Uniform Traffic Control Devices* (MUTCD), and
- *Traffic and Road Use Management Manual* (TRUM).

Where a section does not appear in the body of this supplement, the Austroads *Guide to Road Design – Part 4B* criteria is accepted unamended.

This supplement:

1. has precedence over the Austroads *Guide to Road Design – Part 4B* when applied in Queensland
2. details additional requirements, including *accepted with amendments* (additions or differences), *new* or *not accepted*, and
3. has the same structure (section numbering, headings and contents) as Austroads *Guide to Road Design – Part 4B*.

The following table summarises the relationship between the Austroads *Guide to Road Design – Part 4B* and this supplement using the following criteria:

Accepted	Where a section does not appear in the body of this supplement, the Austroads *Guide to Road Design – Part 4B* is accepted.
Accepted with amendments	Part or all of the section has been accepted with additions and/or differences.
New	There is no equivalent section in the Austroads Guide.
Not accepted	The section of the Austroads Guide is not accepted.

Relationship table

Section		Title	Queensland application	Department contact
1	**Introduction**			
	1.1	Purpose	Accepted	Road Design
	1.2	Scope of this Part	Accepted	Road Design
	1.3	Road Safety	Accepted	Road Design
	1.4	Road Design Objectives	Accepted	Road Design
	1.5	Traffic Management at Roundabouts	Accepted	Road Design
	1.6	Safety Performance of Roundabouts	Accepted with Amendments	Road Design
	1.7	Traffic Capacity of Roundabouts	Accepted	Road Design
	1.8	Signalisation of Roundabouts	Accepted	Road Design
	1.9	Roundabouts in High-Speed Rural Areas	Accepted	Road Design
2	**Design Principles and Procedure**			
	2.1	Terminology	Accepted	Road Design
	2.2	Design Principles	Accepted with Amendments	Road Design
	2.3	Design Procedure	Accepted with Amendments	Road Design
3	**Sight Distance**			
	3.1	Introduction	Accepted	Road Design
	3.2	Sight Distance Criteria	Accepted with Amendments	Road Design
	3.3	Stopping Sight Distance for Trucks	Accepted with Amendments	Road Design
4	**Geometric Design**			
	4.1	Introduction	Accepted	Road Design
	4.2	Number of Legs	Accepted	Road Design
	4.3	Number of Entry, Circulating and Exit Lanes	Accepted with Amendments	Road Design
	4.4	Central Island	Accepted with Amendments	Road Design
	4.5	Approach and Entry Geometry	Accepted with Amendments	Road Design
	4.6	Circulating Carriageway	Accepted with Amendments	Road Design
	4.7	Exit Curves	Accepted with Amendments	Road Design
	4.8	Entry and Exit Widths	Accepted	Road Design
	4.9	Separation between Legs	Accepted	Road Design

Section		Title	Queensland application	Department contact
	4.10	Superelevation, Gradient and Drainage	Accepted with Amendments	Road Design
	4.11	Special Treatments	Accepted	Road Design
5	**Pedestrian and Cyclist Treatments**			
	5.1	Introduction	Accepted with Amendments	Road Design
	5.2	Pedestrians	Accepted with Amendments	Road Design
	5.3	Cyclists	Accepted with Amendments	Road Design
6	**Pavement Markings and Signing**			
	6.1	Introduction	Accepted	Road Design
	6.2	Single-lane Local Street Roundabout	Accepted with Amendments	Road Design
	6.3	Multi-lane Arterial Road Roundabout	Accepted with Amendments	Road Design
7	**Landscaping and Street Furniture**			
	7.1	Introduction	Accepted with Amendments	Road Design
	7.2	Arterial Road Roundabouts	Accepted with Amendments	Road Design
	7.3	Local Street Roundabouts	Accepted with Amendments	Road Design
	7.4	Maintenance	Accepted	Road Design
	References			
		References	Accepted with Amendments	Road Design
	Appendices			
	A	Crash Types	Accepted	Road Design
	B	Roundabout Study and Program	Accepted with Amendments	Road Design
	C	Methods of Improving Roundabout Entries	Accepted	Road Design
	D	Linemarking of Multi-lane Roundabouts	Accepted with Amendments	Road Design
	E	Extended Design Domain (EDD) for Entry Path Radii	Accepted	Road Design
	Commentaries			
	1		Accepted	Road Design
	2		Accepted	Road Design
	3		Accepted	Road Design

Departmental contacts

- Director (Road Design), Road Design, Hydraulics, Design and Spatial, Engineering and Technology, Transport and Main Roads email: roaddesignstandards@tmr.qld.gov.au

Contents

Tables

Figures

1 Introduction

1.6 Safety performance of roundabouts

Differences

The first sentence in Section 1.6 of Austroads *Guide to Road Design – Part 4B* is replaced with the following:

> A well designed roundabout can be a safe form of intersection control for motor vehicles but can lead to additional safety issues for pedestrians and cyclists.

