Access onto the state highway from private property

Planning Policy Manual

NZ Transport Agency operational transport and land use planning guidance

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NZ TRANSPORT AGENCY
WAKA KOTAHI

Te Kāwanatanga o Aotearoa
New Zealand Government

Guidance owner

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Document History

Date	Authors	Description of changes
11 September 2025	Richard Landon Lane, Etiene le Grange, Caroline Horrox	Revised Standard

Contents

1. Purpose

This guidance forms part of the Planning Policy Manual (PPM) which provides a hub for operational transport and land use planning guidance to assist NZ Transport Agency Waka Kotahi staff and external stakeholders to navigate through relevant planning processes. PPM guidance is grouped into three parts:

- **Part I Third party land use developments (LUDs)**
- Part II Operational responses to NZ Transport Agency strategic planning policy direction
- Part III Planning the transport network

This guide is part of the PPM Part I.

2. What this guide covers

This guide sets out the NZ Transport Agency Waka Kotahi (NZTA) assessment and process requirements for gaining direct access onto a state highway via a private accessway, slip lane or road as part of third-party land developments. This applies to the entire state highway network including limited access roads (LARs), motorways and expressways.

This guidance supersedes the Transit Planning Policy Manual No: SP/M/001 204 *Appendix 5B Accessway standards and guidelines* 2007.

3. Introduction

'Accessways' provide entrance/exit points from private property. The ability to construct an accessway onto a state highway depends on its (the state highway's) status. There are different requirements for motorways, expressways and limited access roads (explained in sections 4 and 5).

Where not prohibited, the construction of new access points and upgrading of existing access points onto a state highway requires NZTA approval. Approval is required for private accessways to agricultural, residential or commercial properties and new road intersections (examples include crossroads, T-intersections, roundabouts and traffic signals). Applications are assessed based on fitness for purpose, and potential impacts on the safe, effective and efficient operation of the state highway.

The *Safe System* approach underpins our safety assessment for any access proposal with a desire to reduce Deaths & Serious Injuries (DSIs) on the network. The *Safe System* approach recognises that people make mistakes, but the transport system can be designed to be more forgiving and better able to accommodate human error and road user vulnerability.

NZTA requires the application of safe system principles to inform the design of any proposed access point onto the state highway network. A safe system approach involves design that ensures crash impact speeds are below critical threshold levels. Typical survivable speed thresholds for different crash types are:

- 30km/h or less for crashes involving vulnerable road users such as pedestrians and cyclists
- 50km/h or less for side impact type crashes
- 70km/h or less for frontal-impact crashes.

For access points onto the state highway network, the predominant vehicle crash type to consider is the side-impact or 'T-bone' type crash which can happen when vehicles perform turning movements in and out of accessways. Our requirements for access point location and design are intended primarily to reduce crash risk, as well as broader network effectiveness and efficiency.

4. Access onto motorways and expressways

Roads are declared to be Motorways by the Governor General in Council under section 138 of the Public Works Act 1981 or section 71 of Government Roading Powers Act 1989. They are access-controlled, high-speed parts of the state highway network that often have grade separated interchanges and four or more lanes separated by a central median barrier.

Private physical access onto a motorway is normally prohibited. In exceptional circumstances NZTA can grant written authorisation for special access to a property adjoining the motorway in circumstances where access is not reasonably available from another road[1].

Private accessways to expressways[2], bypasses and other state highways of more than two lanes[3] in rural and peri-urban areas is strongly discouraged where alternative access arrangements are possible. Private accessways are generally not appropriate on these sections of the state highway due to the high volumes of traffic operating at higher speeds.

5. Access onto limited access roads (LARs)

Limited access roads (LARs) are sections of road where access to the road from private property is controlled by the Road Controlling Authority. For state highways this is NZTA. For local roads this is the relevant territorial authority (district and city councils). For state highways, LARs are created under the Government Roading Powers Act 1989 (GRPA). For local roads, LARs are created under the Local Government Act 1974. In both instances LARs are declared by notice in the *Gazette*.

