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Crossover Policy

DRAFT – Subject to Review and Alteration

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1. Introduction

1.1 Objective

To provide guidance on locations and requirements on vehicular access for all lots abutting; or likely to impact State Roads.

1.2 Scope

This policy applies to any crossover locations that have the potential to impact the safety or efficiency of the State Road network or any intersection under traffic signal control.

It applies when:

- a) maintaining or replacing an existing crossover; or
- b) installing a new crossover.

For a full list of State Roads, click [here](#).

The impact associated with crossovers varies and is dependent on the land development type, crossover location and expected vehicle volumes/size/type/composition at a specific location (development trip generation).

To simplify the process, particularly for crossover replacement and developments, the following three (3) categories have been adopted to inform this policy:

1. Works Approval Only (Category 1).
2. Minor Development (Category 2).
3. Major Development (Category 3).

Further details on each category are provided in [Table 1](#). The typical criteria for each category are provided as guidance only and additional information may need to be considered, particularly for major developments (Category 3).

This policy does not impact the use of an existing crossover where land use and trip generation remain the same. However, when a Development Application (DA) is lodged and/or a land use is changed or intensified (trip generation will increase), the right to use the existing crossover does not automatically apply.

Please note: This *Crossover Policy* supersedes the previous document relating to the approval, location and use of crossovers on State Roads, known as the *Driveways Policy* (Revision 3 June 2020/5D).

Table 1 Development type, category and criteria

Type	Category	Criteria
Works Approval Only	1	- No increase to vehicle trips and no changes to land use - Upgrading or replacing an existing crossover (ie. rip and replace) - Removing an existing crossover and reinstating the verge - Modifying an existing crossover, including changes to the materials used (brick paving, concrete) or minor adjustment to the trafficable area (no greater than 10% variation to the existing width)

Development examples:

Legend

	State Road
	Local Road
	Crossover
	Footpath
	Driveway

Replace/repair existing crossover.



Type	Category	Criteria
Minor Development	2	<10 vehicle trips per hour at peak periods (eg. grouped dwellings or multiple dwellings using an existing crossover) - Relocating an existing crossover within the property frontage/s - A proposed increase in the number of crossovers servicing a single property - Must not introduce heavy vehicles (eg. large commercial vehicles, specialised waste collection, any Restricted Access Vehicle (RAV) or Over-Size Over-Mass (OSOM) vehicles).

Development examples:

Legend

	State Road
	Local Road
	Crossover
	Footpath
	Driveway

New crossover to group dwelling/multiple dwelling

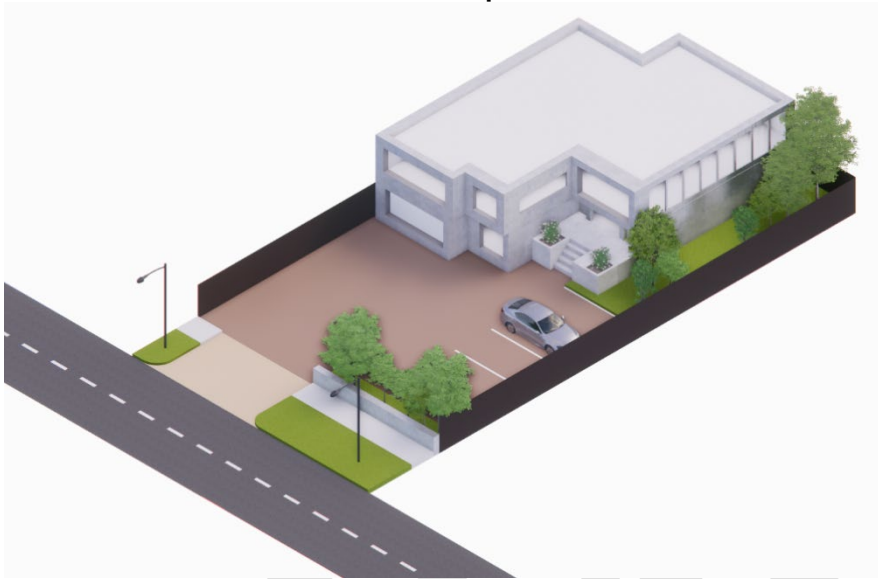


Addition of new crossover



Type	Category	Criteria
Minor Development Continued	2	• <10 vehicle trips per hour at peak periods (eg. grouped dwellings or multiple dwellings using an existing crossover) • Relocating an existing crossover within the property frontage/s • A proposed increase in the number of crossovers servicing a single property • Must not introduce heavy vehicles (eg. large commercial vehicles, specialised waste collection, any Restricted Access Vehicle (RAV) or Over-Size Over-Mass (OSOM) vehicles).

New crossover to small commercial development



Type	Category	Criteria
Major Development	3	- Results in an increase to vehicle trips on an existing crossover >10 vehicle trips per hour during peak periods - Proposing an increase in the number of crossovers servicing a property - Introducing heavy vehicles (eg. large commercial vehicles, waste vehicles, any Restricted Access Vehicle (RAV) and Over-Size Over-Mass (OSOM) vehicles) - Relocating an existing crossover within the property frontage/s

Development examples:

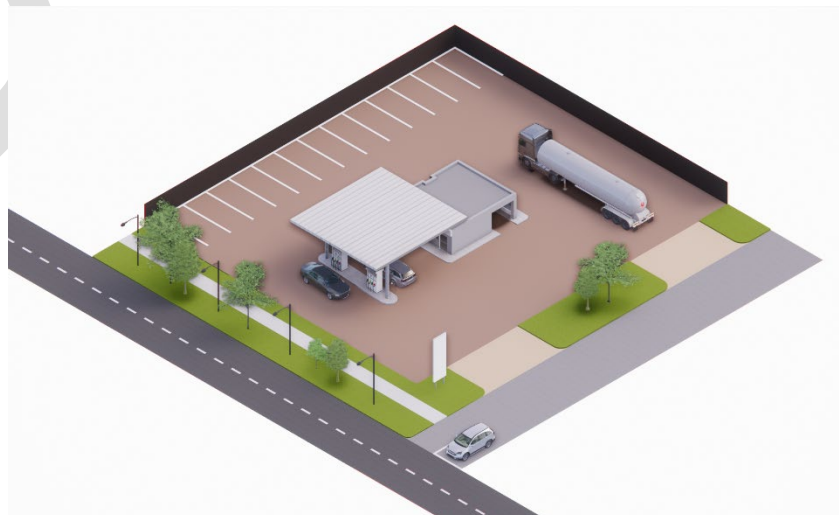
Legend

	State Road
	Local Road
	Crossover
	Footpath
	Driveway

Warehouse/showroom development

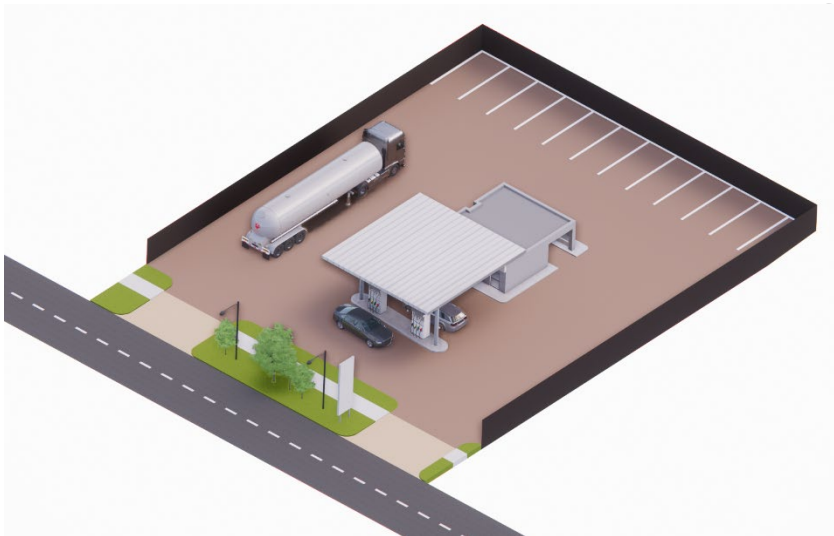


Service station & convenience store development - Corner Lot



Type	Category	Criteria
Major Development Continued	3	• Results in an increase to vehicle trips on an existing crossover • >10 vehicle trips per hour during peak periods • Proposing an increase in the number of crossovers servicing a property • Introducing heavy vehicles (eg. large commercial vehicles, waste vehicles, any Restricted Access Vehicle (RAV) and Over-Size Over-Mass (OSOM) vehicles) • Relocating an existing crossover within the property frontage/s

Service station & convenience store development - Mid Block



Mixed use development



Type	Category	Criteria
Major Development Continued	3	• Results in an increase to vehicle trips on an existing crossover • >10 vehicle trips per hour during peak periods • Proposing an increase in the number of crossovers servicing a property • Introducing heavy vehicles (eg. large commercial vehicles, waste vehicles, any Restricted Access Vehicle (RAV) and Over-Size Over-Mass (OSOM) vehicles) • Relocating an existing crossover within the property frontage/s

Shopping Centre development



Shopping Centre development – Close up view of crossover treatment



1.3 Responsibilities

Main Roads is responsible for managing crossovers where they connect to or impact State Roads or Traffic Control Signals (TCS). This policy provides applicants with guidance about Main Roads' crossover requirements. It is not intended, nor expected, to address all cases or situations that may arise.

When upgrading a State Road, or an intersection with a State Road, Main Roads may need to remove or relocate existing crossovers. New crossovers may not connect to the same road and may include easements as part of Vehicle Access Strategies (VAS).

Should Main Roads relocate or modifies a crossover as part of a road upgrade, the cost is generally covered by Main Roads. In all other cases, the cost associated with establishing and maintaining a crossover is generally the applicant's responsibility.

When a new crossover is applied for under this policy, the applicant is responsible for conducting a preliminary site accessibility assessment and must be able to demonstrate how their proposal best balances the needs of the development with adjacent traffic flows and road safety. The proposal must also provide details of alternative crossover options that were considered and discounted as part of this assessment.

Prior to formal lodgement with the Local Government Authority (LGA) the applicant should liaise with the relevant LGA and Main Roads to review the proposed crossover location, having primary regard for Safe System principles and the efficiency of the State Road network.

For a major development (Category 3), the applicant is required to submit a Transport Impact Statement (TIS) or Transport Impact Assessment (TIA) and preliminary design documentation.

Once a crossover location is given planning approval by the LGA (under categories 2 & 3), an "Application to Undertake Works Within the Road Reserve" must be submitted to Main Roads before the applicant accesses the road network to undertake construction or associated works. Applicants (in all categories) must also apply for an "Access Permit" from the relevant LGA.

When a new crossover is approved and constructed under this policy, it is the applicant's responsibility to remove any redundant crossovers. This includes reinstating the road verge and vegetation to the satisfaction of Main Roads and/or the LGA.

In all cases, it is the applicant's responsibility to obtain relevant agency approval/s in respect to their development. [Table 2](#) below summarises the minimum approvals that may be required based on the proposed type/category of works.

Table 2 Approval requirements by development type/category

Type	Category	Summary of Requirements
Works approval only	1	• Does not require development approval from the relevant government authority. • Requires Access Permit from the LGA • Requires an 'Application to Undertake Works Within the Road Reserve' from Main Roads
Minor development	2	• Requires development approval from the relevant government authority. • Requires referral of Development Application to Main Roads by the LGA. • Requires Access Permit from the LGA • Requires an 'Application to Undertake Works Within the Road Reserve' from Main Roads.
Major development	3	• Pre-lodgement discussion with Main Roads is recommended. • Requires referral of Development Application to Main Roads by the LGA or other relevant planning authority. • Requires development approval from the relevant government authority. • Requires Access Permit from the LGA • Requires an 'Application to Undertake Works Within the Road Reserve' from Main Roads.

1.4 Definitions

A list of the terms defined within this policy are provided in [Table 3](#) below.

Figure 1-1 is also provided to supplement the definitions to assist applicants to understand policy terms:

Table 3 **Definitions**

Term	Definition
Applicant	The property owner(s) or developer seeking to establish a new crossover or upgrade, maintain or replace an existing crossover.
AS	Australian Standards.
Associated works	Includes, but are not limited to, modification to bus shelters, power poles, water services, stormwater drainage, all other services, footpaths, kerbing, pedestrian ramps and provision of auxiliary lanes and traffic-controlled signals.
Austrorads GRD	Austrorads Guide to Road Design
Auxiliary lane	As defined in the Austrorads Guide to Road Design Part 3 – Geometric Design, Section 9. Includes (but is not necessarily restricted to) speed change lanes (acceleration and deceleration), turning lanes, overtaking lanes, and climbing lanes (short additional lanes to allow overtaking of slow-moving vehicles).
Control of Access Road	Roads where access is controlled by Main Roads Western Australia under section 28A of the <i>Main Roads Act 1930</i> and <i>Local Government Act 1995</i> and regulated by the Local Government (Administration) Regulations 1996.
Crossover	The portion of the vehicular access to a property that extends from the property boundary to the edge of the road carriageway. <i>*Note:</i> Crossovers may be referenced in other policies, standards and guidelines using other terms (such as driveway, access driveway and crossing). Wherever this occurs, the terms are considered to have the same meaning as crossover, so far as the term meets the same underlying intent as the definition above.
Decision-maker	The State or Local Government agency responsible for referring development proposals to the relevant stakeholders for assessment and referral comments. The agency that makes the decision to approve or refuse the proposal based on the compiled referred responses and internal assessment, setting appropriate conditions of development as required.
Development	Any demolition, erection, construction, alteration of or addition to any building or structure on a property.
DPLH	Department of Planning, Lands and Heritage
Driveway	The portion of the vehicle access to a property between the property boundary and a dedicated car parking area, excluding any associated landscaping or pedestrian path on either side.
Dwelling	A building or portion of building being used, adapted, or designed or intended to be used for the purpose of human habitation.

Term	Definition
Freeway	A road or portion of a road that is designated as a freeway by signs erected thereon or adjacent thereto. These are generally divided roads with no provisions for access between interchanges and with grade-separated on and off-ramps at all intersections.
Functional area	The functional area of an intersection is the area beyond the physical intersection of two roads that comprises decision and manoeuvre distances on the approaches and departures, plus any required vehicle storage length. Wherever possible, this area should be protected from interference by traffic from accesses. The upstream functional area is that length over which vehicles on the through road are manoeuvring to execute a right or left-turn at the intersecting road. This length is the greater of the distance required for the right or left turn, including storage or the queue length. The downstream distance is that required for a driver to avoid a collision with a vehicle entering the road from an access connection. Refer to Austroads GRD Part 4 Intersections and Crossings - General Section 7.2.
LGA	Local Government Authority
Low volume development	A Category 2 development as defined by the policy
Main Roads	Main Roads Western Australia
Non-residential crossover	A non-standard crossover to a development where the use requires a higher volume of vehicles or larger vehicle types to access the site. These are not low to medium density residential developments.
Peak hours	The average trip rate during the hours of the highest volume of traffic entering and leaving the site.
Planning Control Area (PCA)	Planning Control Areas protect land that has a specific purpose. The WAPC can declare a PCA on land subject to a region scheme resulting in all Development Applications needing to be determined by the WAPC.
Primary Regional Road (PRR)	A regional road within a region scheme.
Primary Distributor Road (PDR)	A regional road under the care and control of Main Roads. PDR roads under the care and control of Main Roads can be viewed online at: Main Roads Road Information Mapping.
Property (Properties)	- In the case of a single house, the green title or survey-strata lot on which it stands. - In the case of a grouped dwelling, the area occupied by the dwelling together with any area allocated (whether by way of strata title scheme or otherwise) for the exclusive use or benefit of that dwelling. - In the case of a multiple dwelling or apartment development, the lot (or parent lot where the lot is subdivided under strata scheme) on which the dwellings stand.
Property boundary	The boundary between a property and any other parcel of land, including the road reserve.

