Road Design Note

Wide Centre Line Treatment (WCLT)

RDN 03-09
January 2019

This RDN has been published as a WORKING RELEASE. If you have any comments on its content, could you please forward them to the VicRoads Safe System Engineering team by the end of February 2019. An updated version is expected to be published early April 2019.

1. Purpose

The purpose of this note is to provide guidance for the design and application of Wide Centre Line Treatment (WCLT) to address the risk of head-on crashes. Head-on crashes represent a significant proportion of fatal and serious injuries on Victorian roads.

This treatment follows Safe System principles and should be considered as one of a number of available options in achieving Towards Zero deaths and serious injuries.

This note outlines a process for selecting the appropriate cross section to incorporate a 1.0m or 0.6m WCLT and information for designers as to how to appropriately design each treatment.

This note should be read in conjunction with VicRoads Supplements and Austroads Guide to Road Design Part 3 Appendix F Guidance for Wide Centre Line Treatments (WCLT). Where values differ, this note takes precedence.

2. Wide Centre Line Treatment

Wide Centre Line Treatment (WCLT) is considered a supporting treatment in the Safe System hierarchy for high-speed rural undivided roads.

Central Barrier in Narrow Median	Primary Treatment
Wide Centre Line or Painted Median	Supporting Treatment
Audio Tactile Line Marking	Supporting Treatment

Table 1: Treatments for head-on crashes

Although it has shown to provide crash reductions in almost every application[1], it does not provide a physical separation between opposing traffic lanes such as a central barrier to significantly reduce the risk of head-on crashes. WCLT is currently being considered on high-speed undivided roads (equal to or greater than 80km/h) but may be used on lower speed roads to reduce the risk of head-on crashes.

WCLT is a combination of linemarking as well as white audio tactile ribs to provide greater visibility for lane delineation, greater separation between opposing traffic lanes and a sensory indicator of lane departure.

Figure 2.0.1 Wide Centre Line Treatment

WCLT is intended as a low-cost treatment for existing roads with the aim to be retrofitted into existing seal or formation widths where possible. At a minimum, WCLT should be considered on all new high-speed rural undivided roads or significant upgrades to create separation between opposing traffic lanes.

A decision to adopt a WCLT should be made at the route/corridor level rather than at a project level to ensure there is consistency in application of the treatment along a route.

[1] "Towards Safe System Infrastructure: A Compendium of Current Knowledge" – Section 6.2.4 AP R560-18 Austroads 2018

2.1. Definition of Wide Centre Line Treatment

Wide Centre Line Treatment is also referred to by a variety of terms in current literature. These include; wide painted medians, wide centre line treatment, painted median, centreline treatment, narrow painted median strip treatment.

2.1.1. Terminology

Wide Centre Line Treatment

Wide Centre Line Treatment (WCLT) is two parallel lines (whether broken or continuous) with a separation width (wider than standard linemarking) to create greater separation between opposing traffic lanes. WCLT retains the road rules associated with the standard linemarking configuration.

Standard Linemarking

The standard linemarking configurations and dimensions are outlined in the Australian Standard AS 1742.2-2009. There are a number of standard linemarking configurations that have associated road rules attached to them. These road rules are outlined in the Victorian Road Safety Rules 2017. Standard linemarking configurations indicate where safe overtaking and turning movements are permitted or not permitted.

The configuration of standard linemarking and linemarking thickness from the VicRoads Traffic Engineering Manual[2] are below;

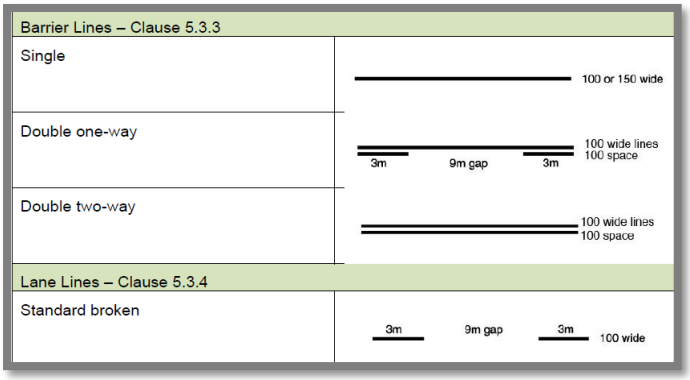


Figure 2.1.1 Standard Linemarking from Traffic Engineering Manual Clause Volume 2 Part 2 5.3.3

Standard (non wide centreline) linemarking consists of a signle white line or 2 white parallel lines having a thickness of 100mm and a separation width of 100mm. 150mm wide lines are used in special circumstances.

Separation Width

Separation width is the perpendicular distance measured between the centres of two parallel lines. Wide Centre Line Treatment linemarking should have a separation width of 0.6m or 1.0m.

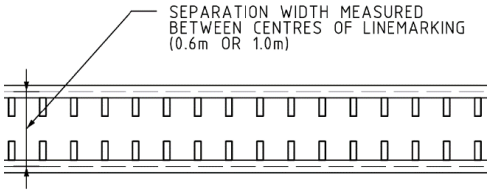


Figure 2.1.2 WCLT Separation Width

Separation width less than 0.5m should not be used as its effectiveness has not been verified. Separation width greater than 1.0m should not be considered for Wide Centre Line Treatment.

2.2. Standard WCLT Widths

There are two standard configurations of WCLT; 1.0m WCLT and 0.6m WCLT.

For the layout of standard WCLT linemarking configurations see Section 4.7.

The project team and designer should use a 1.0m separation width where ever possible. A width of 0.6m will provide some safety benefits but trials of installations of 0.5m WCLT have shown varying results in reducing fatal and serious injury[3].

A 0.6m WCLT should only be used in highly constrained environments where constraints and project scope does not allow for the provision of a 1.0m WCLT.

Design Domain	Separation Width
Normal Design Domain	1.0m
Extended Design Domain	0.6m
Design Exception	0.5m

Table 2: Design Domain and Separation Width for WCLT

A 0.5m WCLT should only be used where there are challenges with developing a cross section with reasonable lane and shoulder widths.

2.2.1. Maximum Separation Width

The maximum separation width of WCLT is 1m.