About 3850km or 37% of New Zealand's state highway network are LARs.

State highways often traverse areas subject to the potential for growth. Residential and commercial development brings with it more vehicles needing access, more traffic and higher potential safety risks.

NZTA uses LARs to help manage safety risks by controlling the number, design and location of private accessways onto the state highway appropriate to the nature of highway activity (transport modes, traffic volumes and patterns, and speed). LAR state highways generally exclude those sections of highway where the speed limit is 50km/h (i.e., through towns and cities).

Each parcel of land that has legal access to a LAR and does not have reasonably practicable alternative legal access to another road, is entitled to at least one accessway. NZTA can specify the accessway location and design. Where access from a local road is practicable, NZTA is unlikely to approve access to the LAR state highway. NZTA seeks to minimise the number of accessways onto the state highway and encourages rationalisation and/or combination of accessways where practicable.

All accessways from private property onto a LAR section of state highway require NZTA approval in the form of an authorised Section 91 Notice under the GRPA (known as a 'Crossing Place Notice').

The NZTA website has maps of all state highway limited access roads.

If a property is located on a LAR, any existing Crossing Place may be noted on the certificate of title. These can be obtained from the Land Information New Zealand website (external link).

6. When to talk to us

You will need to contact us if you are seeking to:

- create an accessway or private road onto a state highway where none currently exists
- add additional accessways from your property onto a state highway
- change a state highway accessway layout, use or location
- subdivide a property with an accessway onto a state highway
- create a stock underpass under a state highway
- alter the land use (e.g., from residential to a commercial) on a property that accesses a state highway. Especially if this change results in additional Heavy Commercial Vehicle (HCV) use.

If your plans require a resource consent or other type of planning approval, we will be an 'affected party', so you'll need to talk to us before you lodge your consent application.

[1] Government Roading Powers Act 1989 section 84 and Transit New Zealand Act 1989 section 84.
[2] Expressways are also high-speed roads, but they may include well-spaced at-grade intersections.
[3] This includes Passing Lane installations.

7. State highway accessway approval requirements

The construction of new or upgrading of existing accessways onto state highways requires prior approval from NZTA. Significant land use changes on a site with access onto the state highway also requires NZTA approval (e.g. transitioning from residential to commercial use) because it may adversely impact on state highway and accessway users, and modifications to accessway location or design may be required to address these effects.

We will assess all applications for new access, changes to existing access and changes to land use to ensure these will not adversely affect safety, functionality, or efficiency for state highway/accessway users. Approval for accessways will be provided where accessways are considered safe and appropriate in their location and design.