Term	Definition
Residential crossover	A crossover that relates to a development for a single dwelling or group of dwellings in Category 1 or Category 2.
Safe System principles	- The Safe System principles are Safe Roads, Safe Vehicles, Safe People and Safe Speeds. - It is a method of road safety management based on the principle that human bodies can only withstand limited forces before injury or death occurs. - The principles aim to create a road transport system that makes allowances for errors and minimises the consequences, in particular the risk of death or serious injury. - The Safe System approach has been adopted by all Australian jurisdictions to support road safety outcomes. It also underpins the 2020-2030 Road Safety Strategy – Driving Change.
State Road	Any section or part of a road that is under the care and control of Main Roads. This shall be considered to include any of the following; a) A main road that is the subject of a declaration under s.13 of the <i>Main Roads Act 1930</i> (MR Act). b) Primary Regional Road, where a region scheme applies. c) Primary Distributor Road, not included in a region scheme. d) Any section of a local road extending to the first side property boundary adjacent to traffic signals. For a) and c) above, refer to Main Roads' road information mapping system here.
Traffic Impact Statement /Traffic Impact Assessment	Technical reports that assess the impacts of a proposed development on the surrounding transport network and identify solutions to address these impacts. A Traffic Impact Statement (TIS) or Traffic Impact Assessment (TIA) considers the number of vehicle trips the proposed development is estimated to generate.
Traffic Control Signals	As defined in Regulation 3 in the Road Traffic Code 2000, any light or lights (coloured or otherwise), however operated, for the control or regulation of traffic, by the use of an illuminated word or words, an illuminated symbol or symbols, a coloured light or coloured lights or any combination thereof.
Urban	An area characterised by a highly interconnected road network with a dense population of primarily residential dwellings. May include some community, commercial, recreational and industrial uses.
Vehicle Access Strategy	A Vehicle Access Strategy (VAS) refers to the relevant local/state/national policies, guidelines and Australian Standards and may prescribe the following: - Access arrangements, including location, design and number of crossovers to properties. - Median location and breaks. - Mechanism for organising and securing shared use of crossovers.
WAPC	Western Australian Planning Commission

Figure 1-1 Policy terminology: single residential property mid-block

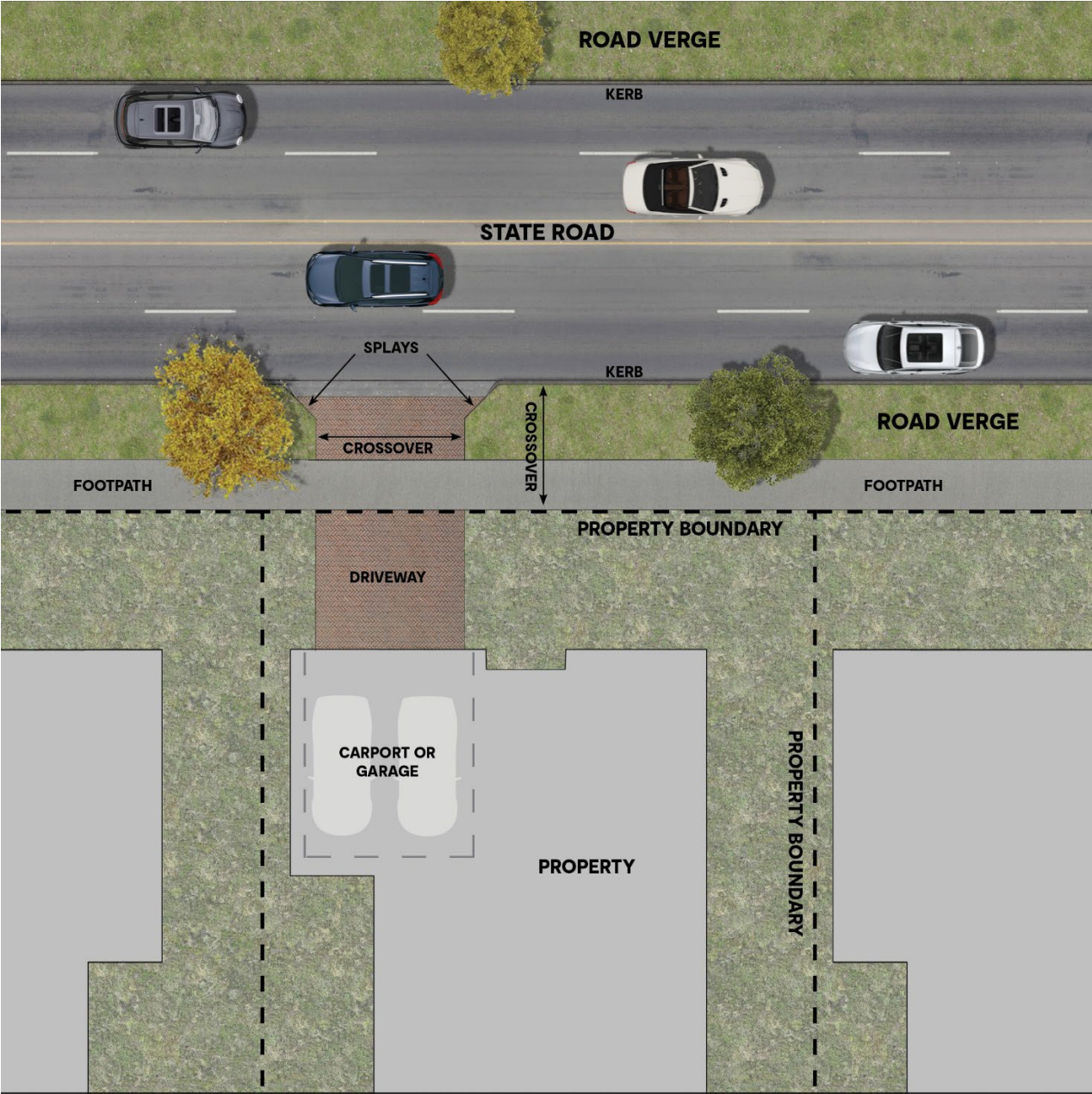
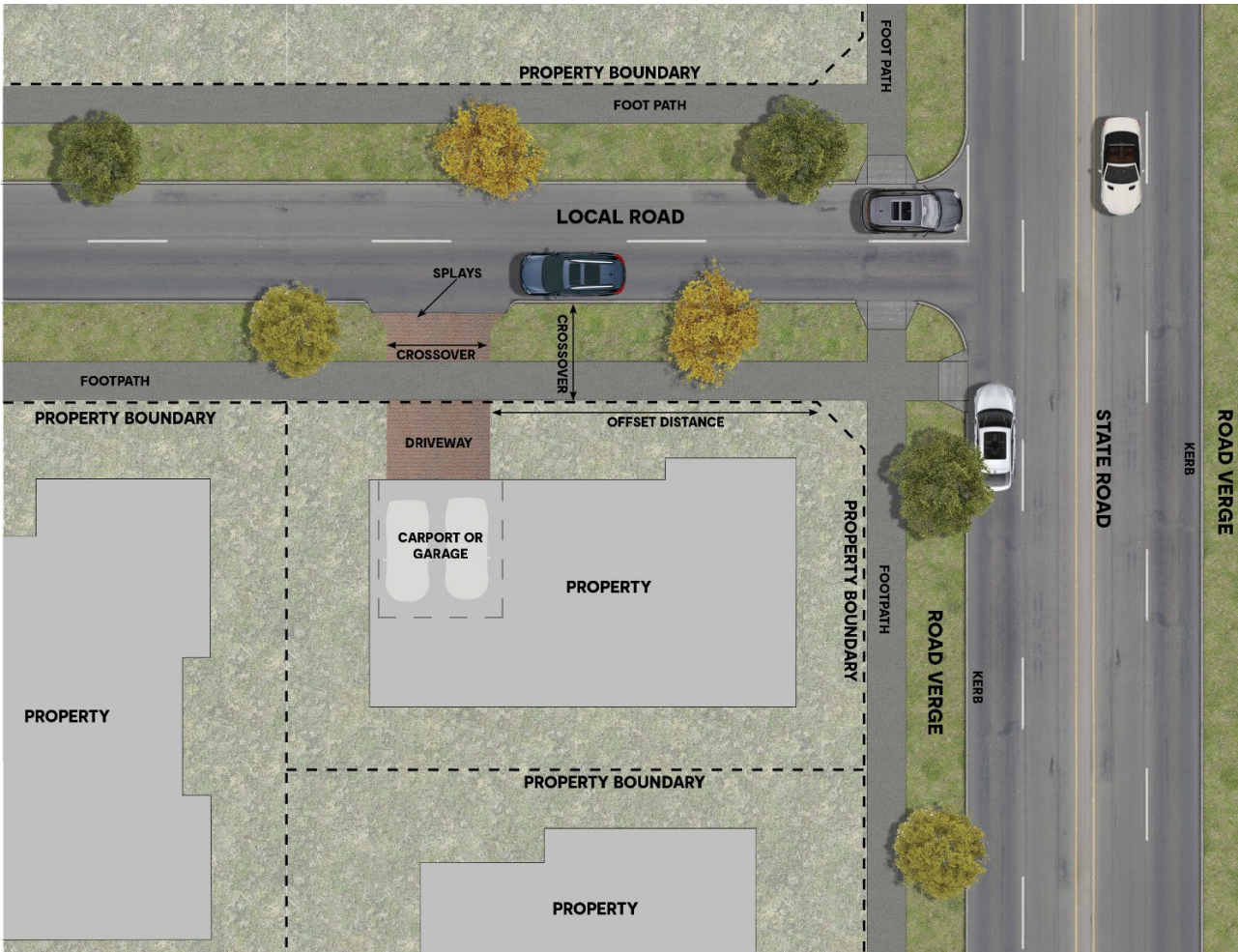


Figure 1-2 Policy terminology: single residential property corner lot.



2. Approval process

2.1 Main Roads' approval pathway for crossovers

The approval pathway for each development type/category has been summarised in process flowcharts which can be found under Section 2.5, summarised in **Table 4** below. Note that self-assessment checklists do not form part of Main Roads' formal assessment process and are not required for lodgement.

Table 4 Approval flowchart and checklist

Type / Category	Flowchart	Checklist
Works approval only (Category 1)	Figure 2-1	Appendix A
Minor development (Category 2)	Figure 2-2	Appendix B
Major development (Category 3)	Figure 2-3	Appendix C

The flowcharts do not account for all possible approval scenarios and are provided as a guide only. In all instances, applicants are encouraged to liaise with the relevant LGA to confirm approval processes, including development approval requirements.

2.2 Pre-lodgement advice

Main Roads encourages applicants to seek pre-lodgement advice to clarify any planning, design and/or construction requirements that may need to be considered as part of a crossover proposal.

A pre-lodgement discussion can assist with the early identification and resolution of issues, prior to application. It is especially beneficial when there is uncertainty that the proposed crossover will meet the necessary requirements for approval.

It should be noted that pre-lodgement advice is only provided as a guide. It does not supersede a comprehensive assessment of the proposal as part of the development approval process, during which additional comments may be raised and/or conditions imposed/*-.

Further detail on the pre-lodgement process can be found on the [Main Roads website](http://www.mainroads.wa.gov.au/technical-commercial/planning-development) (www.mainroads.wa.gov.au/technical-commercial/planning-development).

2.3 Main Roads referral

Referral to Main Roads by the decision-maker, usually the LGA, is required in most situations where development abuts a State Road (e.g. corner lot) or where the development is likely to impact the safety or efficiency of the State Road and/or an intersection under traffic signal control.

Upon receipt of a referral, Main Roads will review the crossover proposal in line with this policy. Main Roads may recommend the imposition of conditions on an approval for vehicle access arrangements, construction, or drainage, to the decision-maker.

2.4 Application to undertake works within the road reserve (third party works)

An application to undertake works within the State Road reserve must be lodged if crossover works are to be undertaken on or abutting a State Road (including corner lots), or where they will impact a State Road and/or an intersection under traffic signal control.

It should be noted that this application requires a separate approval and can only be applied for once development approval is granted.

Further information on the works approval process can be found on the [Main Roads website](http://www.mainroads.wa.gov.au/technical-commercial/working-on-roads) (www.mainroads.wa.gov.au/technical-commercial/working-on-roads).