Addition

Adverse crossfall results in a greater reliance on a motorcycle's tyres grip to negotiate a curve. Further, it reduces the amount of 'lean' a motorcyclist can use to negotiate a curve. The combination of both issues can result in a motorcycle losing its stability and grip in a curve.

2 Design principles and procedure

2.2 Design principles

Differences

The fourth dot point in this section of Austroads *Guide to Road Design – Part 4B* is rewritten as follows:

> It is essential that appropriate measures are used to limit the entry speed. There are a number of means discussed in Section 4 to reduce speeds on the roundabout approach. The entry curvature is a key element in achieving this outcome.

2.3 Design procedure

Differences

The third sentence in the third paragraph of Austroads *Guide to Road Design – Part 4B* has an editorial error and is rewritten as follows:

> For example, the design of a roundabout involving two local residential streets may be a relatively simple exercise where traffic analysis is unnecessary and where the existing corner radii are used as controls for the location of the circulating carriageway.

Step 1 in Table 2.1 and Figure 2.2 of Austroads *Guide to Road Design – Part 4B* both detail the need to assemble the queue lengths on the approaches, however, this information is not discussed further in the design process.

Step 2 in Table 2.1 and Figure 2.2 of Austroads *Guide to Road Design – Part 4B* list different site controls / considerations. Both lists are amended to include the following:

- Road users
- Physical constraints
- Topography and land availability
- Environment and heritage constraints (including trees, monuments etc)
- Accesses

- Utilities
- Parking

Step 6 in Table 2.1 of Austroads *Guide to Road Design – Part 4B* is missing a cross-reference for the use of speed reducing treatments and does not detail any consideration or cross-reference for the design of pedestrians and cyclist facilities as detailed in Figure 2.2. Step 6 in Table 2.1 is amended as follows:

> For "Consider use of speed reducing treatments where approach speed is ≥ 80 km/h" a reference to Section 4.5.2 is added in the final column.
>
> Add new sentence to Considerations – "Design facilities for pedestrians and cyclists". Add a reference to Section 5.2 and 5.3 in the final column.

Steps 7 and 8 in Table 2.1 of Austroads *Guide to Road Design – Part 4B* are presented in the incorrect order and are inconsistent with Figure 2.2. The correct order for these steps in the design procedure is as follows:

- Step 7, Check swept paths of the design vehicle for all traffic movements including the circulating carriageway.
- Step 8, Check that the maximum entry path radii have been achieved.

Step 10 in Table 2.1 is modified to read the following in the Consideration Column:

> Complete design by drawing lighting, signs and markings, and landscaping and considering other roadside design and safety issues. Complete the design of the roundabout approaches considering the queue lengths on each approach.

Additions

A note is added to Figure 2.2 as follows:

> **Note:** Where the design at Steps 7, 8 or 9 generates an unsatisfactory design, it is recommended that alternative trial entry and exit leg geometry be assessed (Step 6). Where alterations to the entry and exit leg geometry do not yield a satisfactory result, an alternative trial central island diameter should be assessed (Step 4).

3 Sight Distance

3.2 Sight distance criteria

3.2.3 Criterion 3

Additions

The absolute minimum sight distance for Criterion 3 is measured as the approach sight distance detailed in Table 3.1 of Austroads *Guide to Road Design – Part 4A* and applying a Reaction Time (RT) of 1.5 seconds.

Difference

Clause 3.2.3 of Austroads *Guide to Road Design – Part 4A* implies that Criterion 3 is desirable. On Queensland State controlled roads, compliance with the calculated Criterion 3 is a preferred design requirement.

3.3 Stopping sight distance for trucks

Additions

Roundabouts should also cater for truck sight distance as follows:

- Criterion 1 sight distance – ensure that truck approach sight distance is provided to the roundabout from each leg, measured from a 2.4 m eye height to a 0 m object height (refer to Section 3.2.1).
- Criterion 2 sight distance – ensure that a truck driver with a 2.4 m eye height at location 'A' on Figure 3.1 has sufficient sight distance, according to the criteria in Section 3.2.2.
- Criterion 3 sight distance – ensure that a truck driver approaching the roundabout with a 2.4 m eye height can see other entering vehicles before the truck driver reaches the holding line, according to the criteria in Section 3.2.3.