This is to;

- ensure road user familiarity with line marking
- discourage risk taking behaviour such as using the WCLT as an overtaking lane
- minimise confusion that the WCLT is an additional lane

2.2.2. Wide Centre Line Treatment (WCLT) and Painted Median

WCLT and painted medians provide separation between opposing traffic lanes but have different functions.

[2] VicRoads Traffic Engineering Manual "TEM Vol 2 Part 2 AS17422 Traffic control devices for general use" Clause 5.3 Longitudinal Lines

[3] "Towards Safe System Infrastructure: A Compendium of Current Knowledge" – page 89 Section 6.2.4 AP R560-18 Austroads 2018

WCLT provides opportunities for road users to safely overtake where the linemarking configuration permits this (see Section 4.7.1) and where it is safe to do so (see Section 4.4). As a result of recent Road Rules changes, WCLT linemarking now have the same Road Rules applied to them as Standard Linemarking.

Painted medians do not permit overtaking. Painted medians are usually linemarked with two solid lines with diagonal chevrons or RRPM's in the median.

In high-speed undivided roads, WCLT should be used to provide up to 1m separation between opposing traffic. Where greater than 1m separation is required, the project team should consider implementing a painted median.

Wide Centre Line Treatment	0.5m - 1.0m
Painted Median	> 1.0m

Table 3: Painted Median and WCLT

On multi-lane two-way undivided roads a painted median should be used to prevent unsafe overtaking.

2.2.3. Provision for Future Central Barrier

As stated in Section 2.2.1, the maximum separation width of a WCLT is 1m. This width under normal design practice is insufficient for the installation of a central barrier. If the project team is considering the installation of a future central barrier, then the interim treatment must be designed to ensure that a central barrier can be installed with sufficient median width in accordance with Road Design Note 03-08 Central Barrier in Narrow Medians. Pavement widening may be required to accommodate a future central barrier cross section. However, WCLT linemarking should be installed in the interim with a maximum of 1.0m with wider lane widths or wider shoulders.

3. Project Context and Considerations

3.1. WCLT and Route Strategy

The project team and designer should consider how a WCLT fits within the overall route strategy. It should be determined as to whether a WCLT is an interim solution or an ultimate solution. This will depend on the speed, class and volume of the road, including a consideration of future traffic.

WCLT may be implemented as an ultimate solution on a route where;

- overtaking opportunities are required for a two-lane two-way high-speed road
- the installation of a central barrier would create sight distance issues resulting in safety issues
- the implementation of an overtaking lane may create safety issues with property accesses on the right-hand side
- traffic movements into property accesses and at intersections need to be retained
- constraints such as property acquisition, utilities and drainage do not allow for the implementation of a central barrier
- funding for barriers could be better utilised elsewhere on the network

3.2. Pavement Considerations

The project team and designer should consider the existing pavement to determine how best to implement a WCLT. Considerations include;

- What is the width and depth of existing pavement and the extent of trafficable pavement available?
- What stage of the design life is the existing pavement?
- When is the existing pavement due for maintenance?
- What is the condition of the wearing surface?
- Is there any significant damage to the existing pavement?
- What are existing shoulder widths and shoulder pavement composition?

A pavement specialist should be engaged to undergo this assessment and help identify options for strengthening, reconstructing and widening of the pavement where required.

If widening is required, a minimum of 2m pavement widening should be used (this based on constructability advice) at one or both sides of the pavement as required. A narrower width may be able to be constructed but designers and the project team should get construction advice for widths less than 2m.

3.3. Existing Constraints

The project team and designer should consider the following constraints;

- Location and impact on existing utilities
- Environmentally sensitive flora and fauna
- Impact on existing accesses and intersections
- Changes to existing overtaking opportunities
- Constrained cross sections such as bridges
- Available ROW
- Impact on drainage

3.4. Lane and Shoulder Widths

Lane and shoulder widths should be designed in accordance with the desirable widths in Appendix A.

Where WCLT is intended to be a low-cost treatment, the existing lane and shoulder widths may need to be reduced to retrofit the treatment into the existing pavement or to limit pavement widening.

3.4.1. Lane Widths

Desirable lane widths should always be implemented before deciding to reduce lane widths. Lanes may be reduced in constrained environments subject to the approval from the Technical Reference Panel (TRP).

Vehicle tracking should be checked when considering reducing lane widths. It may be that curve widening is required even if lane widths are reduced. Reduced lane widths may concentrate the wheel path area on the pavement and may exacerbate rutting and pavement failure. This is important on routes with high numbers of heavy vehicles. Expert pavement advice should be received and consultation with Heavy Vehicles area when considering reducing lane widths. Note that dynamic tracking for large vehicles is greater than the static vehicle width.

3.4.2. Shoulder Widths

If WCLT is installed on an existing seal, the sealed shoulder width will be reduced. This may increase the risk of run-off road crashes. The project team should consider the increased risk and evaluate whether additional shoulder sealing is required. A minimum of 0.5m sealed shoulder should be provided to allow for vehicle recovery area behind the Wide Centre Line Treatment Audio Tactile Edgeline (See Appendix B) and to protect pavement edge. If additional sealing is required, shoulder widths should be provided in accordance with Appendix A. 3m sealed shoulders should be provided on state highways.

Shoulder widths (sealed shoulder width + unsealed shoulder width) need to provide adequate area for emergency stopping. This is particularly relevant on routes with high numbers of heavy vehicles. The formation may need to be widened.

Considerations should be given to appropriate shoulder widths in high risk fire areas to ensure safe operation of emergency services such as the Country Fire Authority (CFA).

If a WCLT is being proposed together with verge barriers, shoulders must be designed as per Road Design Note 06-02 – The use of wire rope safety barriers (WRSB) and Road Design Note 06-08 The use of flexible and semi-rigid Guard Fence.

3.4.3. Emergency Stopping in the Shoulder

On routes where emergency stopping is provided (greater than 4m wide area from the edge line) it is important to identify constrained areas (such as on a bridge, adjacent to a barrier or culvert, or where parked vehicles may obstruct sight lines) where stopping in the shoulder is not permitted.

If shoulders are reduced to less than 3.0m, yellow line marking can be installed to prevent road users from stopping in the shoulder.