2.5 Approval pathway flowcharts

Figure 2-1 Works approval only (Category 1) approval flowchart

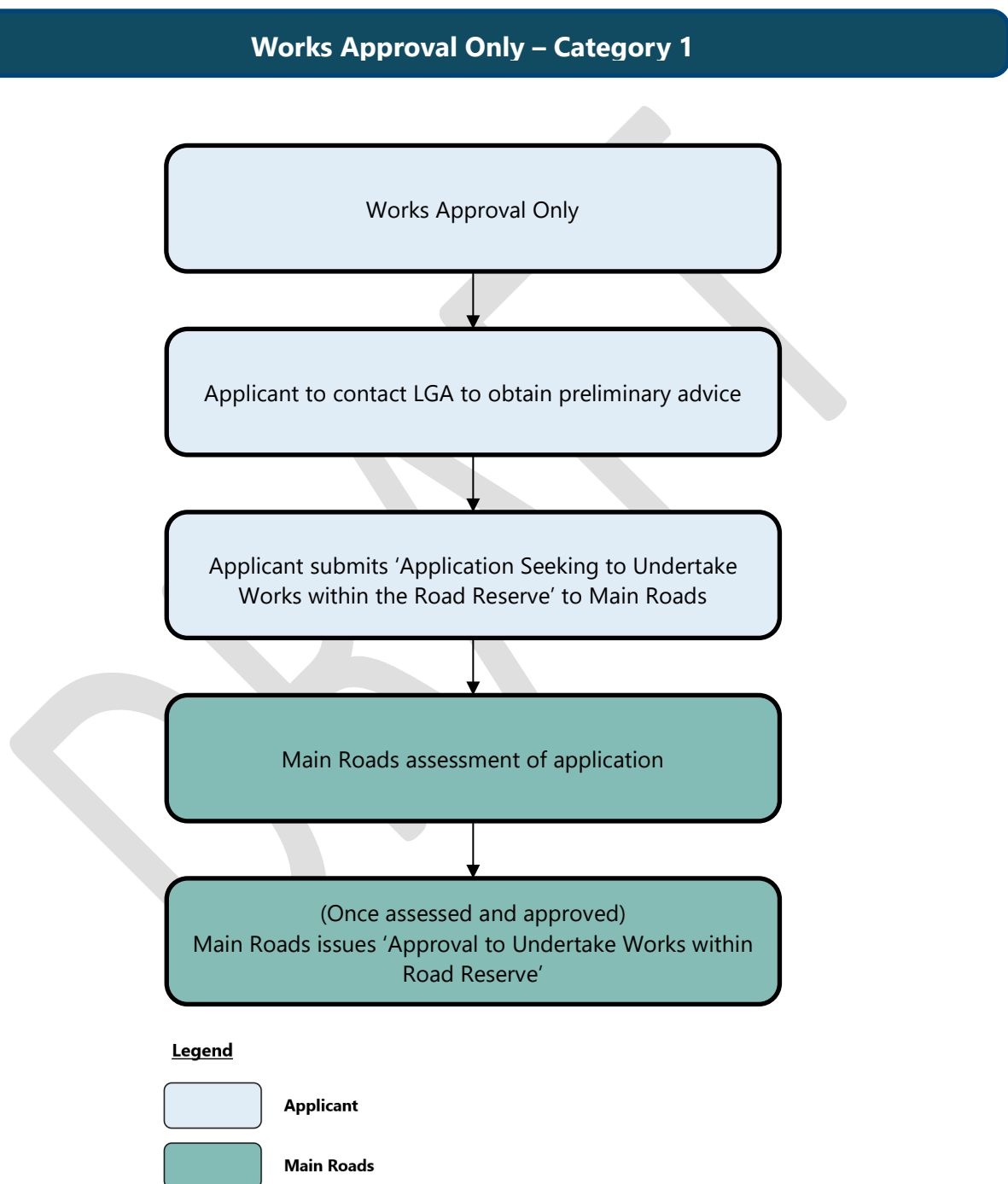


Figure 2-2 Minor development (Category 2) approval flowchart

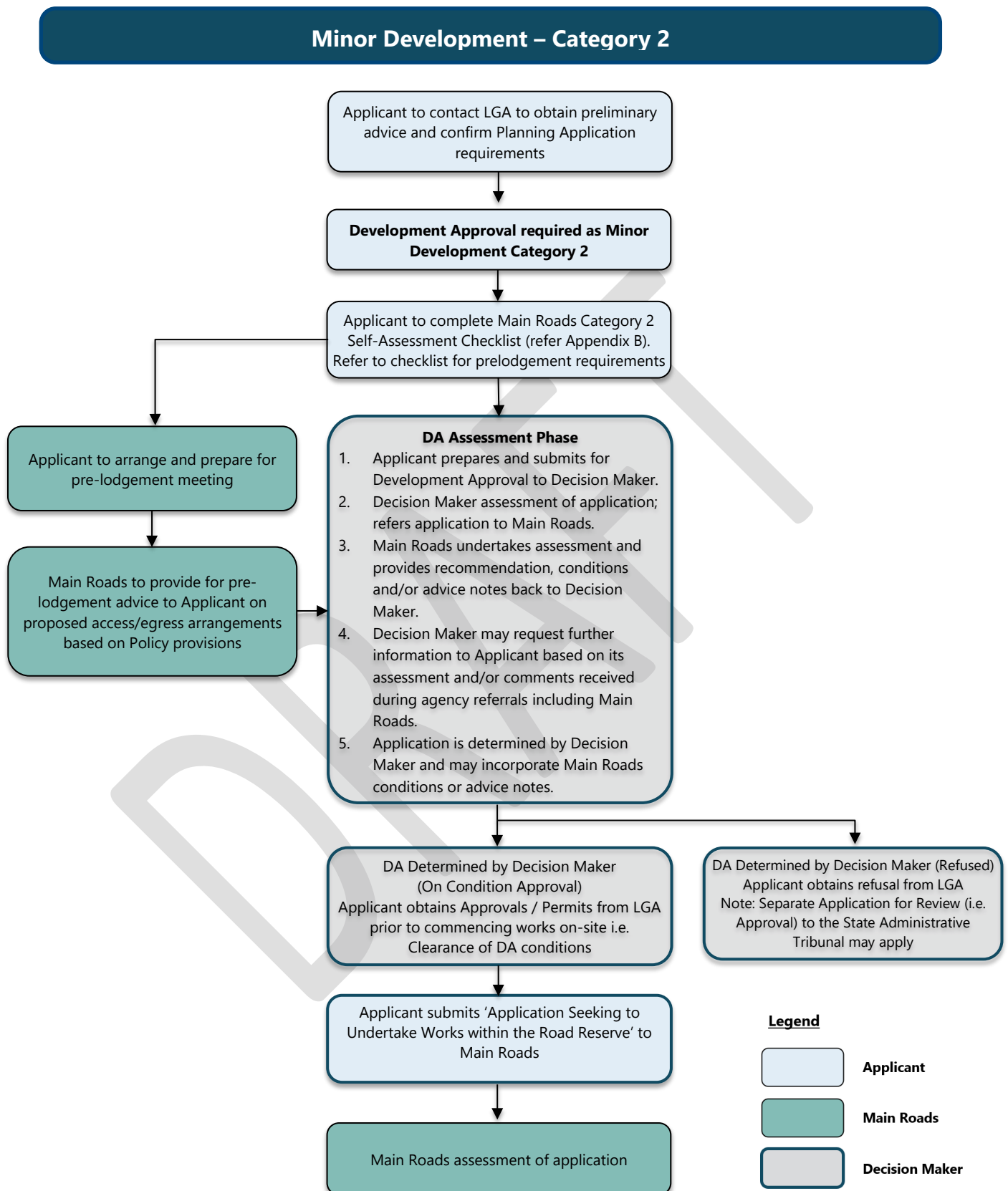
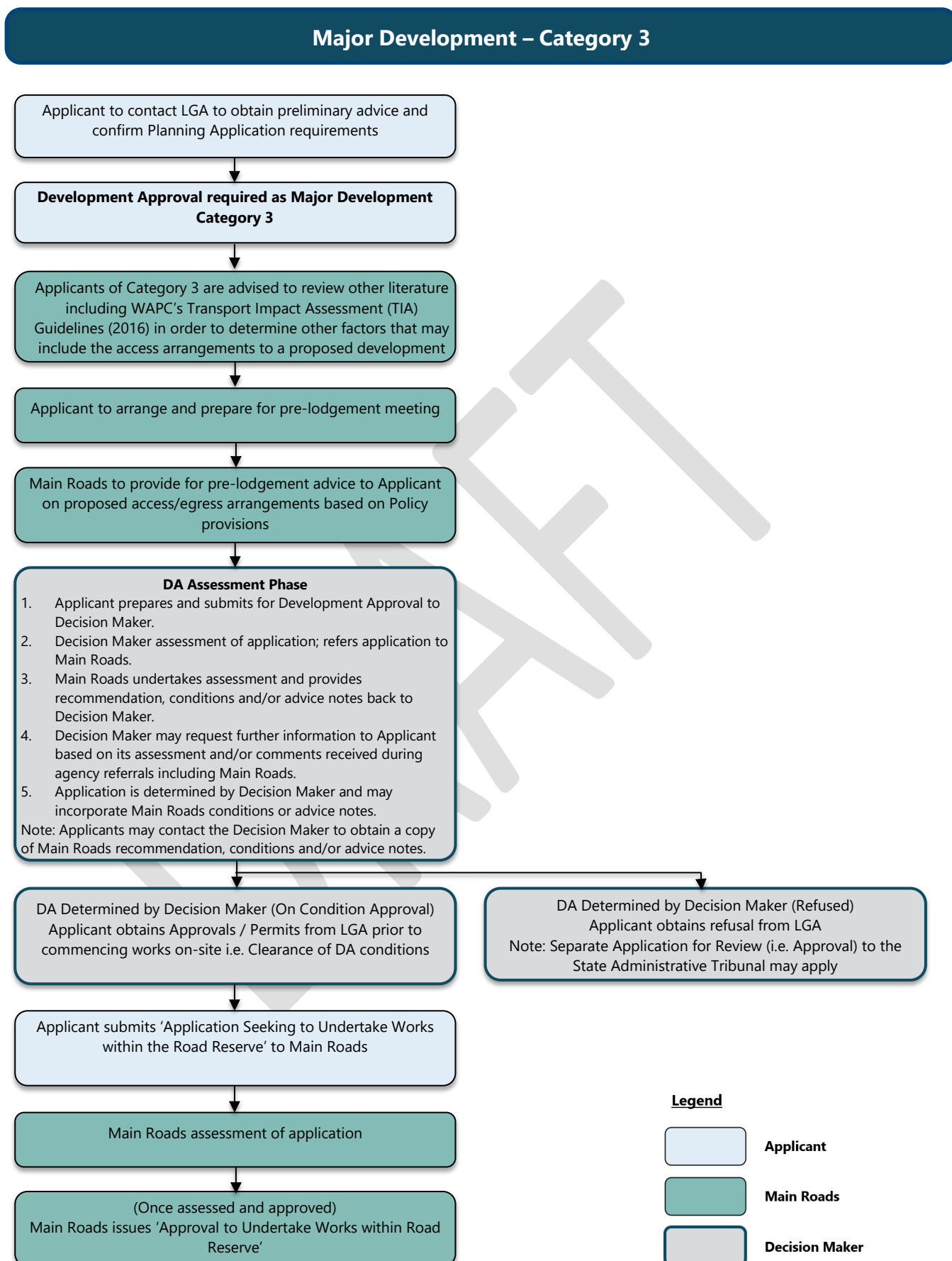


Figure 2-3 Major development (Category 3) approval flowchart



3. Policy statement

Crossovers on State Roads should be designed in accordance with these policy requirements and the technical guidelines provided in **Appendix D**. Where a crossover design cannot meet these requirements, applicants should contact Main Roads and seek pre-lodgement advice.

In some circumstances, the services of an engineering professional may need to be engaged to identify solutions that satisfy the general provisions of this policy.

The general provisions below apply to all crossover categories outlined within this policy.

3.1 Quantity

Developments should be limited to one (1) crossover per property on a State Road.

Where practicable, developments should aim to consolidate access arrangements, rather than increase the number of crossovers.

**Note:* Applications for more than one (1) crossover to the State Road network are discouraged and will only be considered under exceptional circumstances, and in consultation with Main Roads as part of a pre-lodgement and/or formal Development Application (DA) process.

3.2 Location

Crossover locations will not be permitted:

- to a State Road where alternative access arrangements to a local road, laneway or other are available (refer [Figure 3-1](#)).
- within the property truncation area; and/or
- where a Planning Control Area (PCA) is in place and a crossover may disadvantage Main Roads or the State when implementing planned infrastructure.

Crossovers should be avoided:

- to freeways or other Control of Access roads.
- within or opposite T-intersections, median openings, and auxiliary lanes.
- within a minimum 4 seconds travel time from the start of an acceleration lane that becomes an added lane (measured from the nearest property boundary).
- within traffic lane diverge and merge zones associated with auxiliary lanes, or within lane drops after intersections and roundabout pre-deflection zones.
- within a bus embayment, high frequency bus stop or nearby intersection; and/or
- where the gradient on the crossover is more than 5%.

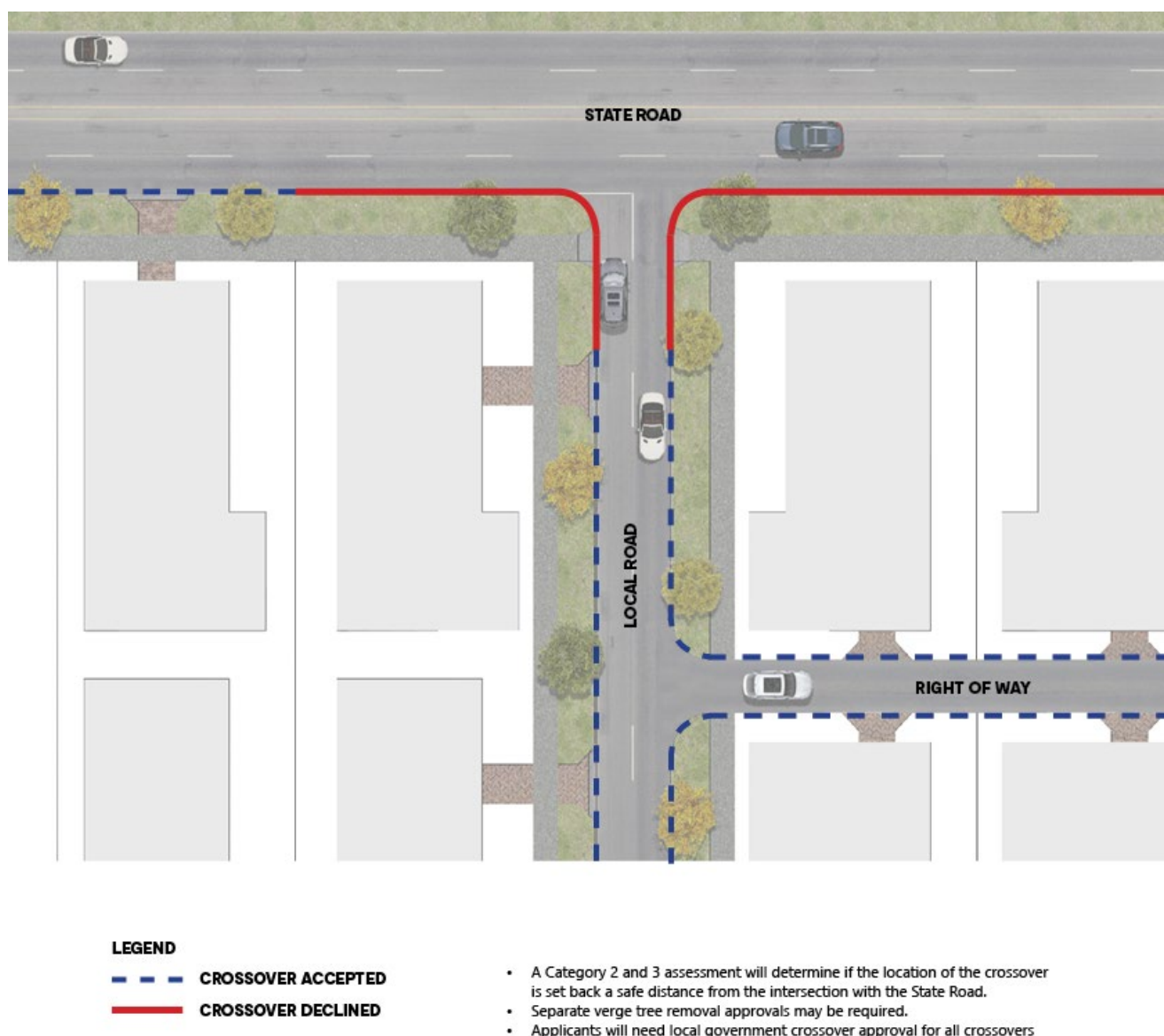
The following must be considered when locating crossovers:

- the adoption of Safe System principles when considering traffic flow.
- the impacts to pedestrians, cyclists, and other vulnerable road users, whether on the road or using paths on the verge.