4 Geometric design

4.3 Number of entry, circulating and exit lanes

4.3.5 Left-turn slip lanes

Difference

For left-turn treatment selection in Queensland, refer to QGTM Part 6.

High entry angle left-turn lanes are not preferred practice at roundabouts on Queensland State controlled roads.

4.4 Central island

4.4.2 Factors affecting central island size

Addition

Additional item added to list of dot points in first paragraph:

- Physical site constraints, such as topography, environment, property boundaries, utilities and other hazards.

Difference

The second paragraph is written as follows:

The central island needs to be large enough to:

- Enable entry geometry to slow entering vehicles
- Minimise the relative speed between entering and circulating vehicles to minimise the crash rates
- Provide suitable separation between roundabout legs (refer to Section 4.9)
- Provide greater separation between adjacent conflict areas and make it easier for entering drivers to determine whether vehicles already on the circulating carriageway are exiting or continuing around the circulating carriageway.

On major arterial roads the central island radius should be limited to a maximum of 75 m (desirably 50 m). Radii too large will encourage high circulating speeds and may encourage wrong-way movements if drivers do not perceive the circulating carriageway as a roundabout. These larger radii should not be required for the usual design vehicles (e.g. prime mover with semi-trailer; B-double) but may be necessary where a road train is the design vehicle or for roundabouts that are grade-separated.

Difference

The second paragraph from Section 4.4.3 is relocated to this Section 4.4.2:

> In general, roundabouts in high-speed areas need to be larger to enable better entry and approach. Geometry should be designed to reduce the high approach speeds. The design of these roundabouts is more critical than that for roundabouts located in low-speed areas.

4.4.3 Central island radius

Difference

The first four paragraphs from Section 4.4.3 are replaced with the following:

> Table 4.1 provides a guide for the initial selection of the central island radius for a circular roundabout. The desirable values given in Table 4.1 should be used as a starting point whenever possible, as they generally produce lower overall crash rates than those produced by the minimum values (refer to Notes 2 and 3 in Table 4.1).

Addition

The Title of Figure 4.1 to is replaced as follows:

> Table 4.1 - Initial selection of the central island radius for a circular roundabout.

Addition

The following dot point is added to “The criteria in Table 4.1 are based on the following”:

- The maximum entry path radii in Table 4.2 are achieved.

Difference

The following dot point is added to “Generally, the central island radius will need to be increased to allow for the following conditions”:

- Other considerations apply, e.g. a grade separated roundabout forming an overpass or underpass with a highway or motorway.

The last dot point in Section 4.4.3 is deleted.

4.5 Approach and entry geometry

4.5.2 Approach and entry treatments

Additions

Single entry curve approach

It is recommended that the design of roundabouts on departmental roadways incorporate short horizontal straights between entry and circulating carriageway curves as described in Section 4.5.2 of Austroads *Guide to Road Design – Part 4B*. To model a roundabout incorporating short horizontal straights with the Transport and Main Roads ARNDT program, leave out the straights.

Approach treatments for high-speed areas

The last dot point in the first paragraph relating to run out areas is removed and a sentence added following the list of dot points:

> In spite of the above list of possible treatments to encourage a reduction in vehicles speeds, run out areas may still be required where vehicles are not able to correctly negotiate the approach.

Use of approach reverse curves

Additions

Any vertical curve used in conjunction with an approach curve will result in a lower perception of downstream approach curves and/or entry curve, particularly if used in combination with superelevation. If a vertical curve cannot be avoided, it may be best to use an alternative treatment (refer to Section 4.5.2 of Austroads *Guide to Road Design – Part 4B*), rather than reverse approach curves. This principle is the same as that used on a midblock section of roadway, i.e. a crest curve should never be provided immediately prior to a tight horizontal curve.

The department recommends that the design of the superelevation through the reverse curves incorporate short horizontal straights between each curve, as described in Section 4.5.2 of Austroads *Guide to Road Design – Part 4B*. To model a roundabout incorporating short horizontal straights with the Transport and Main Roads ARNDT program, leave out the straights.