Photo 3.4.3 Yellow No Stopping Edge Line Marking on Anglesea Road

However, consideration should be given in rural areas as to whether yellow linemarking is appropriate and will be interpreted correctly by road users. White diagonal chevron marking at large spacing (for example 20m or 40m spacing) may be a better alternative to indicate to road users that they should not stop on the shoulder.

On routes where emergency stopping cannot be provided, emergency stopping bays should be installed at regular intervals.

4. Design Process

4.1. Pavement

The project team and designer (together with a pavement specialist) should undertake an analysis of the existing pavement and seal width taking into account the considerations in Section 3.2.

This will determine what widening is required, and what additional pavement strengthening is needed.

4.2. Cross Section

An appropriate cross section should be selected from Appendix A based on the class and volume of the road. Cross sections in Appendix A are based on VicRoads Supplement to AGRD Part 3 *Figure V4.6 for Class, Volume and cross section widths*.

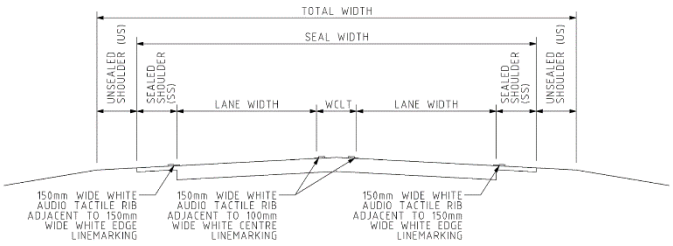


Figure 4.2 Wide Centre Line Treatment Typical Cross Section

Where ever possible, a 1m WCLT should be installed. A 0.6m WCLT should only be installed in locations that are highly constrained and when it is demonstrated that a 1.0m WCLT cannot be achieved.

Lane widths may be reduced if required in accordance with Section 3.4.1 due to project constraints. A minimum sealed shoulder width of 0.5m should be provided in accordance with Section 3.4.2.

Cross section dimensions less than above shall be assessed as a Design Exception.

4.3. Start and End of Treatment

The general minimum length of WCLT is 2km. This is to avoid short lengths of the treatment and too many changes in cross section along a route. The team should consider how the treatment fits along the strategy for the route.

The start and end points for the treatment should meet Stopping Sight Distance (SSD) to a 0m object height for the

design speed to ensure line marking is visible and prevent any unexpected lateral shifts for road users (See Austroads Guide to Road Design Part 3 Section 5).

The Transition Length to a WCLT is calculated at a lateral shift of 0.6m/s.

$$\text{Transition Length [T]} = (W/\ 0.6) \times \text{Speed}$$

(W is width of lateral shift in m; Speed is in m/s)

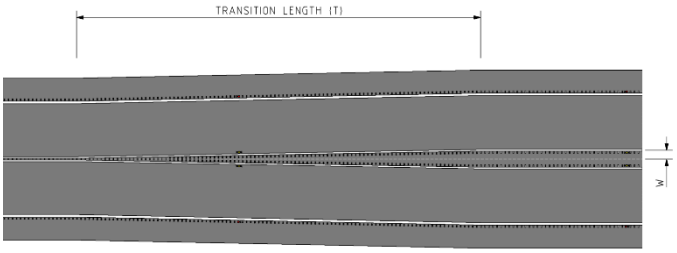


Figure 4.3.1 – Transition to WCLT

The transition lengths from an existing undivided cross section to the WCLT for the start and end of treatments are below;

Design Speed	Transition Length
80km/h & 90km/h	25m
100km/h & 110km/h	30m

Table 4: Transition Length for WCLT

Property accesses or intersections should not be located within the transition area.

4.4. Overtaking Opportunities

A sight distance analysis[4] should be undertaken to assess the overtaking opportunities along the route. WCLT linemarking that permits overtaking (see Section 4.7.1) should be installed where the sight distance meets the criteria. Existing overtaking opportunities may need to be removed if they do not meet current standards. Consideration should be given to the impact of removing some existing overtaking opportunities and whether an overtaking lane needs to be considered. Provision of an overtaking lane should be in accordance with Austroads Guide to Road Design Part F Section F.7 WCLT at Overtaking Lanes/Climbing Lanes. Overtaking lanes should be considered when traffic is greater than 700 vehicles per hour[5].

Overtaking lanes need to consider driveway accesses along the route and safety issues relating to accesses. The project team should develop an access strategy and any changes to private accesses will need to be done through consultation with relevant property owners and stakeholders.

Overtaking strategy should be prepared at the route/corridor level.

4.5. Intersections and Accesses

Breaks in the WCLT line marking should be provided to allow right turn access into and out of intersections and property accesses. Where breaks are not provided, intersections and property accesses will be restricted to left turn in and out. Breaks should be designed in accordance with Austroads Guide to Road Design Part 3 Appendix F Figure F.2 and Figure F.3.