- where a crossover is permitted onto a State Road, land may be required to be given up free of cost to accommodate a deceleration lane for safe access.
- applicants should consider existing verge and road reserve infrastructure assets, and their levels, to allow for ease of vehicle accessibility.
- sight distance should be optimised for vehicles entering and exiting the road (further guidance on sight distance is provided in **Appendix D**).
- a crossover should be set back as far as possible from an adjacent unsignalised intersection, signalised intersection or TCS (further guidance on distances is provided in **Appendix D**).
- any stormwater cover, services pit, water meter or similar within an existing or proposed crossover is to be designed with a trafficable lid, in accordance with the applicable utility providers' requirements.
- removal of vegetation on the verge.
- limiting crossovers of multiple lots through a Vehicle Access Strategy.

The above list should be considered as a guide for crossover locations. Upon assessment, there may be additional scenarios that will impact the suitability of a crossover location.

Figure 3-1 Supported access locations



3.3 Vehicle swept path & manoeuvrability

Sufficient width and turn-out radii (or splays) must be provided to allow the safe turning movement of vehicles between the road and the crossover. The required width and turn-out radii (or splays) will vary in accordance with the expected type and volume of vehicles but should cater for the largest vehicle accessing the development. Refer to **Appendix D** for further guidance.

Depending on traffic numbers, some developments may need to cater for two-way traffic on the crossover. Where crossovers wider than 6.0 metres are approved, line-marking, centrelines, demarcation or traffic islands may be required (at the applicants cost).

3.4 Materials

Main Roads accepts that crossovers may be constructed using the following range of materials, subject to the approval of the relevant LGA or Main Roads region:

Residential crossovers	Non-residential crossovers
Plain grey pre-mix concrete, with or without steel reinforcement and complying with Australian Standards and/or council specifications	All materials approved for residential crossovers
Colour-incorporated concrete	Sprayed seals or asphalt
Segmented or square clay pavers or concrete pavers suitable for heavy duty vehicular traffic	Special allowances for additional design and strength required to accommodate on-site operations will be allowed if supported by appropriate specifications and drawings approved by a certified professional engineer
Flagstone and products such as formstone or urbanstone	
Liquid limestone or exposed aggregate, subject to meeting the requirements of Australian Standards and/or council specifications	

3.5 Other design, construction, and maintenance considerations

Further guidance is provided in **Appendix D** of this policy. Applicants are also encouraged to liaise with their LGA to identify additional requirements that may apply.

3.6 Works approval only (Category 1)

Category 1 works are deemed low complexity works, require that only require the residential crossover specifications and cause minimal disruption to road users.

Requirements for the design of Category 1 works are contained within the technical guidelines in **Appendix D**. These requirements also apply as the standards that meet intersection warrants for Category 1 crossovers, when an assessment of road access safety and efficiency is required.

The Works Approval Assessment checklist (refer **Appendix A**) summarises the key requirements for Category 1 works. Applicants should use the checklist to ensure their development complies with the relevant technical guidelines and design standards.

A departure from the requirements of this policy may be considered by Main Roads on a case-by-case basis.

3.7 Minor development (Category 2)

Category 2 works are those which do not trigger a TIS or TIA (ie. Category 3) but require Main Roads' assessment under a Development Application referral from the decision-making authority.

Due to the variable nature of Category 2 applications (ie. can be residential and non-residential), planning approval from the LGA is required. Applicants are encouraged to liaise with the relevant LGA to understand the approval processes.

Requirements for the design of Category 2 works are contained within the technical guidelines in **Appendix D**. These requirements also apply as the standards that meet the intersection warrants for Category 2 crossovers, when an assessment of road access safety and efficiency is required.

The minor development assessment checklist (refer **Appendix B**) summarises the key requirements for Category 2 works. Applicants should use the checklist to ensure their development complies with the relevant technical guidelines and design standards, and to confirm the applicable approval pathway. For example, developments which do not require a TIS or TIA but introduce access by heavy vehicles will require assessment by Main Roads as a major development (Category 3).

3.8 Major development (Category 3)

Category 3 works may require access via a crossover which does not meet all the technical requirements of this policy. Under these circumstances, the applicant should engage with Main Roads via the pre-lodgement process to identify other factors that may influence access to a proposed development.

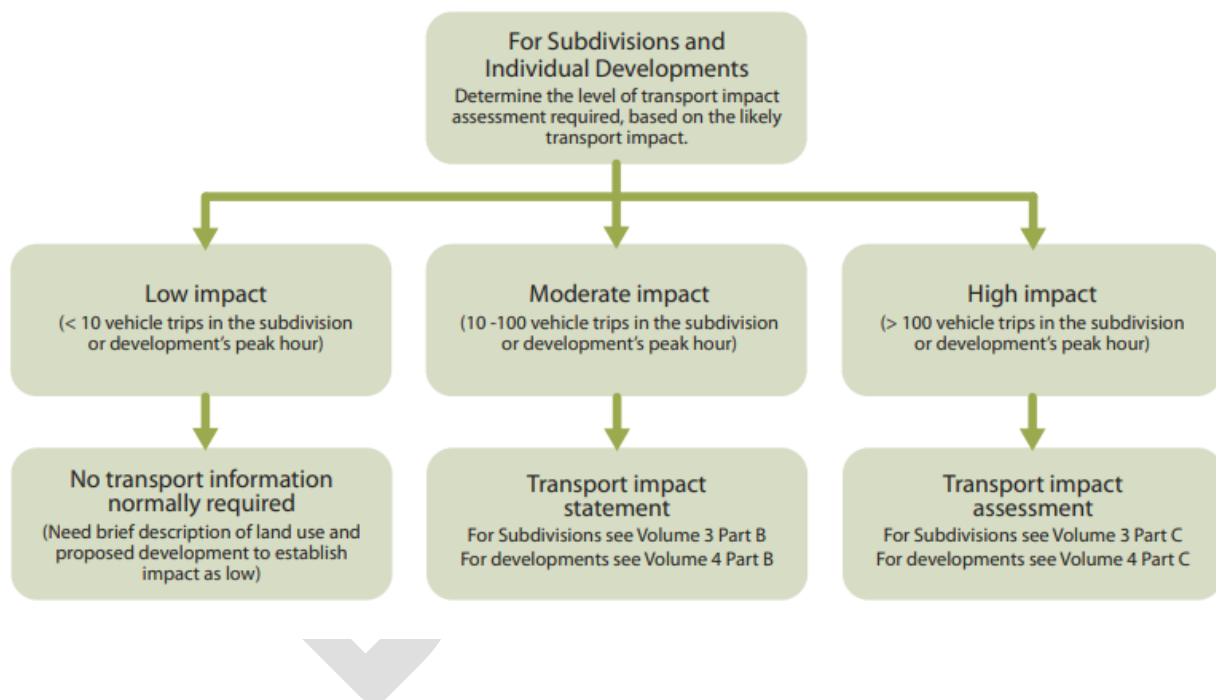
Applicants are also advised to review other relevant literature, including WAPC's Transport Impact Assessment (TIA) Guidelines (2016), to determine the level of assessment likely to be required.

The process for determining the appropriate level of assessment and approval is guided by **Figure 3-2** and the number of vehicle movements likely to be generated by the proposed development.

Requirements for the design of crossovers for Category 3 works are contained within the technical guidelines in **Appendix D**. These requirements also apply as the standards that meet the intersection warrants for Category 3 crossovers, when an assessment of road access safety and efficiency is required.

Figure 3-2 Extract from Table 1: Transport Impact Assessment guidelines Vol 1 (August 2016)

Source: Western Australian Planning Commission



4. Further information

4.1 Contacts

Within the Metropolitan Region please direct all enquiries to the Customer Services Manager via the Main Roads Customer Information Centre on 138 138 or email to enquiries@mainroads.wa.gov.au.

Outside the metropolitan area, please direct all enquiries to the relevant regional Customer Services Manager. Contact details can be found on the Main Roads website contact page: <https://www.mainroads.wa.gov.au/AboutMainRoads/ContactUs/Pages/ContactUs.aspx>.

4.2 Supporting Documents

Legislation

Main Roads Act 1930

Local Government (Uniform Local Provisions) Regulations 1996

Road Traffic Act 1974

Road Traffic Code 2000

State Planning Guidelines

Draft Operational Policy 1.12 – Planning Proposals adjoining Regional Roads in Western Australia (March 2023)

Western Australian Planning Commission, Development Control Policy 5.1 – Regional Roads (Vehicular Access)

Western Australian Planning Commission, Transport Impact Assessment Guidelines 2016

Technical Guidelines

Main Roads Supplement to Austroads GRD Part 3: Geometric Design

Main Roads Supplement to Austroads GRD Part 4

Main Roads Supplement to Austroads GRD Part 4A: Unsignalised and Signalised Intersections

Austroads Guide to Road Design Series

Austroads Guide to Traffic Management Series

Australian Standard AS2890.1: Off-street parking

Australian Standard 1379: The specification and manufacture of concrete

Australian Design Rules for Vehicles & Trailers, Section 7 of the Motor Vehicles Standards Act 1989, Federal Office of Road Safety

Transport Modelling Guidelines for Activity Centre structure plans

Transport Modelling Guidelines for developments in Activity Centres

Appendices

Appendix A

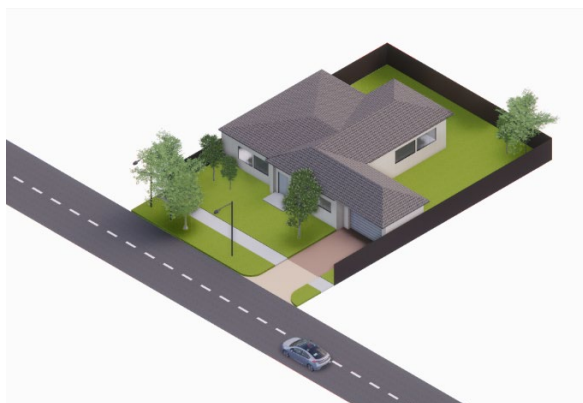
Works Approval Only: Category 1 Self-Assessment Checklist

Works Approval Only (Category 1) Crossover

Self-Assessment Checklist

This self-assessment checklist has been designed to assist applicants who are seeking approval to undertake works on a Category 1 crossover to a State Road.

If you are unsure whether your works will impact a State Road or are within a State Road reserve, please contact your LGA for further advice. *Note: also refer to the definition of 'State Road' under Section 1.4 of this policy.



Replace/repair existing crossover.

No.	Checklist Item	Details			
1	Have all other approvals been obtained from the LGA? E.g. crossover approval under the <i>Local Government (Uniform Local Provisions) Regulations 1996</i>	Yes ☐	No ☐	N/A ☐	If unsure, please contact your LGA for further advice.
2	Where relocation of existing services (such as water meter, power dome etc) are required, have these works been completed or arranged to be completed?	Yes ☐	No ☐	N/A ☐	If unsure, please contact your LGA for further advice.
3	Has a Traffic Management Plan (TMP) been obtained from a Traffic Management Consultant for submission to Main Roads, prior to commencement of works?	Yes ☐	No ☐	N/A ☐	If <u>NO</u> , Please refer to Main Roads' 'Traffic Management for Works on Roads Code of Practice' for guidance on TMPs.
WHEN COMPLETED PROCEED TO <u>APPLICATION TO UNDERTAKE WORKS WITHIN ROAD RESERVE</u>					

Appendix B

Minor Development: Category 2 Self- Assessment Checklist

Minor Development (Category 2) Crossover Self-Assessment Checklist

This self-assessment checklist has been designed to assist applicants who are seeking approval to undertake works on a Category 2 crossover to a State Road.

If you are unsure whether your works will impact a State Road or are within a State Road reserve, please contact your LGA for further advice. **Note:* also refer to the definition of 'State Road' under Section 1.4 of this policy.

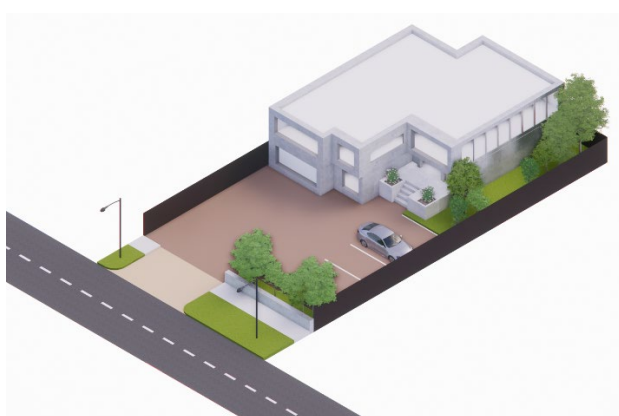
Once a development application is approved, the applicant must seek approval to undertake works within the road reserve. Complete the [Application to Undertake Works Within Road Reserve](#) application form and submit to the appropriate Main Roads office prior to undertaking any work within the road reserve.