Applying superelevation on reverse approach curves may produce poor perception of downstream horizontal curves (including other approach curves and the entry curve). An alternative is to use adverse crossfall on one (or more) of the reverse approach curves and keep the crossfall in the same direction through the approach curves and entry curve.

In the paragraph following Figure 4.4, references to Appendix E of Austroads *Guide to Road Design - Part 3* should refer to Appendix J of Austroads *Guide to Road Design - Part 3*.

In the second last paragraph of this section, “closet” should be “closest”

Blisters

Additions

Last sentence is replaced with:

> They are typically used on wide approaches that have on-road parking and involve the extension of the kerb and linemarking to create entry curvature. Figure 4.16 demonstrates the use of these blisters with kerb extensions shown on the left edge of all approaches to the roundabout.

4.5.3 Maximum entry path radius

Differences

The first two paragraphs are replaced with:

> Maximum entry path radii to be used at one and two-lane roundabouts are given in Table 4.2. The values given in the table should be used wherever possible as they will generally produce lower overall crash rates than larger entry path radii.

The maximum entry path radii should be used in conjunction with the minimum central island radii from Table 4.1. Avoid the use of excessively small corner kerb radii when using the values in Table 4.2.

4.6 Circulating carriageway

4.6.3 Encroachment areas

Addition

The following sentence is added to the end of the second paragraph:

The Type B encroachment area should not be used where high centre of gravity vehicles are using the roundabout and there is adverse crossfall on the circulating carriageway.

Differences

The second dot point in the fifth paragraph is replaced with the following:

Have semi-mountable or fully mountable kerbs, except where these areas are used by high centre of gravity vehicles are using the roundabout and there is adverse crossfall on the circulating carriageway, in which case fully mountable kerbs should be used.

4.7 Exit curves

Additions

It is recommended that the design of roundabouts on departmental roadways incorporate these short horizontal straights between circulating carriageway and exit curves. To model a roundabout incorporating short horizontal straights with the Austroads *Guide to Road Design* program, leave out the straights.

Where it is desirable to limit the exit speed from a roundabout due to pedestrian or parking activity on the road beyond the exit, use an exit curve radius similar to the circulating curve radius. This will reduce the need for motorists to decrease speed as they exit the roundabout.

4.10 Superelevation, Gradient and Drainage

4.10.4 Pavement conditions

There is no equivalent Section 4.10.4 in Austroads *Guide to Road Design – Part 4B.*

New

Drivers generally use high values of side friction on all geometric elements of a roundabout. This is particularly the case in higher speed environments and particularly on the entry curve and the circulating carriageway. To ensure that high values of side friction can be delivered by the pavement to minimise single vehicle accident rates, the pavement surfacing selected should possess high friction and skid resistance properties and should be maintained in good condition.

In addition, the torque generated by the tyres of turning vehicles on the pavement surfacing can cause problems (for example, stripping of aggregate from bitumen seals). This is particularly the case for tighter curves and smaller roundabouts. Specialist advice on surfacing at roundabouts should be sought.

5 Pedestrian and cyclist treatments

5.1 Introduction

Additions

Raised crossings that give priority to pedestrians and cyclists should be installed approximately one car length (approximately 6-8 m) back from the outer edge of the circulating carriageway on all legs and be designed to:

- Moderate vehicle speeds to 30 km/h at crossings and provide priority to pedestrians and cyclists over vehicles entering / exiting roundabouts. Appropriate crossings include a raised pedestrian (zebra) crossing with or without a separated cycle track.
- Provide direct and comfortable connections to existing / future cycling facilities. These could be separated cycle tracks or bike lanes, or a low-speed (≤ 30 km/h) mixed traffic environment (refer to Transport and Main Roads Guideline *Selection and Design of Cycle Tracks*).

On some larger roundabouts, it may be possible to locate the crossing further away from the circulating carriageway (up to 20 m) and taper the path gradually towards the crossing with minimal impact on desire lines. This can provide additional space for vehicle queuing or large vehicles. Transport and Main Roads Guideline *Providing for people walking and riding at roundabouts* shows the number of motor vehicles queued for given vehicle flows for this treatment.

5.1.1 Crossing and platform details

There is no equivalent Section 5.1.1 in Austroads *Guide to Road Design – Part 4B.*

New

Raised platforms should be designed to safely accommodate existing vehicle speeds at the proposed crossing location. Where possible, platforms should be designed to reduce vehicle speeds at the crossing to 30 km/h to protect pedestrians and cyclists from more serious crashes (see Austroads *Guide to Traffic Management – Part 13: Safe System Approach to Transport Management*).