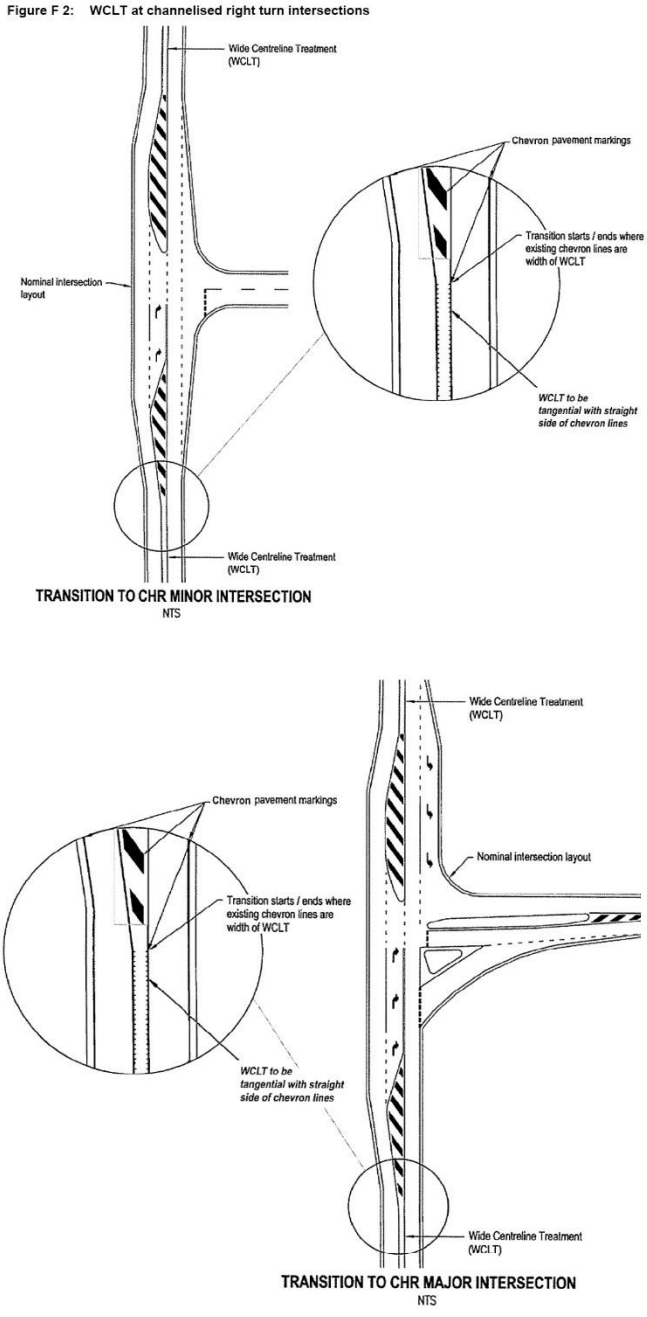


Figure 4.5.1 - Figure F.2 WCLT at channelised right turn intersections

[4] Austroads Guide to Road Design Part 3 Section 5.6 Overtaking Sight Distance

[5] See Austroads Guide to Road Design Part 3 Section 9.4

Audio tactile ribs should be terminated on the approach to private accesses where residential dwellings are within 150m of the edge of the road. This is to minimise the noise generated by tracking over audio tactile ribs.

Where noise issues arise from the installation of audio tactile ribs within proximity to residential dwellings then noise should be assessed and audio tactile ribs be removed as soon as possible.

For further information about noise generated from tracking over audio tactile ribs see Road Design Note 03-10 Audio Tactile Line Marking (ATLM).

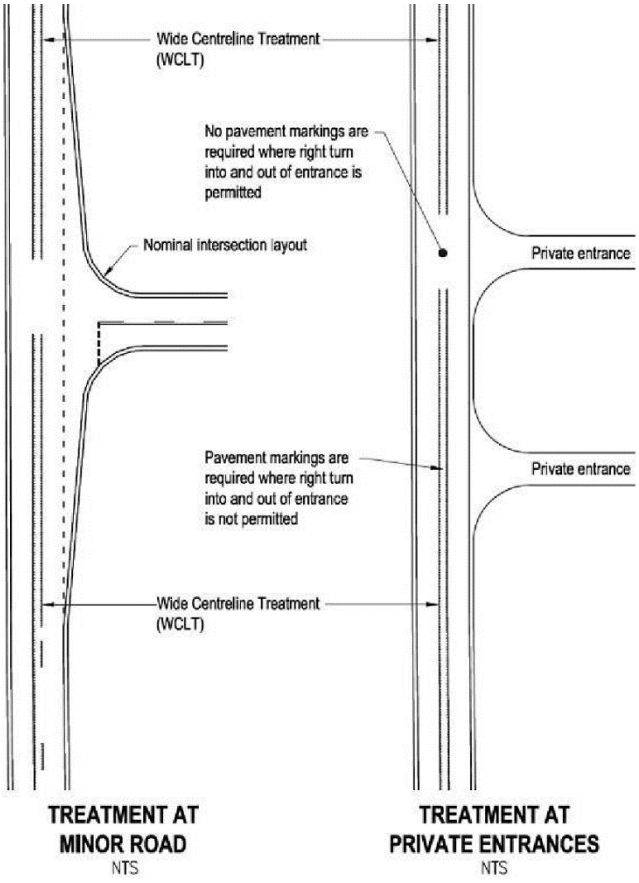


Figure 4.5.2 - Figure F.3 WCLT at basic right turn intersections and private property entrances

4.6. Localised Narrowing

Localised narrowing of the WCLT may be required where there are cross sectional constraints such as bridges and culverts. These should be designed in accordance with Austroads Guide to Road Design Part 3 Appendix F Figure F.4 and Figure F.5. A 1m WCLT can be transitioned to a 0.6m WCLT for a short length in constrained locations however designers should aim to provide a consistent cross section along the length of the treatment.

4.7. Line Marking and Signing

4.7.1. Centre Linemarking

Wide Centre Line Treatment standard separation widths are 0.6m and 1.0m. There are four standard linemarking configurations for 0.6m WCLT and for 1.0m WCLT;

- Double Two-Way Barrier Line (Overtaking not permitted
- Double One-Way Barrier Line (Overtaking Permitted in the direction of travel)
- Double One-Way Barrier Line (Reverse) (Overtaking Not Permitted in the direction of travel)
- Double Two-Way Dividing Line (Overtaking Permitted in both directions)

All lines are to be 100mm wide and to be white in colour. All linemarking is to be installed with 150mm x 50mm white audio tactile ribs placed adjacent to the linemarking to give a visual perception of a 250mm line for road users.