New crossover to triplex development



Addition of new crossover



New crossover to small business development

Item	Checklist Item	Details		
GENERAL PROVISIONS – QUANTITY				
1	Development is limited to one (1) crossover per property.	Yes ☐	No ☐	If <u>NO</u> , contact Main Roads to organise a pre-lodgement meeting to discuss further.
2	Where the crossover is being relocated, the existing crossover onto the State Road is to be removed and verge reinstated.	Yes ☐	No ☐	
GENERAL PROVISIONS – CROSSOVER LOCATION				
3	Where multiple frontages are available, does the	Yes ☐	No ☐	If <u>YES</u> , contact Main Roads to organise a pre-lodgement

Item	Checklist Item	Details		
	development propose access from a State Road?			meeting to discuss further.
4	If the crossover is to a State Road, is it designated as a Control of Access Road?	Yes ☐	No ☐	If YES or unsure, please contact Main Roads customer service for further advice.
5	Where a Vehicle Access Strategy applies, is a variation proposed?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
6	Is the crossover location within a Planning Control Area defined by WAPC?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
7	Are development works located within the first property adjacent to traffic control signals?	Yes ☐	No ☐	If YES Refer Figure 3-1
8	Are development works located within the first property adjacent to an unsignalised intersection?	Yes ☐	No ☐	If YES Refer Figure 3-1
9	Is the crossover located within the offset distance area?	Yes ☐	No ☐	Refer to 1.4 Definitions and Figure 1-2 Policy Terminology. If YES or unsure, please contact your LGA for further advice.
10	Is the crossover located opposite a median opening or turning lane?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
11	Is the crossover located within an auxiliary lane?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
12	Is the crossover located within a merge or diverge zone associated with an auxiliary Lane or lane drop?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
13	Is the crossover adjacent to a bus stop or bus embayment?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.
14	Is the sight distance at the crossover less than the minimum requirement (refer Appendix D/section 4.3 for sight distance requirements)?	Yes ☐	No ☐	If unsure of how to assess the sight distance, contact the LGA or Main Roads.
If the answer to any of Items above is <u>YES</u>, a pre-lodgement discussion should be arranged with Main Roads in accordance with Section 2.4 of the policy.				
GENERAL PROVISIONS – VEHICLE SWEEPED PATH & MANOEUVRABILITY				
15	Vehicles can enter and exit the property in forward direction	Yes ☐	No ☐	If NO or unsure, please contact your LGA for further advice.
16	Is the crossover wide enough to allow safe turning movements (refer to Appendix D section 5.2 for width and turn out radii (or splay) requirements)?	Yes ☐	No ☐	If NO or unsure, please contact your LGA for further advice.
17	Does two-way traffic on the crossover need to be allowed for? If yes, is the width sufficient for two	Yes ☐	No ☐	N/A If unsure, please contact

Item	Checklist Item	Details			
	vehicles to pass safely?			☐	your LGA for further advice.
18	If there is a common driveway resulting in a need for a common crossover, and have all approvals and/or legal agreements been resolved?	Yes ☐	No ☐	N/A ☐	If NO or unsure, please contact your LGA for further advice.
If the answer to any of the Items above is NO , a pre-lodgement discussion should be arranged with Main Roads in accordance with Section 2.4 of the policy.					
GENERAL PROVISIONS – MATERIALS					
19	Materials specified meet the requirements of Section 3.1.4 or as otherwise accepted by the relevant LGA and/or Main Roads office.	Yes ☐	No ☐	*Note: Special allowances may be considered on a case-by-case basis	
If the answer to any of the Items above is NO , a Pre-lodgement discussion should be arranged with Main Roads in accordance with Section 2.4 of the Policy.					
GENERAL PROVISIONS – OTHER DESIGN AND CONSTRUCTION CONSIDERATIONS					
20	Proposed earthworks or changes to the road verge levels are greater than 150mm?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice.	
21	Crossover impacts drainage flow paths or infrastructure in the road verge?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice	
22	Crossover has a gradient greater than 5%?	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice	
23	Crossover or sightlines are affected by existing infrastructure within the road reserve (i.e. power poles, underground services, bus stops etc), street trees or landscaping.	Yes ☐	No ☐	If YES or unsure, please contact your LGA for further advice	
If the answer to any of Items above is YES , a pre-lodgement discussion with Main Roads should be arranged with Main Roads in accordance with Section 2.4 of the Policy					
WHEN COMPLETED PROCEED WITH DEVELOPMENT APPLICATION					

Appendix C

**Major Developments: Category 3
Documentation Requirements**

Major Development (Category 3) Documentation Requirements

The approval of a crossover for a Major Development (Category 3) will be based on the assessment of technical documentation supplied with a development application.

The intent of the documentation assessment is to ensure that crossovers for major developments achieve the highest level of functionality while utilising Safe System principles for vehicle movements.

The inclusion of preliminary design documentation for Category 3 crossovers will be required. Other documentation required for assessment as part of a full planning application may include, but is not limited to:

- Main Roads' Crossover Policy (this document);
- A Transport Impact Statement (TIS) or Transport Impact Assessment (TIA)
- Swept path analysis for the largest type of vehicle proposed to use the crossover.
- Design drawing for the proposed crossover.
- Documentation for any relevant Vehicle Access Strategies that might apply.
- Certificates of Title or Deposited Plans showing rights of carriageway or access easements.
- Planning documents that outline approved access arrangements (i.e. endorsed structure plans or local development plans).
- Bushfire management plans.
- Waste management plans.
- Main Roads' Supplements to Austroads Guide to Road Design.
- Austroads Guide to Road Design (Austroads GRD).
- WAPC's Development Control Policy 5.1 Regional Roads (Vehicular Access).

As noted in section 2.2, Main Roads encourages applicants to seek pre-lodgement advice to clarify any planning, design and/or construction requirements that may need to be considered as part of a crossover proposal.

Pre-lodgement advice is only provided as a guide and does not supersede a comprehensive assessment of the full development proposal as part of the development approval process.

Appendix D

**Crossover Technical Guidelines &
Standard Drawings (All Categories 1 - 3)**

D-1 Scope and purpose

Where a crossover is permitted to a State Road, the design, construction, and maintenance should ensure that it will operate safely and in accordance with the terms and conditions agreed to by the LGA and Main Roads.

The purpose of this appendix is to provide a technical guideline that outlines the minimum requirements and technical criteria for the design, construction, and maintenance of crossovers to State Roads. In categories 1 and 2 where more complex engineering or technical issues are identified it may be necessary to refer to this appendix.

It is not intended for this guideline to cover all requirements or potential design situations, and they may be varied subject to approval from Main Roads. Variation of these requirements will be assessed taking into consideration the specific situation of a development and the preceding sections of this policy.

Other policies, technical guidelines and standards may also need to be taken into consideration when designing the access for a development. It is the applicant's responsibility to inform themselves of any specific responsibilities or design requirements relating to their crossover.

In certain circumstances, the services of an engineering professional may need to be engaged to assist with any access / egress challenges and to identify any solutions that satisfy the provisions of this Policy.

D-2 Definitions

Figure D2.1 shows typical technical terms that are used to describe the design elements considered in the planning and design of crossovers.

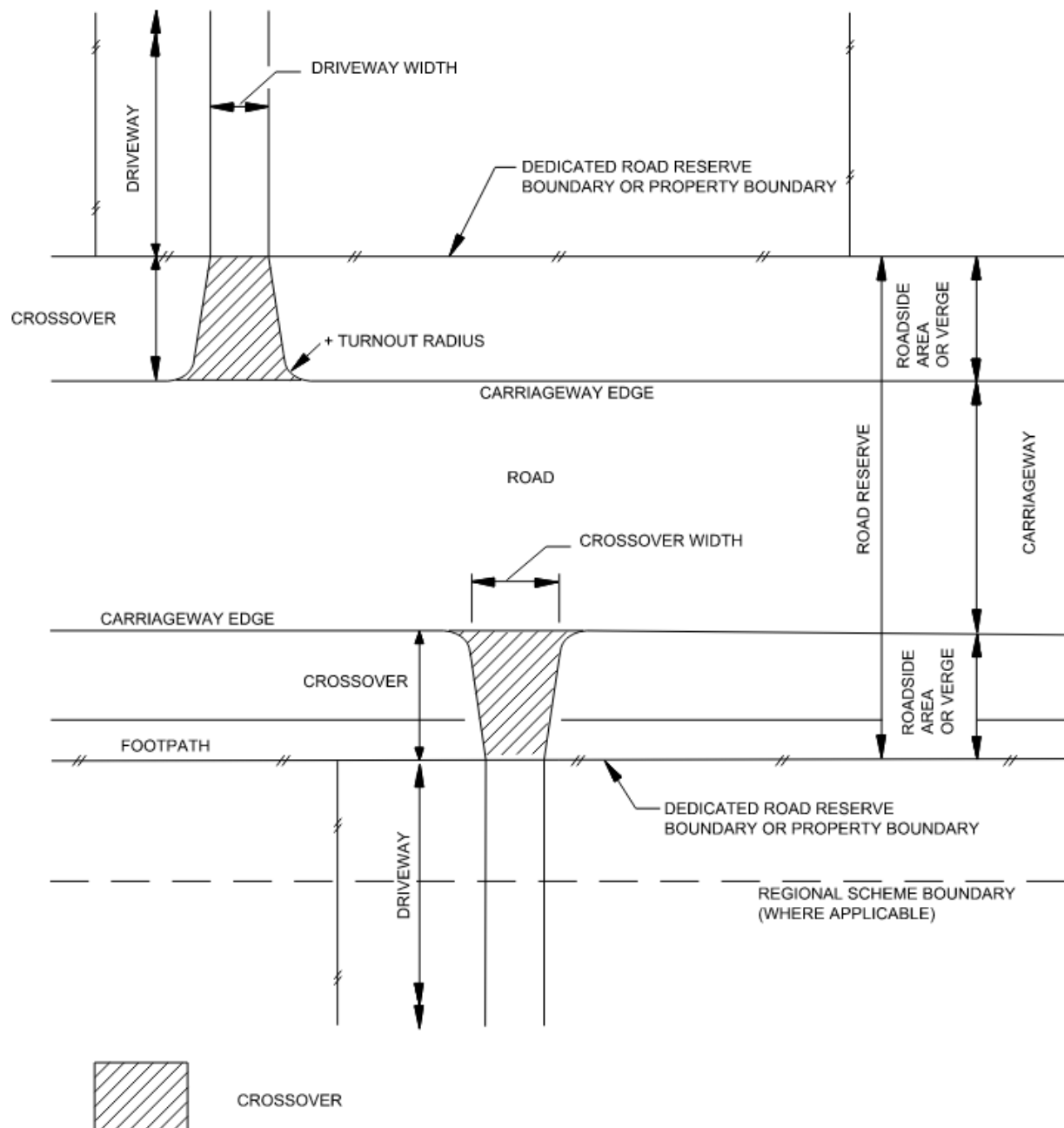


Figure D2.1 – crossover technical terms

D-3 General design requirements

In general, crossovers should be designed with due consideration to the following underlying principles:

- Adopt Safe System principles for vehicular access and reduce crossover impacts on the efficiency of State Roads.
- Minimise the impacts of the crossover on pedestrians, cyclists and other vulnerable road users.
- Within the turning lanes or vehicle queuing space of an intersection, in particular an existing or proposed signalised intersection or roundabout.
- Within, or immediately before and after overtaking lanes (refer Figure D4.2). Refer Section D4.3.2 in Appendix D for further guidance on the design requirements of crossovers in overtaking lanes.
- Minimise the removal or damage of roadside verge vegetation required for the establishment or maintenance of the crossover.
- Minimise the impacts on other infrastructure or significant features in the road reserve.
- crossovers should be located as far as practicable from intersections, bus embayments, and other crossovers to minimise points of conflict and confusion. Refer to Figure D4.1, the bold black lines indicate the areas where crossovers are not generally allowed.

D-4 Location Requirements

D-4.1 General Location Requirements

Crossover locations should conform to:

- Main Roads Crossover Policy (this document);
- Main Roads Supplements to Austroads Guide to Road Design Part 4
- Guidelines for the Extended Design Domain & Design Exception Process
- Austroads Guide to Road Design (Austroads GRD)
- WAPC Development Control Policy 5.1 Regional Roads (Vehicular Access)

In addition to the general provisions of the policy, when selecting a location for a crossover the following should be avoided wherever practicable:

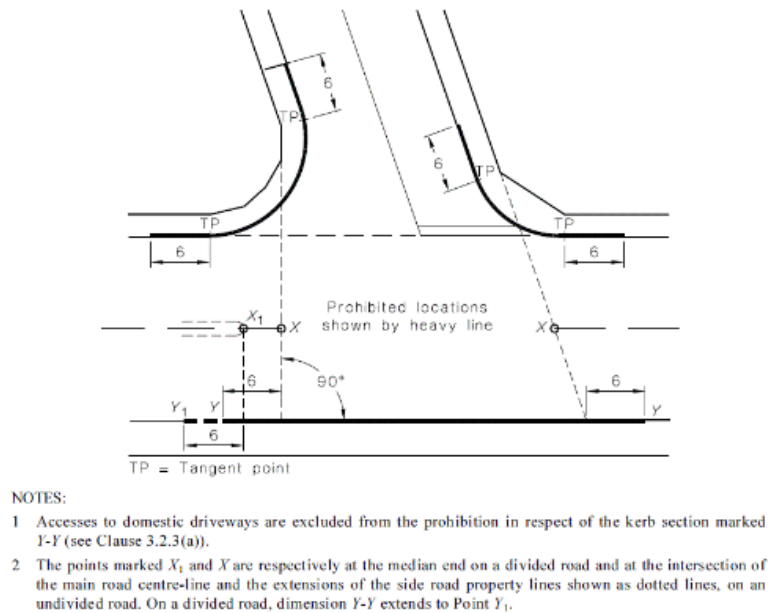
- Crossovers within the prohibited area for crossovers at intersections as defined by AS2890.1 (refer to Figure D4.1)
- Crossovers within the functional area (as defined in Austroads GRD Part 4) of an intersection, in particular signalised intersections, and roundabouts.

If there is a reasonable likelihood that traffic-controlled signals or a roundabout will be

required at an intersection that is not signalised, or it is already planned to be upgraded within 10 years of the development of the site, then crossovers should be avoided within the functional area of the future intersection. In the event that upgrades are made to a State Road, then the existing crossover may be relocated, modified to left-in, left-out or provided indirectly through and easement, with the implementation of a Vehicle Access Strategy.

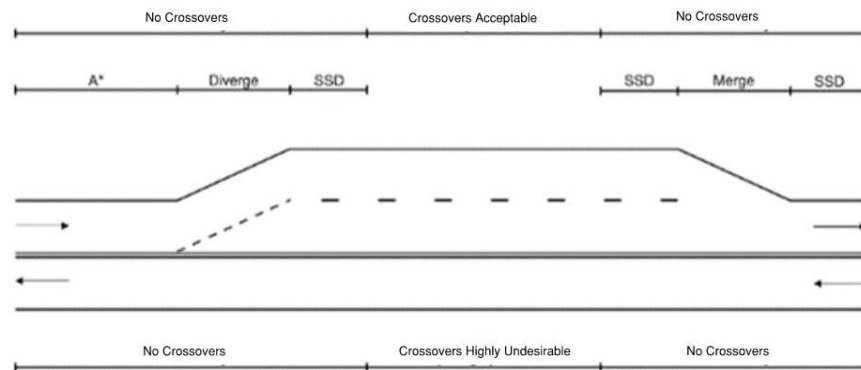
- Crossovers within the following areas of overtaking lanes and climbing lanes (refer to Figure D4.2):
 - Diverge taper – not within the diverge taper or within 4 seconds (desirable minimum) or reaction time (absolute minimum) of travel time before the diverge taper or within stopping sight distance beyond the diverge on both sides of the road.
 - Merge taper – not within the merge taper or within stopping sight distance before or after a merge taper on both sides of the road.
 - Right-hand side of the road - it is highly undesirable to have crossovers within an overtaking lane between the exclusion areas noted above. Refer to section D4.3.2 for further guidance on the design requirements of crossovers in overtaking lanes.

*Note – Stopping sight distance is used as a buffer distance for high-risk areas in an overtaking lane. It ensures that, if a driver is required to stop at a crossover, that manoeuvre does not overlap at a location where a driver is focused on diverging or merging.