Table 5.1.1(a) contains the adopted design references for raised crossings at roundabouts.

Table 5.1.1(a) – Adopted design references for raised crossings at roundabouts

Crossing Type	Contents	Details	Reference
Raised pedestrian (zebra) crossing	Line marking, signage and lighting requirements. Platform dimensions and grades.	85th percentile vehicle speeds ≤ 60 km/h at crossing. Ramp gradient range 1:12 to 1:15. Minimum length 3 m Platform height 75-100 mm. Signage and line marking for wombat crossings.	Australian Standard AS 1742.10 *Pedestrian Control and Protection*

Crossing Type	Contents	Details	Reference
	Alternative platform dimensions to provide for higher vehicle speeds and heavy vehicles.	85th percentile vehicle speeds ≤ 70 km/h at crossing. Ramp gradients range 1:12 to 1:25. Desirable minimum platform length 6 m.	Austroads Publication AP-R642-20 *Effectiveness and Implementation of Raised Safety Platforms*
	Cycle and pedestrian-friendly roundabouts.	Set back crossing 5 m from roundabout edge. Bicycles can be mixed with traffic for volumes up to 8,000 vpd provided roundabout design supports 30 km/h vehicle speeds.	Austroads *Guide to Road Design – Part 7 New and Emerging Treatments*
Raised priority crossing	Line marking, signage and lighting requirements. Platform dimensions and preferred location.	Provide storage for 1 standard passenger vehicle between roundabout and crossing.	Transport and Main Roads Guideline *Raised Priority Crossings for Pedestrian and Cycle Paths*
Cycle Tracks	Line marking, signage and lighting requirements. Platform dimensions and preferred location.	5 m setback from circulating carriageway. Profile for central apron.	Transport and Main Roads Guideline *Selection and Design of Cycle Tracks*

Recommended ramp grades for raised platforms are provided in Table 5.1.1(a) and 5.1.1(b). Ramps should seek to enforce a comfortable maximum vehicle speed of 30 km/h where possible.

Table 5.1.1(b) – Recommended ramp grades for platforms

85th Percentile Vehicle Speed at Crossing Location	Divided Carriageway		Undivided Carriageway	
	Approach Ramp Grade	Comfortable max Speed	Approach / Departure Ramp Grade	Comfortable Max Speed (km/h)
50 km/h	1:15 (6.7%)	30 km/h	1:20 (5%)	40 km/h
60 km/h	1:20 (5%)	40 km/h	1:25 (4%)	50 km/h
70 km/h	1:25 (4%)	50 km/h	1:25 (4%)	50 km/h

Source: Austroads Publication AP-R642-20 *Effectiveness and Implementation of Raised Safety Platforms*