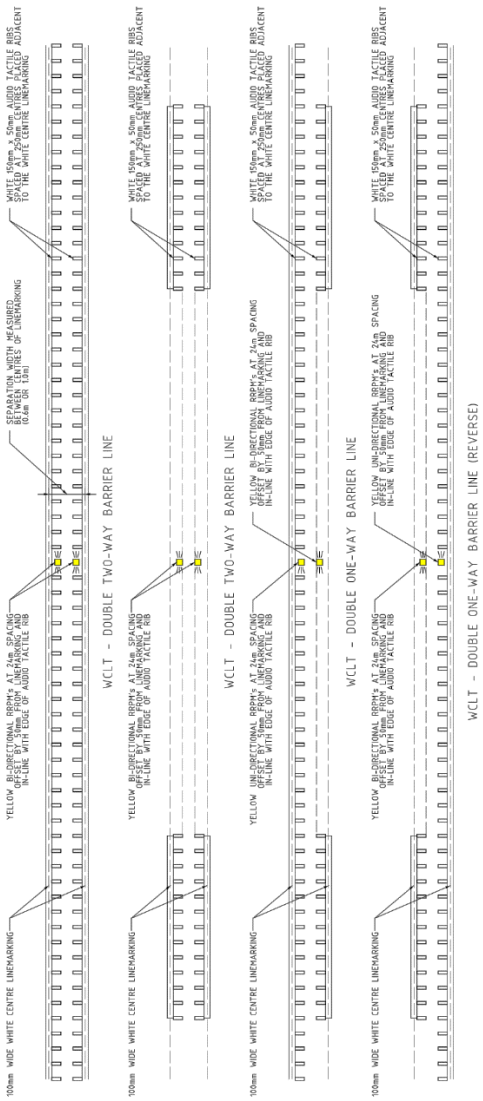


Figure 4.7.1 Centre Linemarking Layouts

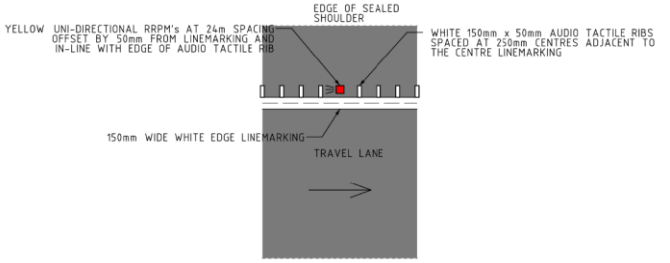
White audio tactile ribs are used to reinforce the linemarking configuration.

Yellow Raised Reflective Pavement Markers (RRPM's) are to be placed offset by 50mm from the edge of the centre linemarking and aligned with the outside edge of the audio tactile rib. Yellow RRPM's are to be placed at 24m spacing.

The layout for these linemarking configurations is found in guideline drawings RDN-0309-01, RDN-0309-02 and RDN-0309-03 in Appendix B.

4.7.2. Edge Linemarking

The lane width is measured from the centre of the centre linemarking to the centre of the edge linemarking. Edge lines are to be white in colour and 150mm wide with white 150mm x 50mm ribs placed adjacent to the linemarking. This is to give a visual perception of a 300mm edge line.



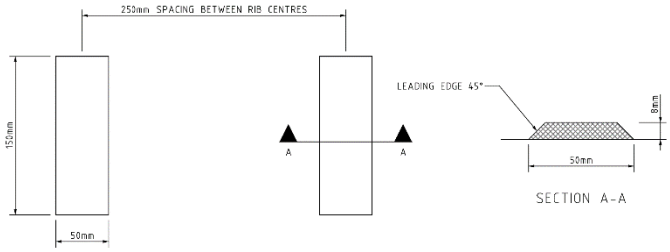
WCLT - EDGE LINEMARKING

Red Raised Reflective Pavement Markers (RRPM's) are placed offset by 50mm from the edge of the linemarking. The outside edge of the RRPM should be aligned with the outside edge of the audio tactile rib. RRPM's are to be placed at 24m spacing.

4.7.3. Audio Tactile Ribs

White audio tactile ribs are used for WCLT as indicated in Austroads Guide to Road Design Part 3 Appendix F.

Audio Tactile Ribs are to be 150mm x 50mm x 8mm and are to be spaced at 250mm centres.



White audio tactile ribs are used for WCLT by TMR in Queensland and Main Roads WA and should be used in Victoria for consistency. White audio tactile ribs with these dimensions and spacing is consistent with the 2018 Austroads harmonisation project for pavement marking[6].

Black audio tactile ribs should not be used for Wide Centre Line Treatment. However, black audio tactile ribs should be used for Audio Tactile Line Marking (See Road Design Note 03-10 Audio Tactile Line Marking).

4.7.4. Signing

Signing is to be provided on the length of the WCLT to support the linemarking. Standard signs have been developed by the TMR QLD to communicate with road users what overtaking is permitted or prohibited.

Each sign is to be placed at the start of where each line marking is first introduced.

At the time of publication of this note, VicRoads had not developed its own standard signs. TMR QLD signs are to be used for WCLT[7].

Double Two-Way Barrier Line Marking Sign Prohibiting Overtaking

Double One-Way Barrier Line Marking Sign Permitting Overtaking

Double One-Way Barrier Line Marking Sign Prohibiting Overtaking

Double Two-Way Dividing Line Marking Sign Permitting Overtaking

[6] See Austroads publication AP-R578-18 "Harmonisation of Pavement Marking and National Pavement Marking Specification"

[7] See Wide Centre Line Treatment Signs from TMR QLD https://www.tmr.qld.gov.au/-/media/busind/techstdpubs/Traffic-management/TC-signs/tc1951tc1999.pdf?la=en

Approved by

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Road Design Notes are subject to periodic review and may be superseded.