DIMENSIONS IN METRES

Figure D4.1 – Prohibited locations for crossovers within unsignalised intersections



A* 4 Seconds of travel time (desirable minimum) or Reaction Time travel distance (absolute minimum), at the design speed.

SSD stopping sight distance at the design speed

Figure D4.2 – crossovers within overtaking and climbing lanes

D-4.2 What to do if the only viable place for a crossover is in a prohibited or undesirable location

Where Main Roads considers that meeting the requirements of the policy and guidelines would be impractical, a crossover may be permitted, subject to other design requirements and conditions being fulfilled. These requirements need to be discussed with Main Roads on a case-by-case basis and should Any deviation from the acceptable standards should not compromise safety.

In these situations, it may be necessary to consider the following options:

- Supplementary treatments, including associated works and those discussed in Section D-4.3.
- Provide a crossover that confines traffic to certain turning movements when entering or exiting the property.
- Provide a signalised crossover with traffic control signals co-ordinated or integrated with the adjacent intersection traffic control signals.
- Develop an approved Vehicle Access Strategy and provide access in accordance with the strategy.
- Provide a service road to a more suitable location.
- For infrequent or occasional usage, provide traffic management during the operation of the crossover.

The above restrictions will not apply to any crossover servicing a property, which would otherwise be denied access because it is unable to meet the requirements. In this case, only one crossover will be permitted, and it may be subject to additional conditions.

D-4.3 What is sight distance and how does it impact crossover location

Crossovers shall be located where they provide sufficient sight distance for a stopped vehicle to safely enter or exit the road in a forward direction (refer to Figure D4.3).

The minimum sight distance should be the Safe Intersection Sight Distance in accordance with Main Roads' Supplement to Austroads GRD Part 4A. However, where this is not feasible due to site and/or geometric constraints, a sight distance equal to stopping sight distance for the design speed of the road shall be provided as an absolute minimum. Stopping sight distance is defined in Main Roads' Supplement to Austroads GRD Part 3.

It is generally accepted that 4 seconds of travel time gives following motorists time to react and brake, avoiding a vehicle in the event of an emergency.

Where the absolute minimum sight distance cannot be achieved, further advice should be sought from a qualified engineering professional and/or Main Roads to identify how the risks can be addressed within the specific site and geometric constraints.

Sight distance requirements shall be met in both directions for a stopped vehicle at a crossover.

As with intersections, the "sight triangle" formed by the driver's eye to objects on the road, and the sight distance length, shall be kept clear of obstructions that are greater than 0.2 m in height. This includes street furniture, landscaping elements and parking.

Where crossovers interface with shared paths, sight lines shall meet the requirements of AS 2890.1 Section 3.2.4 (b).

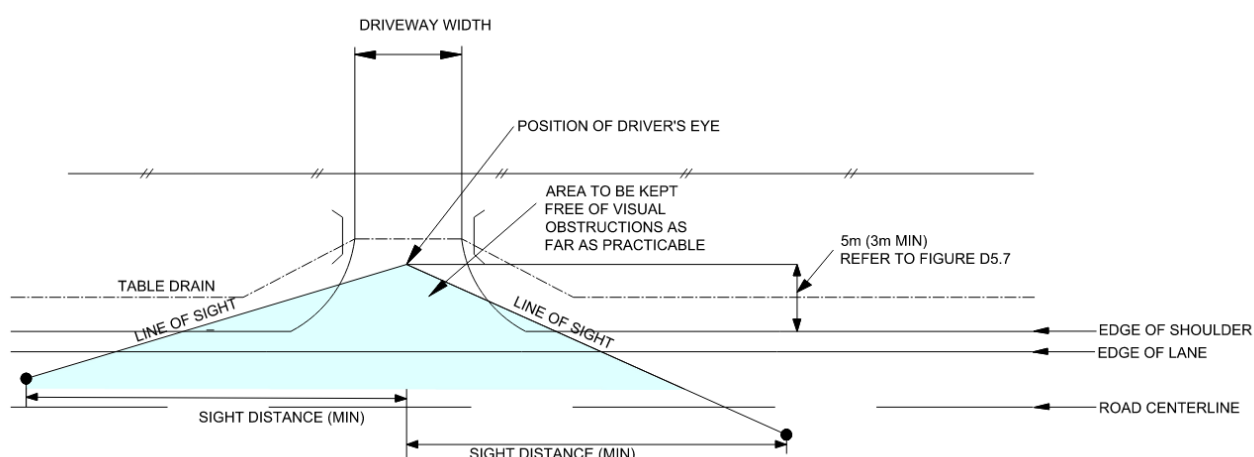


Figure D4.3 – Sight Distance Requirements at Crossovers

Speed limit of road in km/h	Desirable sight distance in metres*	Absolute minimum sight distance in metres*
Less than 40	79	45
40	104	62
50	131	81
60	161	102
70	192	126
80	226	151
90	262	179
100	300	209
110	300+	209+

*Note – these distances are provided for guidance only and applicable to roads in flat terrain where the road gradient is less than 1 in 50 (2%). Applicants should seek technical guidance in other situations.

Table D4.1 – Sight distance requirements at crossovers

D-5 Design requirements

D-5.1 Special location

D-5.1.1 Non-residential crossovers opposite T-intersections or other crossovers

Where a non-residential crossover is proposed opposite a T-intersection, or a similar crossover on the opposite side of the road, it should be evaluated as a four-way intersection. Refer to Main Roads' Supplement to Austroads GRD Part 4A for the design requirements for four-way intersections.

D-5.1.2 Crossovers in overtaking lanes

Non-residential crossovers that generate more than 20 movements per day shall not be permitted within or immediately before an overtaking lane, unless Main Roads approves a Traffic Management Plan/Traffic Impact Assessment and a channelised intersection is provided.

For crossovers with less than or equal to 20 movements per day requiring right-turn access within or immediately before an overtaking lane, a widened painted median is required as per Guideline Drawing 201931-0045.

D-5.2 Design geometry

D-5.2.1 Alignment and position

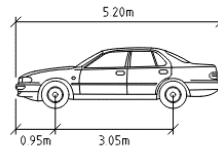
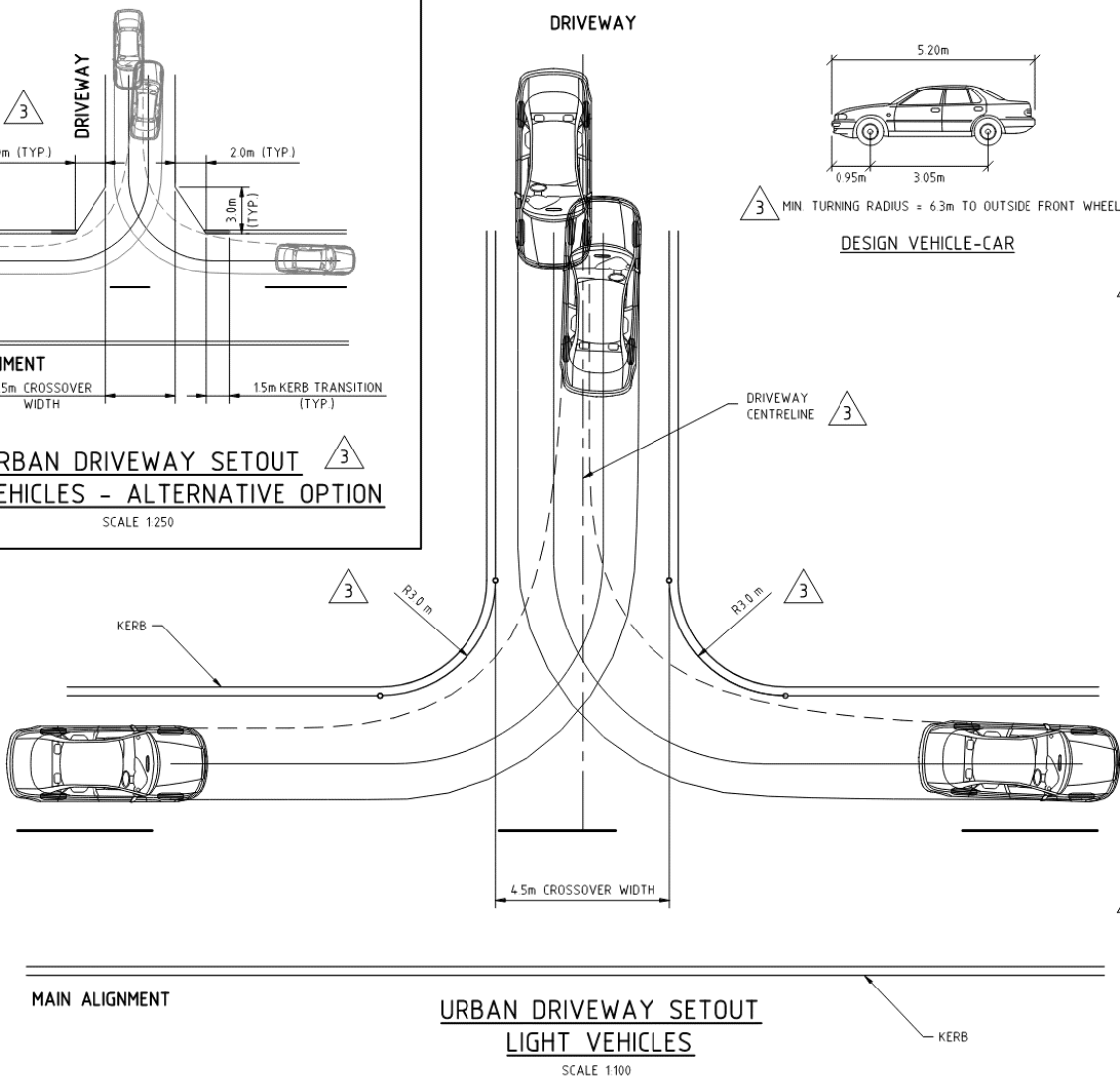
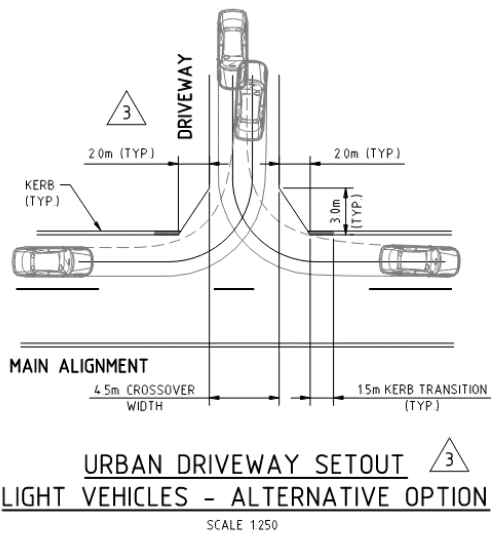
Crossovers should be designed at 90° to the road centreline, as far as site conditions will permit. Where approved by Main Roads, this may be reduced to an absolute minimum of 70° to the road centre line.

The crossover and its splays should be positioned so that they are contained within the frontage of the property, as defined by an extension of the property side boundaries to the road.

D-5.2.2 Width and splays (turn-out radii)

Refer to Figures D5.1 and D5.2 for typical terminology in relation to the plan geometry for crossovers.

Sufficient width and splays must be provided to allow vehicles to turn safely between the crossover and the road carriageway, when entering or leaving the property. The width and splays may vary with the expected type and volume of vehicle proposed to use the crossover. Maximum widths and references to guideline drawings are provided in Table D5.1 below. The low volume development guideline drawing is as follows



3 MIN TURNING RADIUS = 6.3m TO OUTSIDE FRONT WHEEL

AMENDMENTS		
NO.	DESCRIPTION	APPROVED & DATE
2	CROSSOVER LAYOUT AMENDED	D/N 17/09/20
3	MIN TURNING RADIUS AMENDED. NOTES AMENDED ALTERNATIVE OPTION & DRIVEWAY CENTRELINE ADDED. TURN RADIUS AMENDED.	C/M 18/11/22

NOTES	
1	MIN CLEARANCE FROM VEHICLE SWEEP PATH TO EDGE OF SEAL OR KERB FACE IS 0.5m
2	ALTERNATIVE OPTION KERB TRANSITIONS MAY VARY TO SUIT DRIVEWAY ALIGNMENT
3	KERB RADIUS BASED ON 6.3m DESIGN VEHICLE TURN RADIUS
4	SEAL RADIUS MAY VARY TO SUIT DRIVEWAY ALIGNMENT
5	THIS DRAWING IS FOR USE WITH RESIDENTIAL PROPERTIES ONLY SERVICING A MAXIMUM OF THREE DWELLINGS.

LEGEND	
—	OUTSIDE FRONT SWEEP PATH
- - -	INSIDE REAR WHEEL PATH

PLANNING AND TECHNICAL SERVICES DIRECTORATE ROAD AND TRAFFIC ENGINEERING BRANCH Waterloo Crescent Telephone 138 138	
EAST PERTH 6004	
DESIGNED	E. FINDLATER
DRAWN	B. SNOOK
CHECKED	T. FREEMAN 06/05/05
APPROVED	R. GROVE 06/05/05
FILE NO.	67-08-65

DRIVEWAY SETOUT DETAILS GUIDELINE DRAWING URBAN DRIVEWAY SETOUT LIGHT VEHICLES	
200431-0198-3	AMENDMENT

For crossovers used by low volumes of light vehicles, the maximum width is 8 metres. For crossovers used by commercial vehicles, the maximum width is 11 metres.

If the crossover needs to be wide enough to allow for two vehicles at a time, consideration should be given to demarcating the travel paths, and vehicle positioning, to avoid conflict between entry and exit movements. This can be any combination of the following, noting that the property owner will be responsible for maintaining the demarcation method:

- Physical obstructions, such as islands or kerbing.
- Painted or thermoplastic line-marking.
- Changes to material or surfacing type, texture or colour.

Where crossovers are to be used by large combination vehicles, the splays shall be increased to meet the required design turning template of the design vehicles.

Where there is a wide verge area, the crossover width may be reduced once the vehicle turning movement has been accommodated (refer to Figure D5.1).

Where the verge is too narrow to accommodate the turning manoeuvre on the crossover, provision needs to be made in the driveway design to ensure that the turning movement can be safely completed without the vehicle obstructing the road. Where there are gates and fences, these should be set back to meet this requirement, having consideration for the storage requirements detailed in Section D5.4 (refer to Figure D5.2).

Combined crossovers to adjoining properties will be permitted on the condition that the requirements of this policy are met and the combined width of the crossovers at the carriageway edge, excluding splays, is specifically designed for the appropriate design vehicles (refer to Figure D5.3 and Figure D5.4).