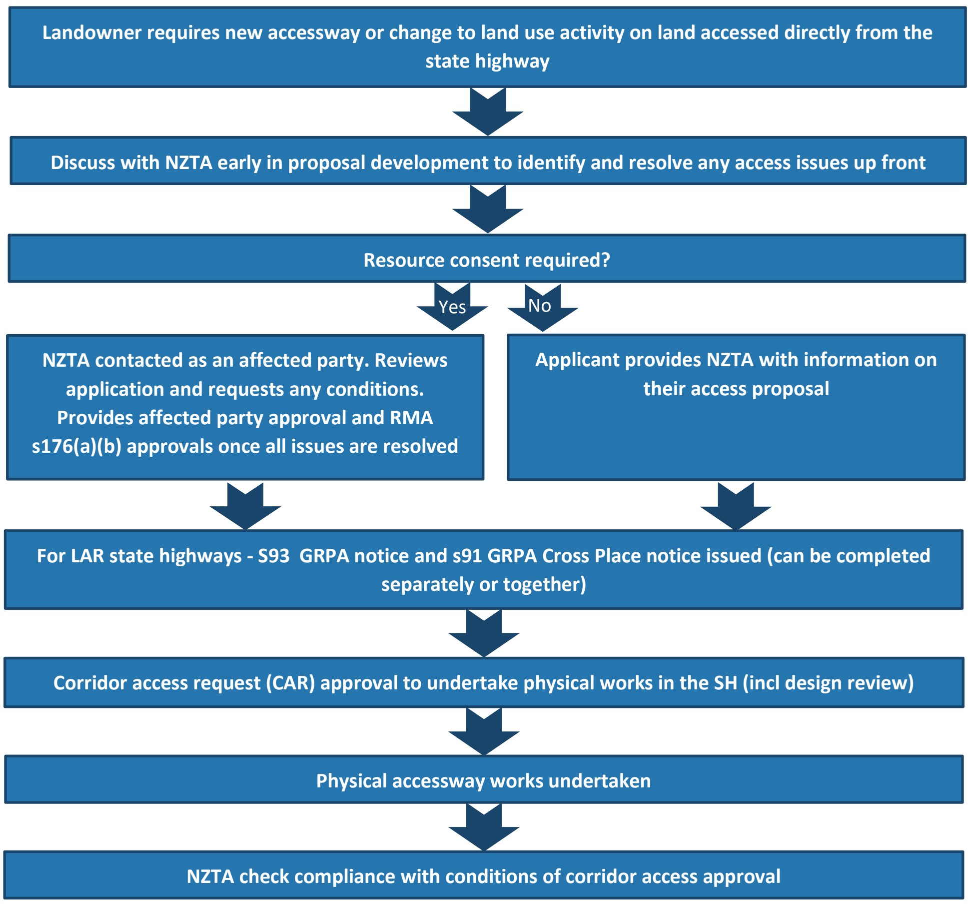
NZTA accessway approval for is typically a staged process which involves:

- approval under the Resource Management Act 1991 (RMA)
- s93 and s91 approval under the Government Roading Powers Act 1989 (GRPA) for LAR state highways
- corridor access request process to gain approval for the design and to undertake physical construction works within the state highway.

7.1 Approval process

The assessment and approval steps are outlined below in **Figure 7-1** *Accessway Approval Process*.

Figure 7-1: Accessway approval process



7.2 Resource Management Act planning approvals

NZTA encourages people to engage with NZTA early about their plans, ideally prior to consent application lodgement, as this allows time for access (and other) issues to be identified and potentially resolved, avoiding any surprises or delays post lodgement.

NZTA will have affected party status under the Resource Management Act 1991 (RMA) for activities subject to a resource consent or other planning approval requiring:

- a new access onto the state highway
- physical changes to existing access onto the state highway
- land use changes which may impact on the volume and/or type of vehicles and road users accessing a site
- development in proximity to the state highway (but without direct access), where traffic from the development may affect the state highway safety, functionality, or efficiency.

NZTA will only provide affected party approval for developments proposing safe and appropriate access design and usage. NZTA may require conditions on the resource consent for the accessway to be built to specific standards and protect against future land use changes that could affect safety. Compliance with conditions may be monitored via the Council's resource consent process (if applicable) and/or will be tied to the NZTA work access approval process (required before physical works can be undertaken on the state highway as outlined in **Section 7.4**).

Works within a designated state highway corridor (under the district plan) may also require approval under s176(1)(b) of the RMA. This will typically be provided as part of the affected party approval process.

NZTA input on development proposals can be sought online via our land development page[4].

7.3 Government Roading Powers Act (GRPA) approvals

NZTA controls the location and standard of access to the state highway LARs under the GRPA. Each parcel of land that adjoins or has legal access to a LAR shall be entitled to at least 1 crossing place if there is no reasonably practicable legal alternative access from another road (s90 of the GRPA). The process requirements under s93 and s91 of the GRPA is outlined below.