Road Design Note 03-09 – Revision Summary

Issue	Approved	Date	Amendment
03-09	A/M-SSE	January 2019	Working Release

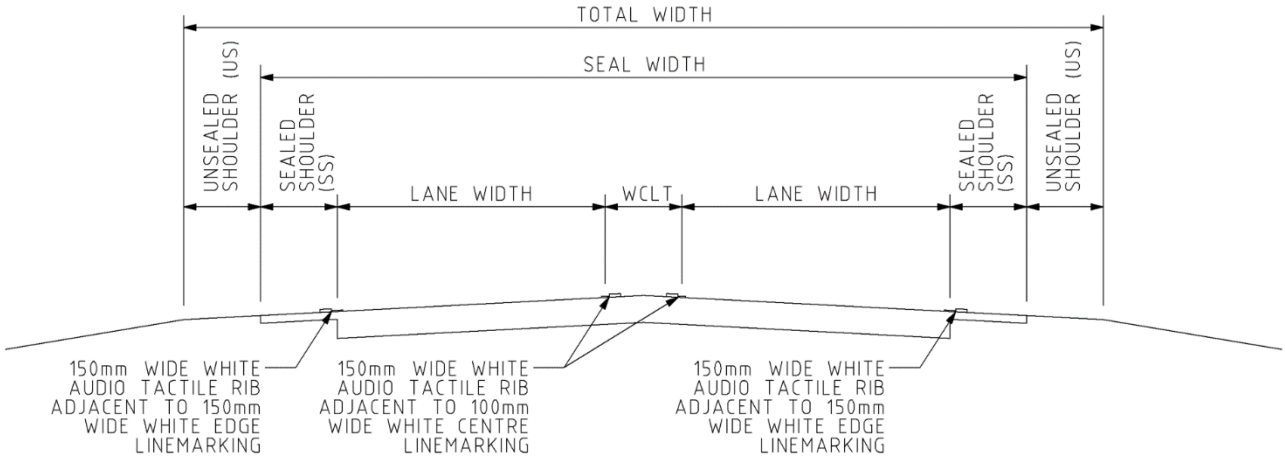
Appendices

APPENDIX A: Cross Sections

APPENDIX B: Guideline Drawings

Appendix A – Cross Sections

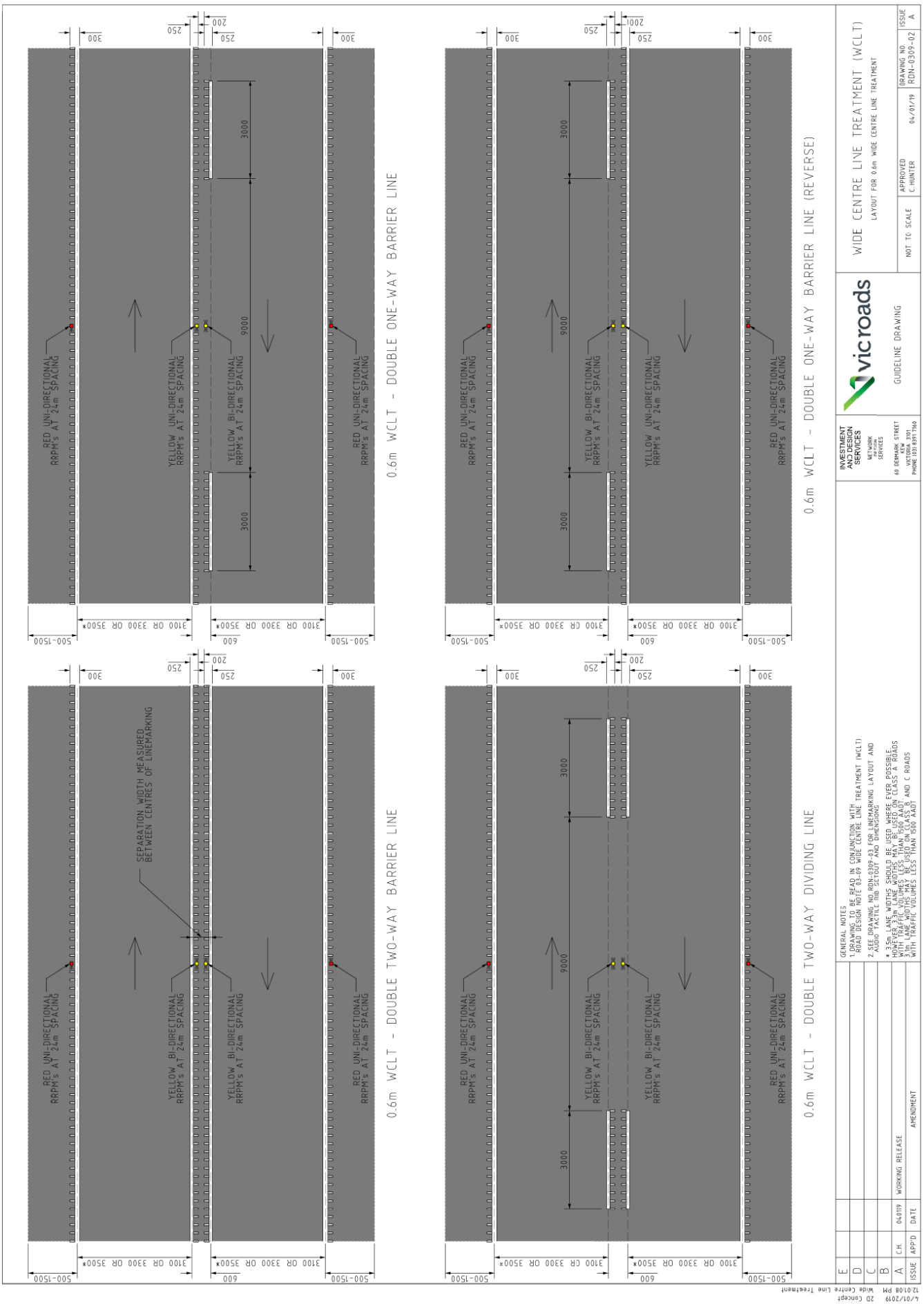
Table 1 – Values for Wide Centre Line Treatment