Vehicle type	Maximum width	Drawing containing layout details for urban driveways	Drawing containing layout details for rural driveways
Low volume - light vehicles	4.5 m	200431-0198	200431-0191
Two way - light vehicles	8 m	200431-0199	200431-0192
Single unit trucks	9 m	200431-0200	200431-0193
Semi-trailers	11 m	To be designed individually	200431-0194
B double trucks – 27.5 m	11 m	To be designed individually	200431-0195
Double road trains – 36.5 m	11 m	To be designed individually	200431-0196
Triple road trains – 53.5 m	11 m	To be designed individually	200431-0197

Table D5.1 – Maximum crossover widths and guideline drawings

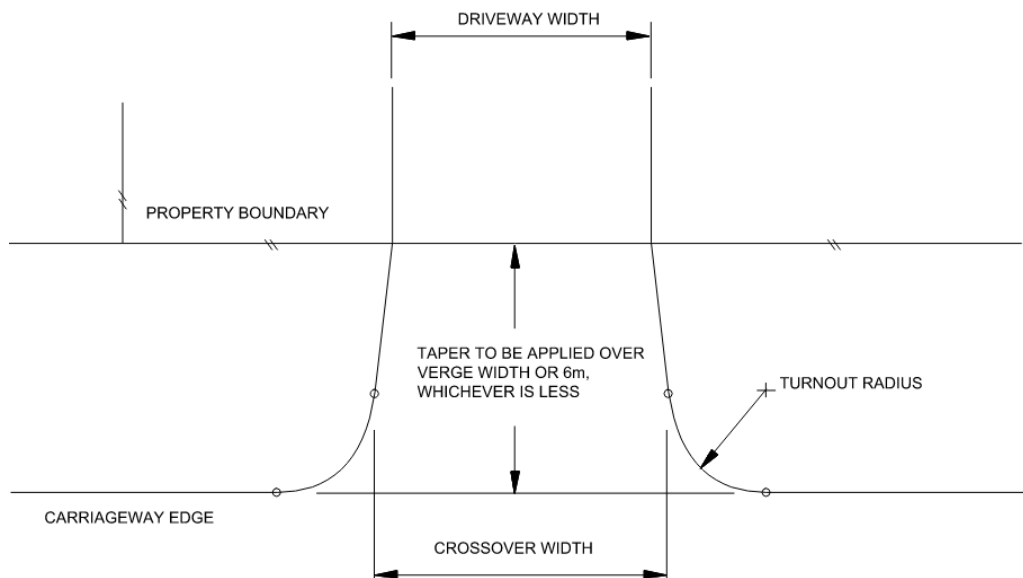


Figure D5.1 – Crossover width on wide verge

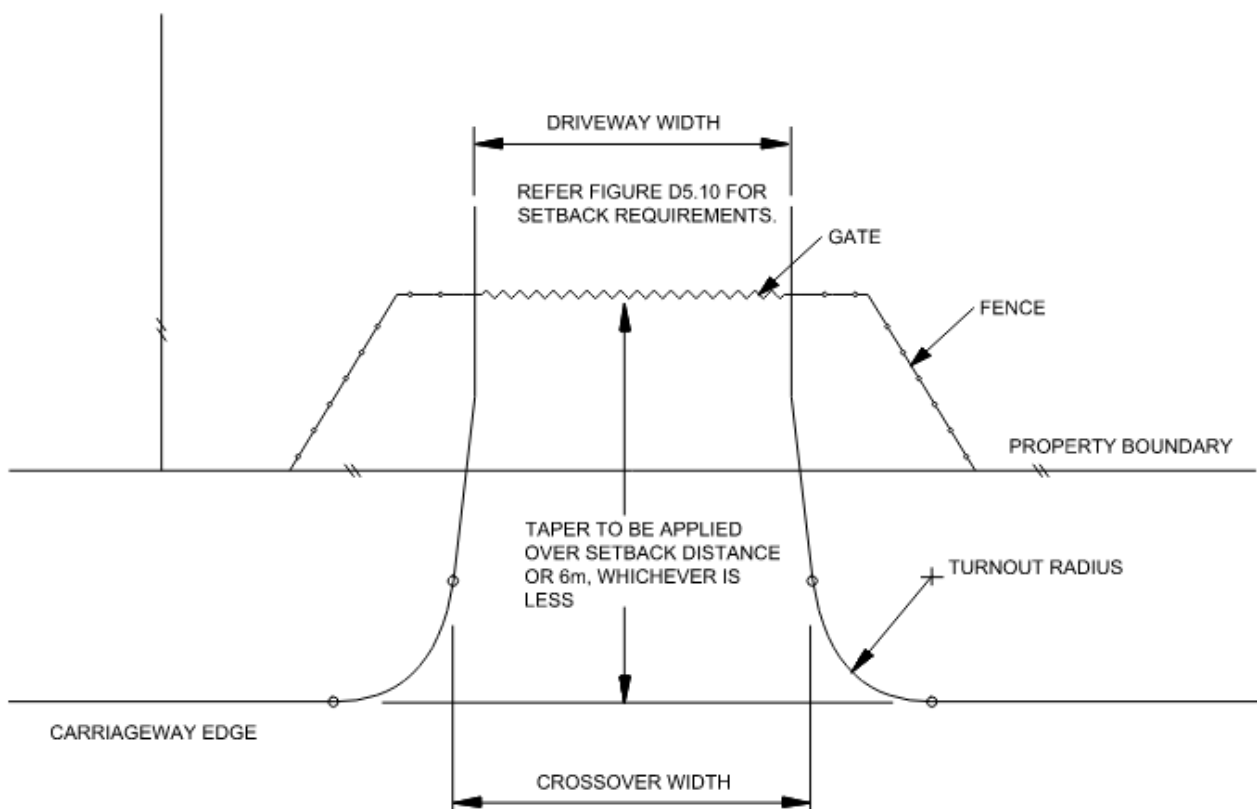
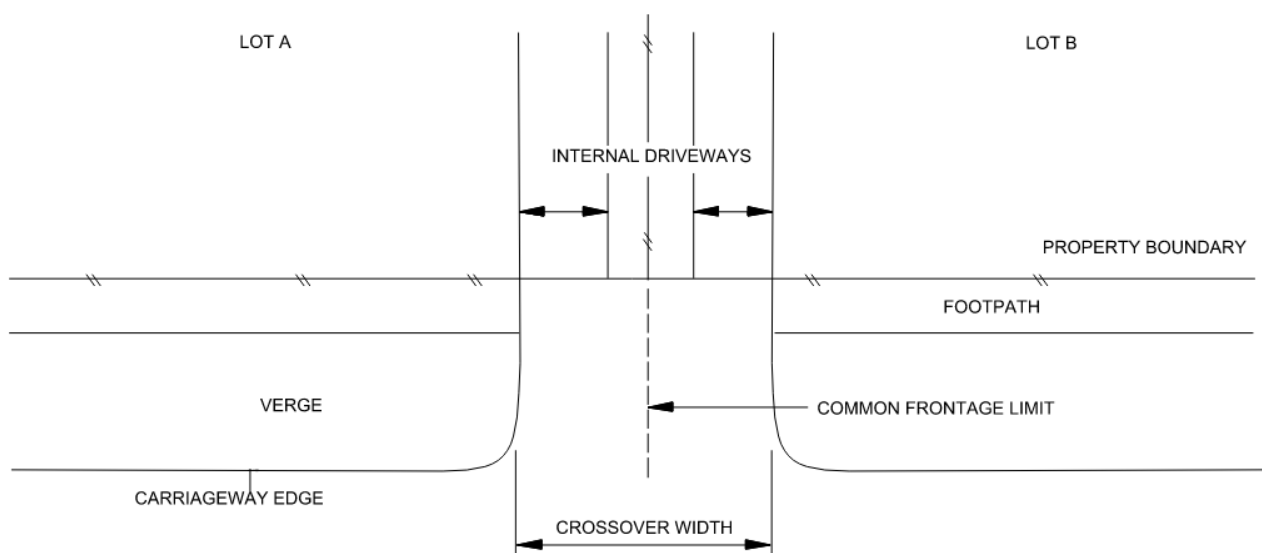


Figure D5.2 – Crossover width on narrow verge



Parallel Sides

Figure D5.3 – Combined crossovers (separate driveways)

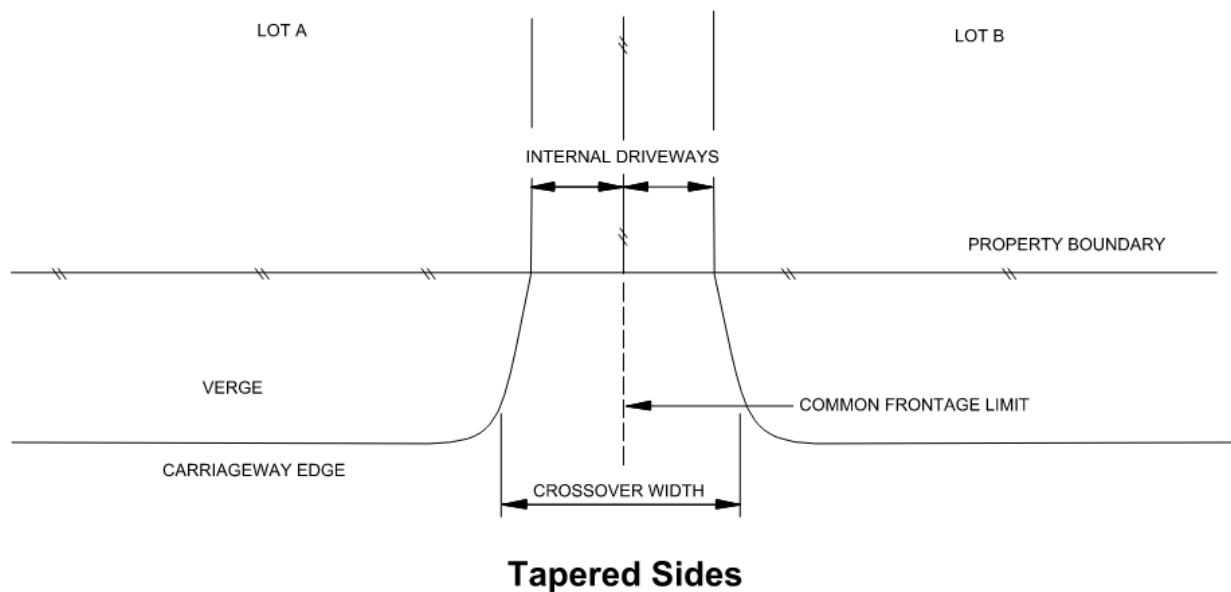


Figure D5.4 – Combined crossovers (shared driveways)

D-5.2.3 Associated works

Main Roads will determine if any associated works, such as auxiliary lanes, roundabouts or traffic control signals, are required to support a crossover for a Category 3 development.

The warrants and design standards applied to these treatments shall be as defined in the Austroads GTM Part 6, Main Roads' supplements to GTM Part 6, and other relevant technical standards, guidelines or policies that may be appropriate.

When a left-turn lane is required, it shall be located within the property frontage, unless the affected neighbours have been consulted. After considering comments from the affected neighbours, the final decision rests with Main Roads.

All associated works within the State Road reserve shall become the responsibility of Main Roads, unless otherwise agreed.

D-5.3 Vertical geometry – profile and gradients

Refer to Figures D5.5 to D5.9 for typical examples, design philosophy and terminology for crossover and driveway profiles.

When designing crossover and driveway profiles, consideration should be given to maximum gradients (Section D-5.3.1), maximum change of grade (Section D-5.3.2), stormwater drainage (Section D-6.1) and pedestrian and cyclist facilities (Section D-6.2).