7.3.1 Section 93 Limited Access Road not a road for certain purposes

What is it	A s93 notice is approval from NZTA for the LAR to be treated as a road for the purposes of a subdivision. Under s93, a LAR is deemed not to be a road for certain purposes. This applies specifically to subdivisions. If a subdivision is conditional on having frontage/ access from a LAR, it must have approval from NZTA under s93 to be treated as a road.
When is it required	s93 approval must be obtained prior to a territorial authority issuing a certificate under s224(c) of the RMA.
What it includes	A s93 notice includes: • Any conditions on access to and from the LAR • A requirement that any conditions imposed on the s93 notice are recorded in a s91 crossing place notice
When is it issued	Typically issued together with affected party approval under RMA s95E(3).

[4]https://www.nzta.govt.nz/roads-and-rail/management-and-maintenance/land-use-development-and-the-state-highway-network/

7.3.2 Section 91 Authorisation of Crossing Places

What is it	A Crossing Place Notice is a legal document providing approval under s91 of the GRPA for an accessway onto a LAR. A Crossing Place Notice should be registered against the record of title for the land to which it relates. NZTA also holds these records.
When is it required	A Crossing Place Notice is required for every accessway onto a LAR[5].
What is includes	A Crossing Place Notice will detail: • the unique crossing place identification number and section of LAR State Highway it relates to • the property to which the accessway relates, including address and the title reference for the land • the crossing place location on the boundary • the authorised use (e.g., farm access) • any conditions on access (e.g., vehicle types and numbers, restrictions on land uses using the access, requirements for access design).
When is it issued	For new subdivisions, crossing place notices will be issued after completion of physical works to construct the access.

7.3.3 Cancelling or varying crossing places

At any time NZTA can also:

- cancel the right to use existing crossing places under s91 of the GRPA, provided that the parcel of land has reasonably practicable legal access to another road or authorised crossing place
- vary or impose further crossing place conditions
- vary the location of any crossing place.

7.4 Corridor access approval to undertake physical work on state highway

Where construction or upgrading of an accessway will involve physical works within the state highway corridor a corridor access approval will also be required from NZTA. A corridor access request (CAR) must be submitted at least 15 working days before the planned start of construction works within the state highway. Corridor access approval for a new or altered accessway is typically in the form of a '*Agreement to Work on State Highways'* (ATWOSH).

An ATWOSH provides the applicant with written consent for the physical works, including any conditions for undertaking that work (such as health and safety requirements).

The CAR approval process is intended to ensure that the works will:

- meet state highway design and safety standards
- ensure the safety of workers undertaking the physical accessway works
- prevent flooding or erosion
- maintain the integrity of state highway assets

[5] A crossing place notice is issued under section 91 of the GRPA.

- mitigate any traffic disruption or safety risk to road users, and
- reinstate the road corridor assets to the satisfaction of NZTA and Council.

A CAR application should include construction drawings showing details of the access works and any associated works (eg drainage), the proposed works methodology and a traffic management plan. Depending on the scale and nature of the works, other information may also be required, including:

- geometric information such as widening required for vehicle tracking
- a programme of works
- existing service locations and any relocation/protection proposed
- pavement design for any carriageway widening or access construction including the method for joining between old and new pavements/footpaths
- surfacing type, strength and thickness
- new road marking and signage layouts, and proposed reinstatement methodology of existing markings / signage if altered or removed during construction
- drainage design and calculations for any land use changes that will alter stormwater discharge characteristics affecting the state highway drainage system
- measures for avoiding or mitigating additional stormwater discharge to the state highway stormwater management system
- retaining structures and loading capacity of any manhole covers
- safety barrier requirements and associated designs
- measures for preventing contamination and erosion, etc
- temporary traffic management measures.

The applicant is responsible for preventing or addressing all adverse impacts resulting from the works as well as ensuring all works are carried out in accordance with the approved drawings and to NZTA and/or Council Standards. The applicant is also responsible for the costs associated with the above measures, and with meeting the requirements of any conditions NZTA attaches to an approval.

The process for initiating a CAR request varies across regions but typically is done via the Submitica or My Work Sites websites. The process details can be confirmed by the NZTA network manager or corridor manager for a particular region.

The property owner is responsible for the ongoing maintenance of the accessway.