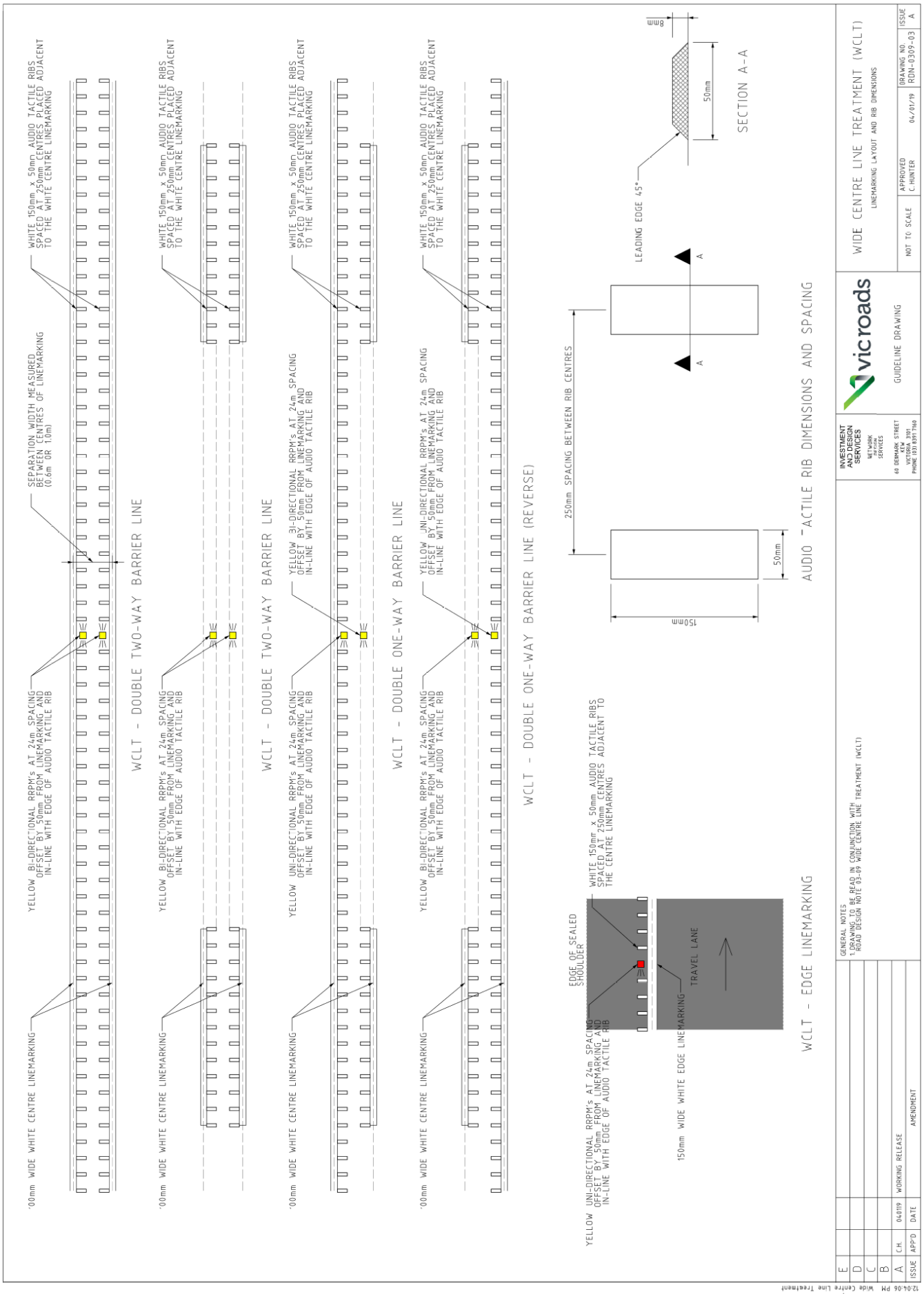


	Road Class & Volume	Total Width	Seal Width	Shoulder	Lane Width	WCLT	Lane Width	Shoulder	Comment
1.0	B or C <1500 AADT	8.8	7.8	1.0 (0.5 US + 0.5 SS)	3.1	0.6	3.1	1.0 (0.5 US + 0.5 SS)	Highly Constrained Context
1.1	B or C <1500 AADT	9.2	8.2	1.0 (0.5 US + 0.5 SS)	3.1	1.0	3.1	1.0 (0.5 US + 0.5 SS)	Minimum Recommended
1.2	B or C <1500 AADT	10.2	9.2	1.5 (1.0 US + 0.5 SS)	3.1	1.0	3.1	1.5 (1.0 US + 0.5 SS)	Recommended
1.3	B or C >1500 AADT	10.6	9.6	1.5 (0.5 US + 1.0 SS)	3.5	0.6	3.5	1.5 (0.5 US + 1.0 SS)	Highly Constrained Context
1.4	B or C >1500 AADT	11.0	10.0	1.5 (0.5 US + 1.0 SS)	3.5	1.0	3.5	1.5 (0.5 US + 1.0 SS)	Minimum Recommended
1.5	B or C >1500 AADT	12.0	10.0	2.0 (1.0 US + 1.0 SS)	3.5	1.0	3.5	2.0 (1.0 US + 1.0 SS)	Recommended
1.6	A <1500 AADT	10.2	9.2	1.5 (0.5 US + 1.0 SS)	3.3	0.6	3.3	1.5 (0.5 US + 1.0 SS)	Highly Constrained Context
1.7	A <1500 AADT	10.6	9.6	1.5 (0.5 US + 1.0 SS)	3.3	1.0	3.3	1.5 (0.5 US + 1.0 SS)	Minimum Recommended
1.8	A <1500 AADT	11.6	10.6	2.0 (0.5 US + 1.5 SS)	3.3	1.0	3.3	2.0 (0.5 US + 1.5 SS)	Recommended
1.9	A >1500 AADT	11.6	10.6	2.0 (0.5 US + 1.5 SS)	3.5	0.6	3.5	2.0 (0.5 US + 1.5 SS)	Highly Constrained Context
1.10	A >1500 AADT	12.0	11.0	2.0 (0.5 US + 1.5 SS)	3.5	1.0	3.5	2.0 (0.5 US + 1.5 SS)	Minimum Recommended
1.11	A >1500 AADT	13.0	11.0	2.5 (1.0 US + 1.5 SS)	3.5	1.0	3.5	2.5 (1.0 US + 1.5 SS)	Recommended