Figure 5.1.1(a) – Typical Platform Profile for 50 km/h speed environment

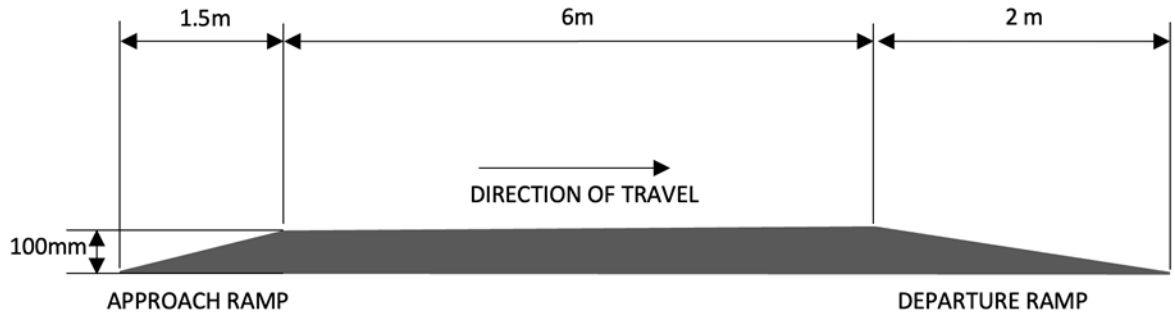
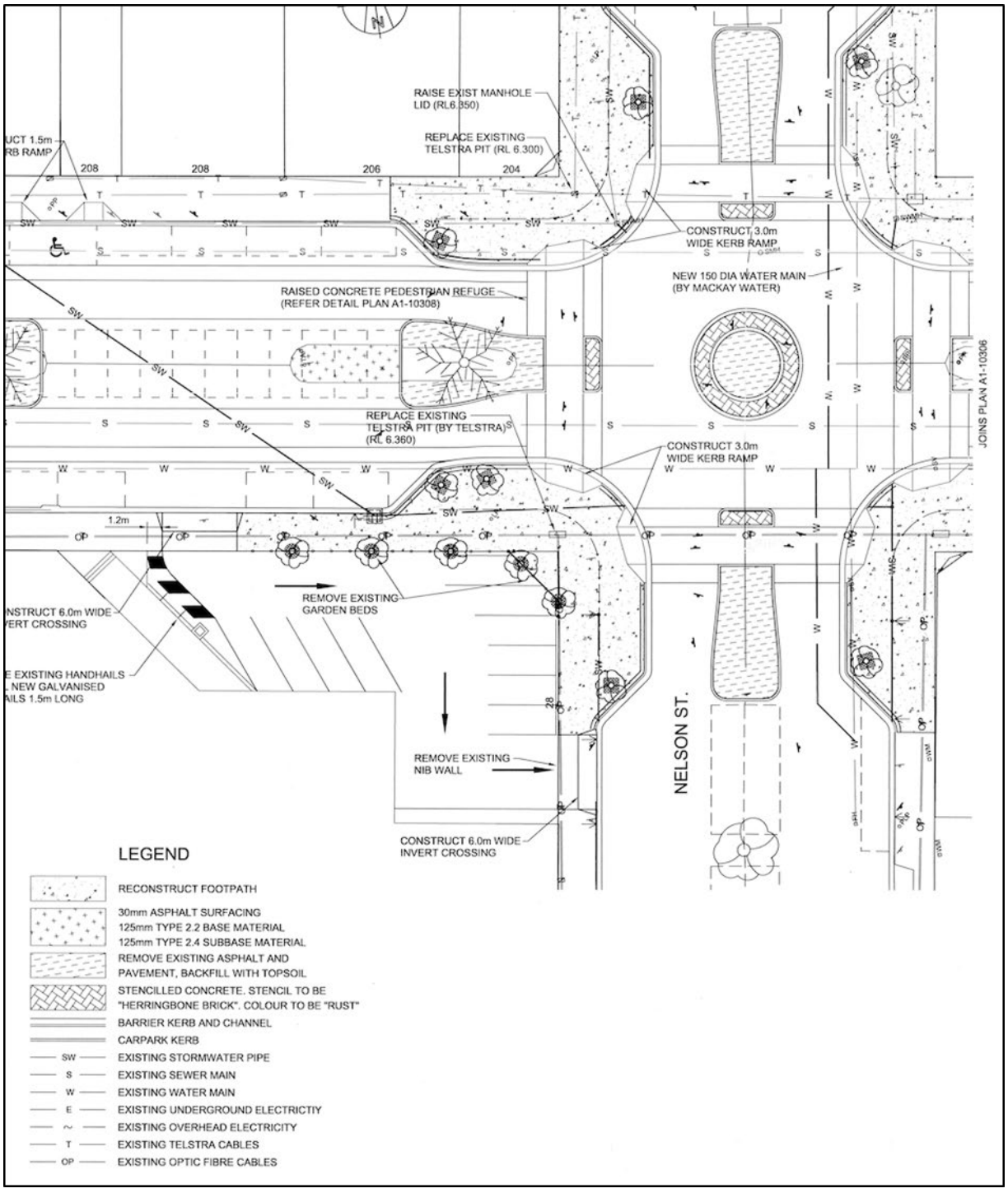


Figure 5.1.1(b) shows example layouts of pedestrian and cyclist crossings at roundabouts.

Figure 5.1.1(b) – Wombat crossings at compact roundabout



Source: Mackay Regional Council

Refer to Section 2.5.3 design guidance for Roundabouts with raised platforms on approaches from Austroads *Guide to Road Design – Part 7: New and Emerging Treatments* for further guidance.

5.1.2 Supportive treatments

There is no equivalent Section 5.1.2 in Austroads *Guide to Road Design – Part 4B.*

New

Transport and Main Roads has published the Guideline *Providing for people walking and riding at roundabouts*, provides comprehensive guidance on both transformational and supportive treatments for providing for pedestrians and cyclists at roundabouts. It should be referred to for further information or for information on supportive treatments to be installed in conjunction with transformational treatments.