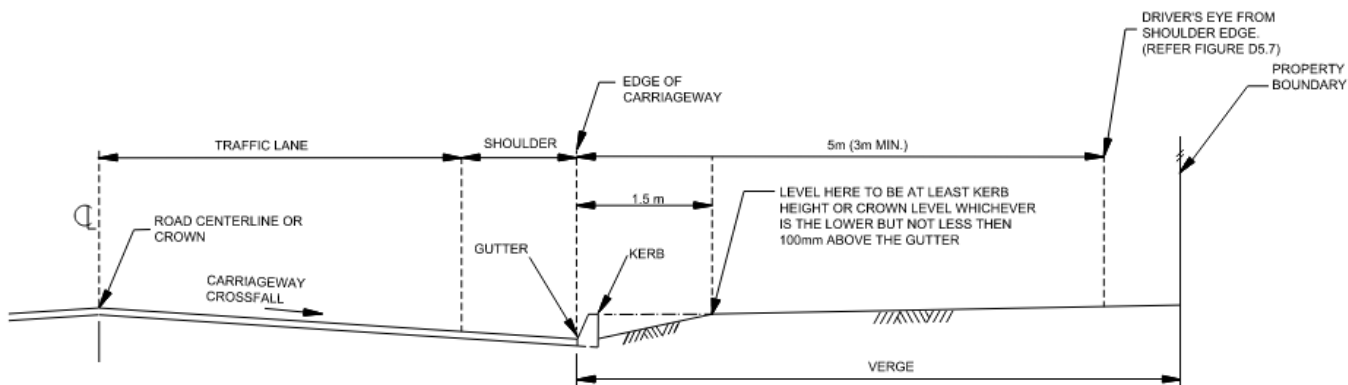


Figure D5.5 – Profile terminology: kerbed road

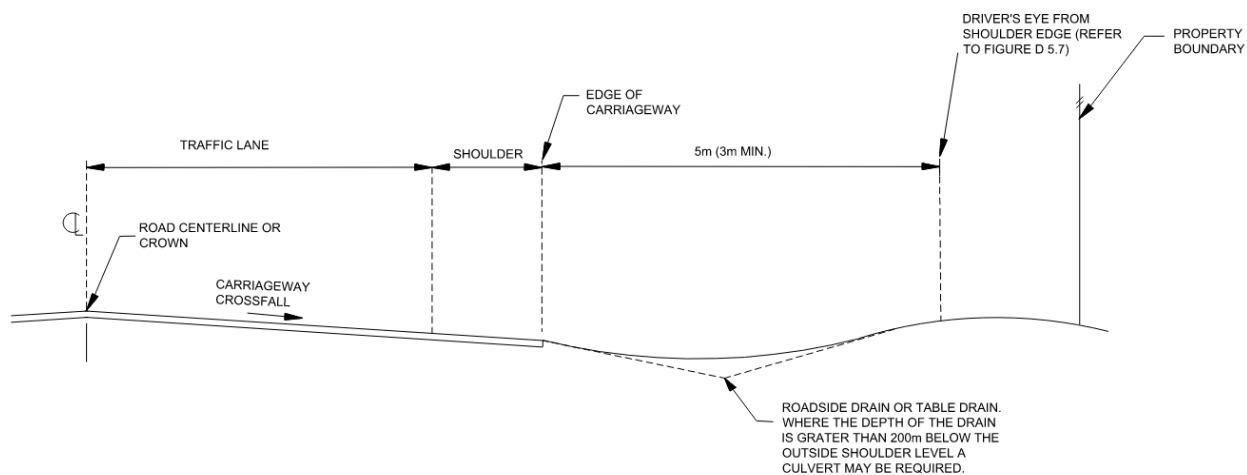


Figure D5.6 – Profile terminology: unkerbed road

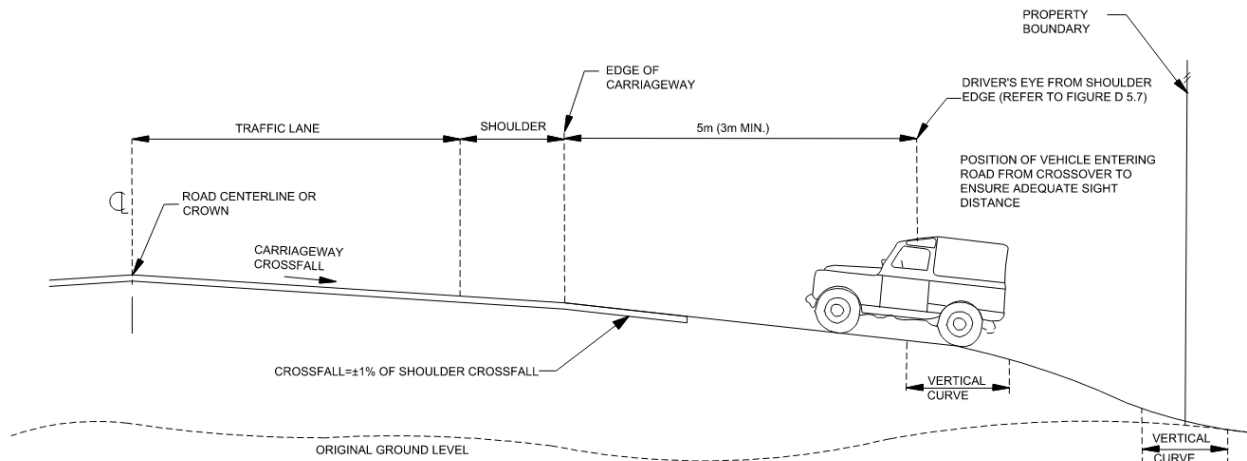


Figure D5.7 – Typical profile: road in fill

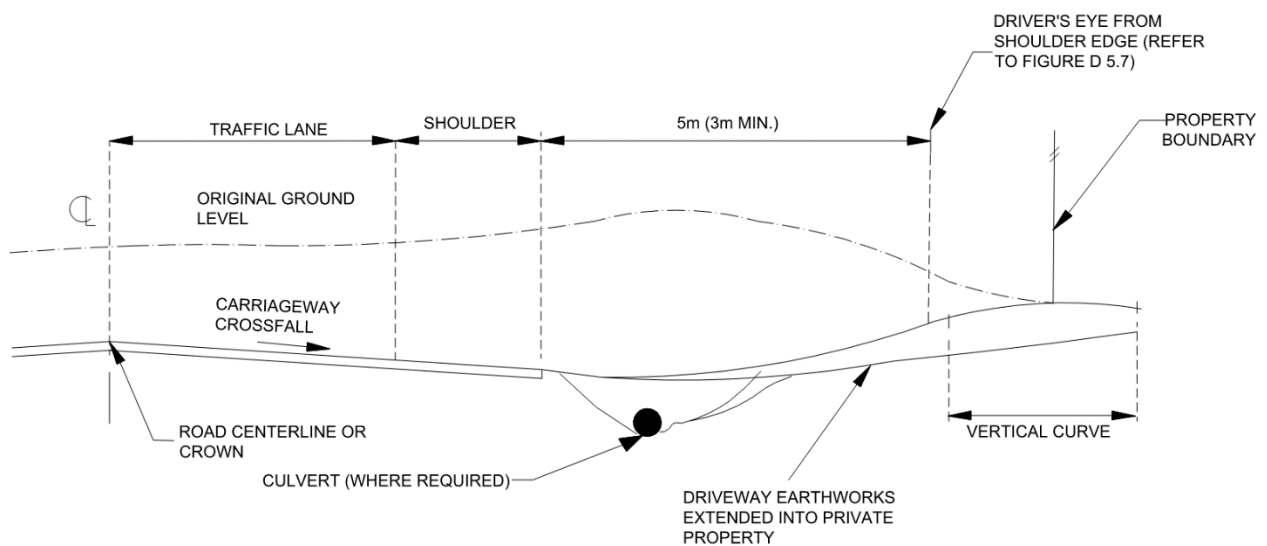


Figure D5.8 – Typical profile: road in cutting

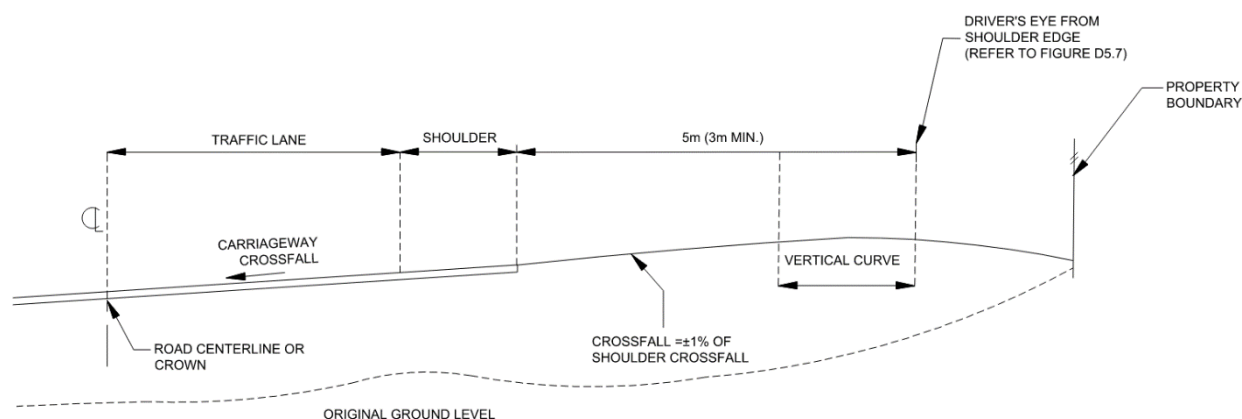


Figure D5.9 – Typical profile: road in super-elevation

D-5.3.1 Maximum gradients

Excessively steep grades should be avoided on all crossovers, wherever possible.

Consider modifying the driveway alignment if the gradient on the crossover is too steep. If the verge is narrow, it may be necessary to extend the earthworks into private property. If the proposed crossover will have a grade greater than 5%, consider another location.

The recommended maximum grades for crossovers and driveways are summarised in Table D5.2.

In all cases, the design and treatment should be appropriate for the design vehicle proposed. Most cars can operate on sealed gradients of 20% (1:5). Large trucks in good mechanical condition with good tyres can operate on sealed gradients of 16.7% (1:6). However, these gradients are considered extreme, even for short distances and are to be avoided.

Where steep grades cannot be avoided, a flatter area (as shown in Figures D5.7 to D5.9) should be provided where the crossover meets the road. This allows vehicles approaching the road to stop, observe traffic and accelerate comfortably without losing traction or stalling.

Class of Vehicle	Desirable Maximum Gradient	Absolute Maximum Gradient
Commercial	5 %	8 %
Other	10 %	15 %

Table D5.2 – Maximum crossover and driveway gradients

D-5.3.2 Maximum change of grade

The maximum change of grade on a crossover shall not be more than 12% (refer to Australian Design Rules and Austroads GRD Part 3, Commentary 21). This is to ensure vehicles have clearance and do not "bottom out" on the crossover or driveway.

Reference should also be made to AS 2890.1:2004 - Parking Facilities Part 1: Off-Street Car Parking:

- Clause 2.5.3 Circulation roadway and ramp grades.
- Appendix B Clause B5 Ground Clearance.
- Appendix C Ground Clearance Template.

Where AS 2890.1 conflicts with the above guidelines, these guidelines shall take precedence.

D-5.4 Storage length

Sufficient storage length must be provided for a vehicle to be clear of the carriageway when stopped on the crossover. Where the entrance to the property has a gate, the set back from the edge of the carriageway to the gate will vary with the type of vehicle likely to use the crossover, in accordance with Table D5.3. Also refer to Figure D5.10.

Vehicle Type	Minimum Setback Distance
Light vehicles	8 m
Single unit trucks	15 m
Semi-trailers and wide farm machinery	22 m
Long Vehicles, Road Trains & all other vehicles	Length of Vehicle + 3 m

Table D5.3 – Storage length at crossovers

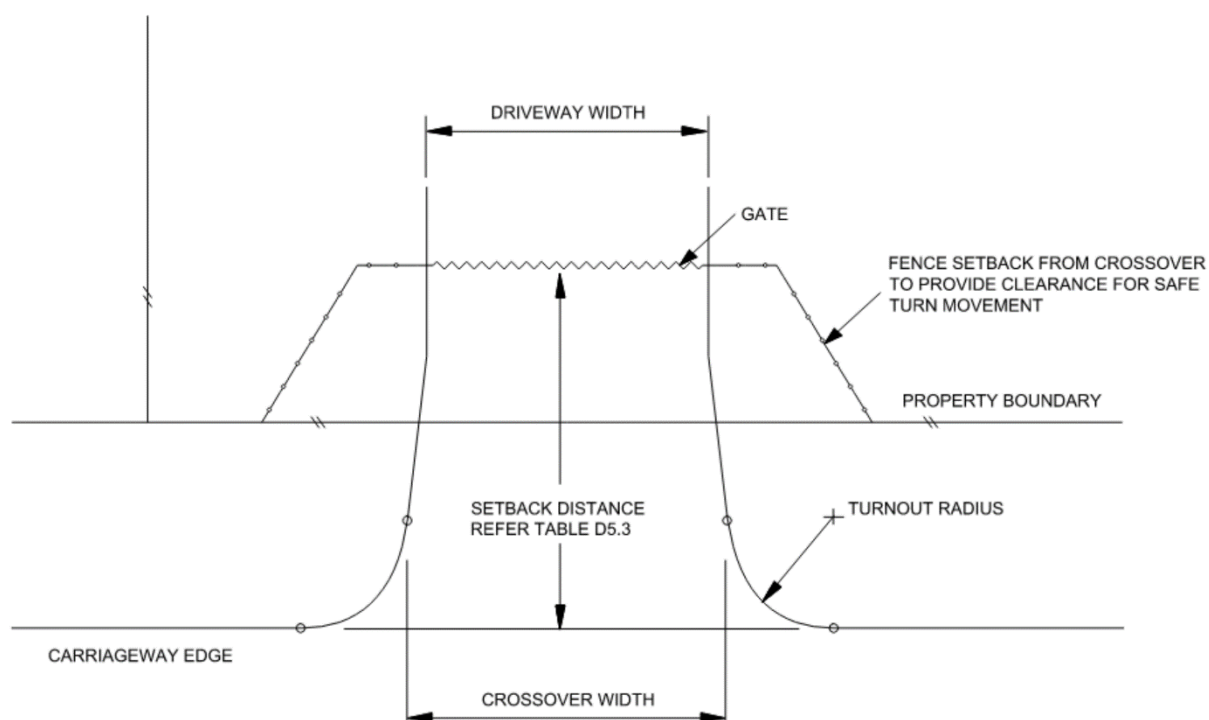


Figure D5.10 – Storage length requirements at crossovers

D-6 Other design considerations

D-6.1 Drainage

The design of crossovers and driveways shall ensure that no water, whether from storm water, surface run-off, garden reticulation, swimming pools, parking areas or other sources is discharged from the property to the road reserve.

Only after consultation with Main Roads and under exceptional circumstances can arrangements be negotiated, for an approved stormwater drainage scheme to permit run-off into the road reserve.

Crossovers shall be constructed so as not to impair the road drainage system. A suitably sized culvert shall be installed, where necessary, to match the serviceability requirements for a storm event as defined in the Main Roads Supplements to Austroads GRD.

Traversable end walls can be considered on culverts under crossovers, or the culvert moved out of the clear zone (preferred). The required capacity and size of any culvert shall be determined by the developer for approval by Main Roads.

Drawings for typical culverts and traversable end walls can be found on the [Main Roads website](#).

D-6.2 Site configuration and management of site operations

The internal vehicular circulation and storage requirements of a development shall be planned so that vehicles queuing to enter do not block the crossover or extend into the road carriageway. Applicants should demonstrate that sufficient internal vehicular storage is available within their site.

D-6.3 Pedestrian and cyclist facilities

Where a crossover crosses a footpath/shared path/cycle path, the crossover profile shall match the path to emphasise that the path has the right of way.

Refer to Main Roads supplements to Austroads GRD and Pedestrian and Cyclist Facilities guideline. Special consideration should be given to footpath crossfalls.

D-6.4 Materials and surfacing requirements

The depth, type and quality of material required for a crossover depends upon site conditions, vehicle types and traffic volumes. Main Roads will determine the minimum requirements. In urban areas, the crossover shall be constructed to the relevant LGA's requirements for materials, while associated works shall be designed and constructed to Main Roads' requirements.

Generally, when adjoining a sealed road, the crossover shall be treated as follows:

- Residential crossovers shall be sealed to the frontage boundary if the verge is less than 6 metres wide or sealed for at least the first 6 metres from the road.
- If Main Roads considers that pavement material from the crossover or driveway may be carried by water run-off or vehicles onto the road, then a suitable length shall be sealed. Generally, this will be to the frontage boundary; however, at a minimum, it will be to the length of the longest vehicle using the crossover or driveway. For crossovers and driveways used by road trains, sealing of the crossover and/or driveway can be up to 100 metres.
- For non-residential crossovers, the Main Roads Regional Director, after consultation with the relevant LGA and the applicant, shall determine the length to be sealed. As a minimum, the seal will extend to the property frontage.
- Emergency accesses (accesses used during emergency procedures such as bush fires) may remain unsealed due to their very low usage and subject to Main Roads approval.

D-6.5 Service and tourist signage

For the approval, supply, installation and maintenance of service signs and tourist signs, refer to Main Roads' Policy and Application Guidelines for Tourist and Service Signs. In general, Main Roads will approve, supply, install and maintain service signs (such as mine site signs) at the service owner's cost.

D-6.6 Other construction considerations

D-6.6.1 Environment and heritage

Main Roads, in conjunction with the LGA, manages the road verge. Applicants should contact the LGA or Main Roads to establish if there are any site-specific environmental or heritage constraints to be addressed, before lodging an application.

Any areas of the road reserve disturbed during crossover construction shall be reinstated within the timeframe stated in the application approval.

D-6.6.2 Temporary property access during property development

Temporary property access during development construction shall comply with the requirements for new crossovers under this guideline. Any relaxation of these requirements shall only be at the discretion of Main Roads.

The application should include a date or duration for removal of the temporary access and reinstatement of the road carriageway, median strip, and roadside. Beyond this date or duration period, the crossover will be deemed redundant and should be removed. The verge should then be reinstated by the property owner, or by Main Roads at the applicant's cost.