Appendix B – Guideline Drawings


1.0m WCLT - DOUBLE ONE-WAY BARRIER LINE
1.0m WCLT - DOUBLE ONE-WAY BARRIER LINE (REVERSE)
1.0m WCLT - DOUBLE TWO-WAY BARRIER LINE
1.0m WCLT - DOUBLE TWO-WAY DIVIDING LINE
RED UNI-DIRECTIONAL RRPM's AT 24m SPACING
YELLOW UNI-DIRECTIONAL RRPM's AT 24m SPACING
YELLOW BI-DIRECTIONAL RRPM's AT 24m SPACING
SEPARATION WIDTH MEASURED BETWEEN CENTRES OF LINEMARKING
300
250
600
3000
9000
1000
500-1500
3100 OR 3300 OR 3500*
GENERAL NOTES
1. DRAWING TO BE READ IN CONJUNCTION WITH AUSTROADS GUIDE TO ROAD DESIGN PART 3 WIDE CENTRE LINE TREATMENT (WCLT)
2. SEE DRAWING NO RDN-0309-02 FOR LINEMARKING LAYOUT AND AUSTRALIAN STANDARD REFERENCE AND DIMENSIONS
* 3.5m LANE WIDTHS SHOULD BE USED WHERE EVER POSSIBLE. HOWEVER 3.7m LANE WIDTHS MAY BE USED ON CLASS A ROADS WITH TRAFFIC VOLUMES LESS THAN 1500 AADT AND CLASS B, C AND D ROADS WITH TRAFFIC VOLUMES LESS THAN 1500 AADT
ISSUE | APP'D | DATE | AMENDMENT
A | C.H. | 04/19 | WORKING RELEASE
INVESTMENT ASSESSMENT SERVICES
NETWORK PERFORM SERVICES
60 DENMARK STREET KEW VICTORIA 3101 PHONE (03) 8391 7160
vicroads
GUIDELINE DRAWING
WIDE CENTRE LINE TREATMENT (WCLT)
LAYOUT FOR 10m WIDE CENTRE LINE TREATMENT
NOT TO SCALE
APPROVED C HUNTER 04/01/19
DRAWING NO. RDN-0309-01
ISSUE A
4/01/2019 11:58:47 AM 2D Concept Wide Centre Line Treatment


0.6m WCLT - DOUBLE ONE-WAY BARRIER LINE
0.6m WCLT - DOUBLE ONE-WAY BARRIER LINE (REVERSE)
0.6m WCLT - DOUBLE TWO-WAY BARRIER LINE
0.6m WCLT - DOUBLE TWO-WAY DIVIDING LINE
RED UNI-DIRECTIONAL RRPM's AT 24m SPACING
YELLOW BI-DIRECTIONAL RRPM's AT 24m SPACING
YELLOW UNI-DIRECTIONAL RRPM's AT 24m SPACING
SEPARATION WIDTH MEASURED BETWEEN CENTRES OF LINEMARKING
3100 OR 3300 OR 3500* OR 3100 CR 3300 OR 3500*
500-1500
GENERAL NOTES
1. DRAWING TO BE READ IN CONJUNCTION WITH ROAD DESIGN NOTE 03-09 WIDE CENTRE LINE TREATMENT (WCLT)
2. SEE DRAWING NO RDN-0309-03 FOR LINEMARKING LAYOUT AND AUDIO TACTILE RIB SETOUT AND DIMENSIONS
* 3.5m LANE WIDTHS SHOULD BE USED WHERE EVER POSSIBLE. HOWEVER 3.3m LANE WIDTHS MAY BE USED ON CLASS A ROADS WITH TRAFFIC VOLUMES LESS THAN 6500 AADT AND ON CLASS B AND C ROADS WITH TRAFFIC VOLUMES LESS THAN 1500 AADT
INVESTMENT AND DESIGN SERVICES
NETWORK PERFORM SERVICES
40 DERMARK STREET KEW VICTORIA 3101 PHONE (03) 9391 7160
vicroads
GUIDELINE DRAWING
WIDE CENTRE LINE TREATMENT (WCLT)
LAYOUT FOR 0.6m WIDE CENTRE LINE TREATMENT
NOT TO SCALE
APPROVED C. HUNTER 04/01/19
DRAWING NO. RDN-0309-02
ISSUE A
ISSUE APP'D DATE AMENDMENT
A C.H. 04/01/19 WORKING RELEASE
4/01/2019 12:01:08 PM 2D Concept Wide Centre Line Treatment


WCLT - DOUBLE TWO-WAY BARRIER LINE
WCLT - DOUBLE TWO-WAY BARRIER LINE
WCLT - DOUBLE ONE-WAY BARRIER LINE
WCLT - DOUBLE ONE-WAY BARRIER LINE (REVERSE)
WCLT - EDGE LINEMARKING
AUDIO TACTILE RIB DIMENSIONS AND SPACING
SECTION A-A
LEADING EDGE 45°
250mm SPACING BETWEEN RIB CENTRES
150mm
50mm
100mm WIDE WHITE CENTRE LINEMARKING
150mm WIDE WHITE EDGE LINEMARKING
TRAVEL LANE
EDGE OF SEALED SHOULDER
YELLOW BI-DIRECTIONAL RRPM's AT 24m SPACING OFFSET BY 50mm FROM LINEMARKING AND IN-LINE WITH EDGE OF AUDIO TACTILE RIB
YELLOW UNI-DIRECTIONAL RRPM's AT 24m SPACING OFFSET BY 50mm FROM LINEMARKING AND IN-LINE WITH EDGE OF AUDIO TACTILE RIB
WHITE 150mm x 50mm AUDIO TACTILE RIBS SPACED AT 250mm CENTRES PLACED ADJACENT TO THE WHITE CENTRE LINEMARKING
SEPARATION WIDTH MEASURED BETWEEN CENTRES OF LINEMARKING (0.6m OR 1.0m)
WHITE 150mm x 50mm AUDIO TACTILE RIBS SPACED AT 250mm CENTRES PLACED ADJACENT TO THE WHITE CENTRE LINEMARKING
YELLOW UNI-DIRECTIONAL RRPM's AT 24m SPACING OFFSET BY 50mm FROM LINEMARKING AND IN-LINE WITH EDGE OF AUDIO TACTILE RIB
WHITE 150mm x 50mm AUDIO TACTILE RIBS SPACED AT 250mm CENTRES PLACED ADJACENT TO THE CENTRE LINEMARKING
GENERAL NOTES
THIS DRAWING TO BE READ IN CONJUNCTION WITH ROAD DESIGN NOTE 03-09 WIDE CENTRE LINE TREATMENT (WCLT)
INVESTMENT AND DESIGN SERVICES
NETWORK DEFINITION SERVICES
60 DENMARK STREET KEW VICTORIA 3101
PHONE (03) 8391 7960
vicroads
GUIDELINE DRAWING
WIDE CENTRE LINE TREATMENT (WCLT)
LINEMARKING LAYOUT AND RIB DIMENSIONS
NOT TO SCALE
APPROVED C. HUNTER 04/01/19
DRAWING NO. RDN-0309-03
ISSUE A
ISSUE APP'D DATE AMENDMENT
A C.H. 04/19 WORKING RELEASE
4/01/2019 12:04:06 PM 2D Concept Wide Centre Line Treatment