The following alternatives to a raised platform may also be considered:

- On small, compact roundabouts it may be more appropriate to raise the entire roundabout.
- Where platforms on crossings cannot be provided due to drainage constraints, or because they require vehicles to negotiate vertical and horizontal deflection concurrently, speed cushions may be used instead of raised platforms to support low vehicle speeds at approaches to crossings (refer to Transport and Main Roads Guideline *Providing for people walking and riding at roundabouts*.), and
- Where it can be established that vehicle approach speeds are already 30 km/h or less, pedestrian crossings (zebra) may be installed at grade.

Figure 5.1.2 – Speed cushions reduce vehicle speeds at approaches to zebra crossing

5.2 Pedestrians

5.2.2 Designing roundabouts for pedestrians

Addition

Refer to QGTM Part 6 for guidance on crossings that can be provided on roundabouts.

5.3 Cyclists

5.3.5 Multi-lane roundabouts

New

Multi-lane roundabouts present significant obstacles to safe movements of pedestrians and cyclists. These users must consider traffic approaching from multiple streams, in complex environments, to avoid crashes that are likely to result in serious injuries or fatalities. These intersections affect all pedestrians and cyclists but have a greater impact on more vulnerable users, including children, older people and people with a disability or impairment.

If a roundabout treatment is warranted, a single lane roundabout incorporating pedestrian and cyclist treatments (wombat crossings, raised priority crossings / cycle tracks) is the preferred intersection design.

Where multi-lane roundabouts are required for improving motorised vehicle safety and performance, appropriate facilities should be included to provide for all foreseeable pedestrian and cyclist movements. Appropriate facilities that eliminate pedestrian / cyclist / motorised vehicle conflicts may include grade separated crossings, where direct and comfortable connections to the pedestrian and cycling networks can be accommodated at the site.

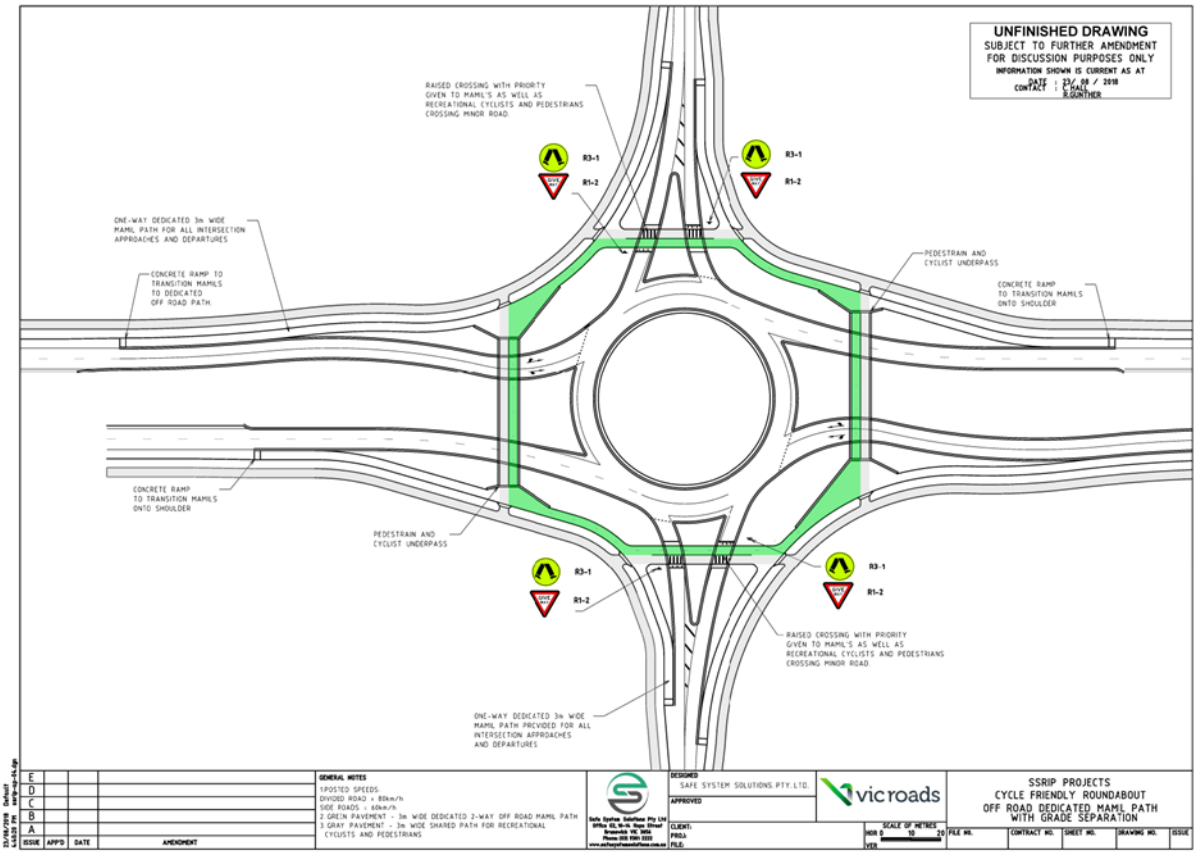
If conflicts cannot be eliminated, then signalised crossings should be provided, or the geometry of the roundabout modified to support single vehicle lane approaches and provision of wombat crossings, raised priority crossing or cycle tracks connecting to pedestrian and cycling networks, on direct and comfortable desire lines. Where the site cannot accommodate these outcomes, alternative intersection treatments should be considered (signalised intersections, for example).