7.5 Compliance sign-off

Once a corridor access approval has been granted, access construction monitoring/inspection is normally undertaken, followed by an ‘as built’ documentation review, before the corridor access sign-off will be confirmed.

At the completion inspection/sign-off stage, a final compliance check is also necessary. This ensures that any crossing place facilities are as per the standard requested (including any relevant requirements under RMA approvals).

8. Access assessment considerations

The information provided in this section is technical and will require the assistance of a transport engineer or equivalent expert.

NZTA will advise applicants on the specific requirements for individual access proposals. Those requirements will be influenced by the nature, scale and complexity of the land use activity and access proposed. In some cases, NZTA may require the applicant to complete the following to support an access application:

- an Integrated Transport Assessment (ITA)
- an independent Safe System Audit Assessment[6]

Some applications (for example those requiring ITAs and safety assessments) will need input from an appropriate transport engineering professional. Applications and any supporting assessments are at the applicant's cost.

8.1 Summary of key considerations

In assessing a proposed access application, NZTA will consider a range of matters as follows:

- whether alternative access is available from another road
- whether the proposal is aligned with safe system principles
- One Network Framework (ONF) classification
- the number and types of vehicles as a result of any change in land use
- whether the proposed activity is consistent with the local district plan requirements
- the effects of the proposal on highway infrastructure (including existing walking, cycling and public transport) and users (vehicles, cyclists and pedestrians)
- the crash history (10 year) in the vicinity of the site and the predicted increase in Death and Serious Injury (DSI) crash risk at the site (due to the development) and on any roads affected by the development
- the cumulative effects of additional access points on the safety of the network
- the mitigation measures the applicant proposes to undertake / implement
- opportunities to rationalise accesses, including options for shared accesses
- compliance with NZTA guidelines for the design of accesses/intersections
- the provision for manoeuvring on site to ensure that all necessary vehicle movements are contained within the site, so that reversing onto the network is not required
- the adequacy of parking provision on site
- whether the accessway width is appropriately sized for the intended use to avoid unnecessary queuing over adjacent vehicle crossings, queuing onto the network, and/or left-turning vehicles crossing into the opposing lane.
- the need for on-road mitigation measures such as acceleration/deceleration or turning lanes

These matters are discussed in more detail below.

8.2 Alternative access options

Where a property fronts the state highway and alternative access is available, the alternative access should be utilised as a priority (i.e., from a local access road or adjoining private accessway). Reducing the number of access points on the state highway improves efficiency and reduces the number of conflict points on the state highway, improving safety. Local access roads also generally have lower volumes of

[6] https://www.nzta.govt.nz/resources/safe-system-audit-guidelines-for-transport-projects

traffic and lower speeds, and prioritising access onto those roads first reduces the chances of crash incidents. Local road intersections are often constructed and maintained to higher standards with better sightlines, providing safer access.

8.3 One Network Framework classification

The One Network Framework (ONF) is our national classification system for roads and streets. It replaces the One Network Road Classification (ONRC). The classification of a road under the ONF may influence the viability of an access location and design. Significant developments may even alter the ONF classification of affected roads. Further information on the ONF can be found on the NZTA Website[7].

8.4 Traffic volumes

NZTA will consider traffic volumes on any roads potentially affected by the development, including pedestrians and cyclists.

Traffic volumes are the number of road users, be it pedestrians, cyclists and/or drivers, crossing a section of road or using a particular intersection, accessway or road-related infrastructure per unit of time over any selected period.

Generally, traffic volumes in New Zealand are defined as ‘vehicles / users per day (vpd)’, which can then be translated into ‘vehicles / users per hour (vph)’.

Note: An increase in the number of interactions between through-traffic and accessway users will increase the exposure and likelihood of unsafe interactions, which increases the probability of a crash.

Basic traffic volumes from state highway monitoring sites can be found on the NZTA website.

For trip generation rates which lead to traffic volumes for a proposed development, refer to section 8.9.

8.4.1 Rural developments

Rural State Highways typically (but not always) have posted speed limits of 80km/h or higher. A key risk for a proposed access or development in this speed environment are right-turning movements.

For lower volume rural developments (nominally up to 250 vpd), **Figure 8-1** indicates when different types of treatment should be considered for different volumes.

For larger rural developments (> 250vpd), a more formal intersection design will be required to address safety concerns. **Figure 8-2** shows the approximate major and minor road AADT[8]s in rural areas where the installation of a roundabout will likely provide the best outcomes in reducing deaths and serious injuries (DSI)[9].

Appendix A provides more detailed commentary on how **Figure 8-1** and **Figure 8-2** were developed.

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[7] https://www.nzta.govt.nz/planning-and-investment/planning/one-network-framework/

[8] Annual average daily traffic.

[9] Source crash prediction models are from NZTA Crash Estimation Compendium (2018)

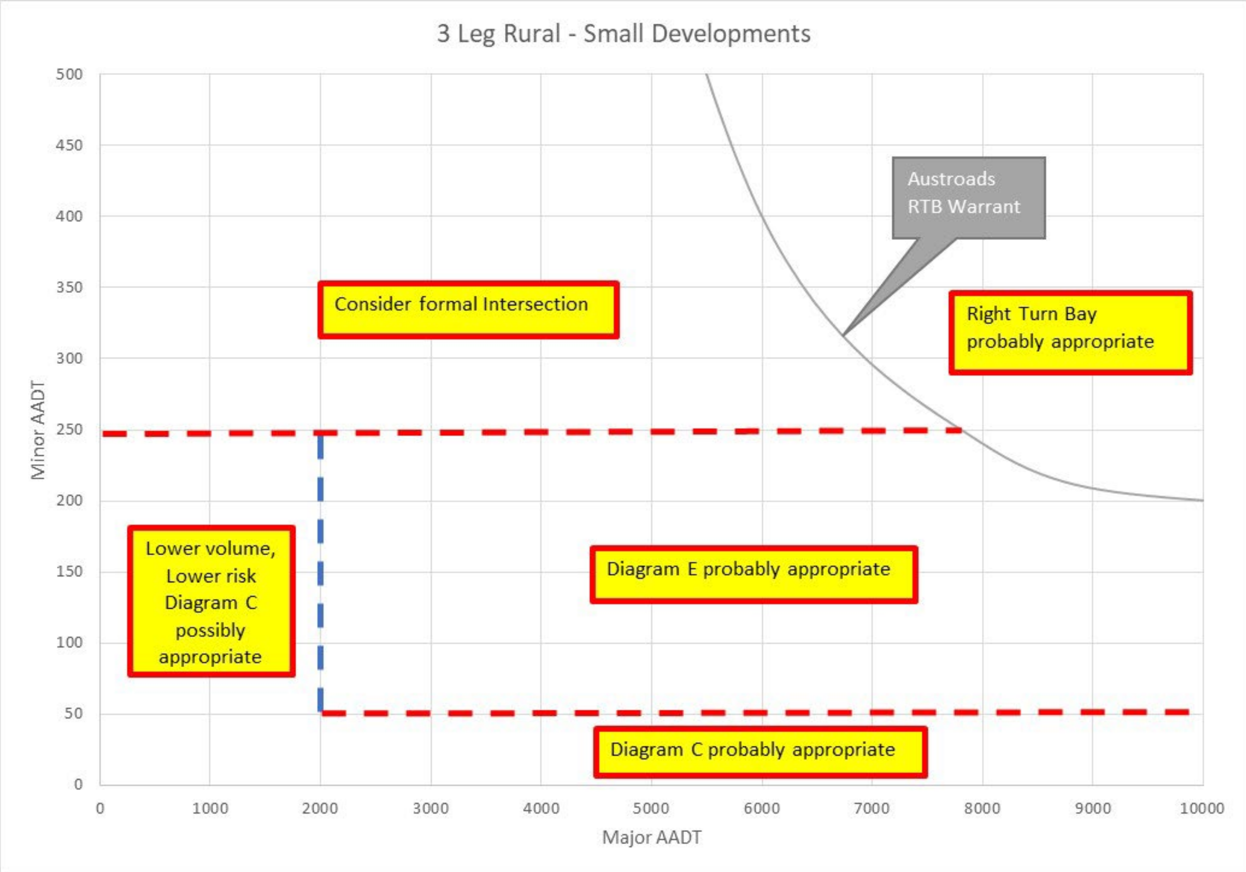


Figure 8-1: Smaller Volume Rural Accessway Treatments

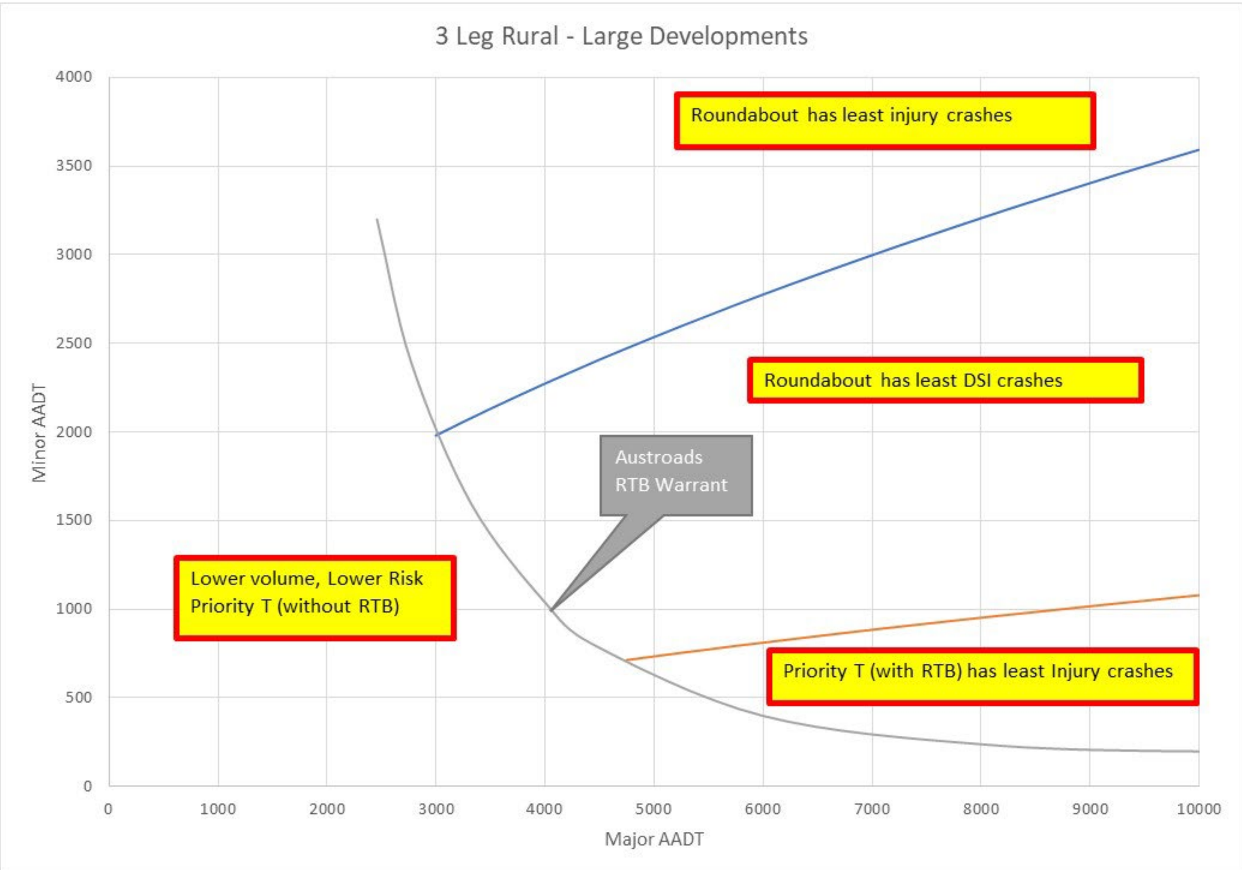


Figure 8-2: DSI Crash Boundary – Larger 3 Leg Rural Intersection

8.4.2 Urban developments

For larger (>250 vpd) urban development accessways which effectively create a T-intersection, **Figure 8-3** below provides the approximate major and