5.3.6 Bicycle paths and shared paths at roundabouts

Difference

Figure 5.6 in Austroads *Guide to Road Design – Part 4B* should be replaced with Figure 5.3.6.

Figure 5.3.6 – Concept layout for crossings and underpass treatment on arterial roundabout



Source: Safe Systems Solutions Pty Ltd

Designers should also refer to Transport and Main Roads Guideline *Providing for people walking and riding at roundabouts* for guidance on supportive treatments for dual lane roundabouts.

6 Pavement markings and signing

6.2 Single-lane local street roundabout

Additions

Hazard marker signs should be used on both the outside curves and central island of the roundabout, where visibility of the islands and kerbs may be unclear or where there is a history of vehicles not correctly negotiating the roundabout.

6.3 Multi-lane arterial road roundabout

Additions

Where the approaches are line marked with non-standard lane usage, for example, a double left-turn or a double right-turn, the line marking within the roundabout needs to be adapted. In particular, where an approach allows vehicles in two lanes to make a right-turn, the pavement marking between the double right-turn entry and the next exit must ensure that the centre lane is not used to exit by circulating vehicles. In this case, spiral lane marking and alterations to the geometric design of the roundabout will be required.

Figure 6.2 of Austroads *Guide to Road Design – Part 4B* only depicts the directional signs and pavement markings at a roundabout. The title of this figure should therefore be “Figure 6.2: An example of directional signs and markings at a multi-lane arterial road roundabout”. For examples of the complete signs and markings for a multi-lane arterial road roundabout, refer to the Transport and Main Roads Queensland MUTCD and the TRUM manual.

7 Landscaping and street furniture

7.1 Introduction

Additions

In addition to the information in Austroads *Guide to Road Design – Part 4B*, designers should also refer to the following departmental publications with regards to lighting and landscaping at roundabouts:

- *Road Planning and Design Manual Volume 6: Lighting*.
- Transport and Main Roads *Road Landscape Manual.*

References

Transport and Main Roads publication references refer to the latest published document on the departmental website (https://www.tmr.qld.gov.au/business-industry/technical-standards-publications).

Additions

- Austroads (2013) *Guide to Road Design – Part 4B: Roundabouts*, Austroads, Sydney, NSW
- Transport and Main Roads ARNDT software program
- Transport and Main Roads Queensland *Manual of Uniform Traffic Control Devices* (MUTCD), Brisbane, QLD
- Transport and Main Roads *Road Landscape Manual*, Brisbane, QLD
- Transport and Main Roads Guideline *Selection and Design of Cycle Tracks*, Brisbane, QLD
- Transport and Main Roads Guideline *Providing for People Walking and Riding at Roundabouts*, Brisbane, QLD
- Transport and Main Roads *Traffic and Road Use Management Manual* (TRUM), Brisbane, QLD.

Appendix B – Roundabout study and program

Differences

The correct internet address for downloading the Transport and Main Roads ARNDT program is https://www.tmr.qld.gov.au/business-industry/road-systems-and-engineering/software/arndt.

Appendix D – Linemarking of multi-lane roundabouts

D.1 Introduction

Differences

Figure D1 is not accepted as an example of typical marking scheme at a multi-lane roundabout as it shows non-typical approach lane usage for through movements. The correct typical line marking scheme for a multi-lane roundabout can be found in the Queensland MUTCD.