minor road AADTs in urban areas where the installation of a roundabout will likely provide the best outcomes in reducing DSI. For larger developments, the use of traffic signals may be appropriate depending on the mix of traffic and vulnerable user volumes. The identification of an appropriate solution will need to be assessed on a case-by-case basis through an integrated transport assessment (ITA).

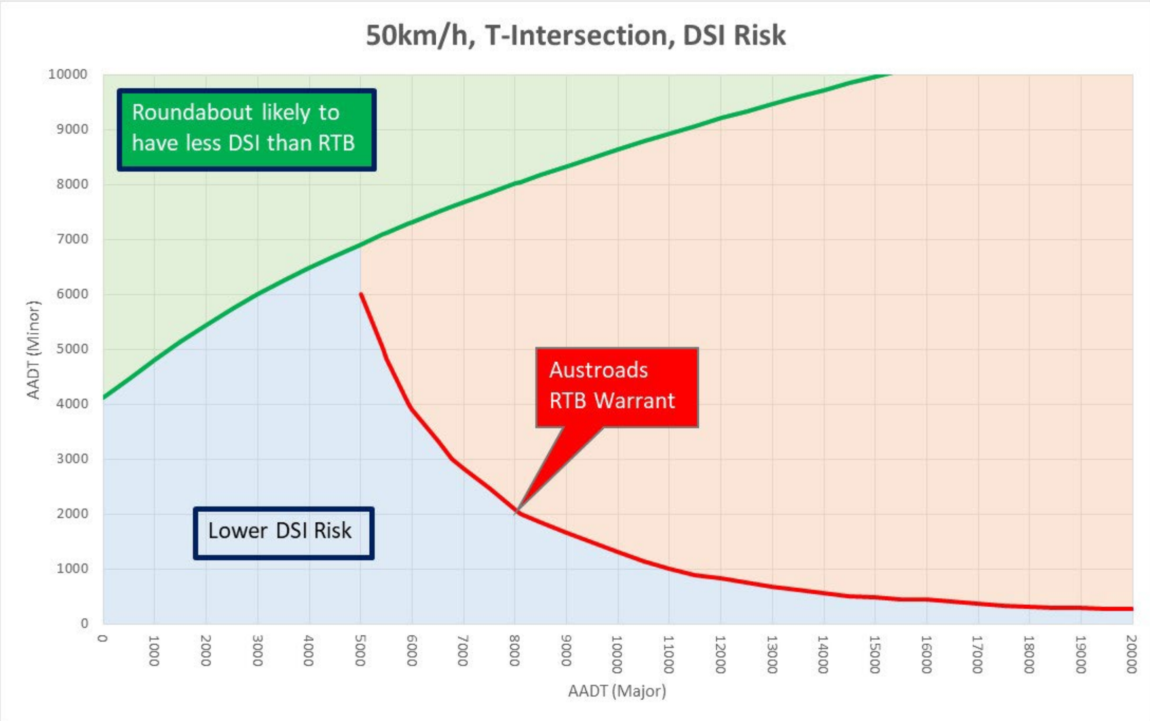


Figure 8-3:: DSI Risk, Urban 3 Leg 'T' Intersection

For larger (>250vpd) urban developments which combine with an existing T-intersection to form a 4-leg intersection see **Figure 8-4** below. Further information on **Figure 8-3** and **Figure 8-4** can be found in **Appendix B**.

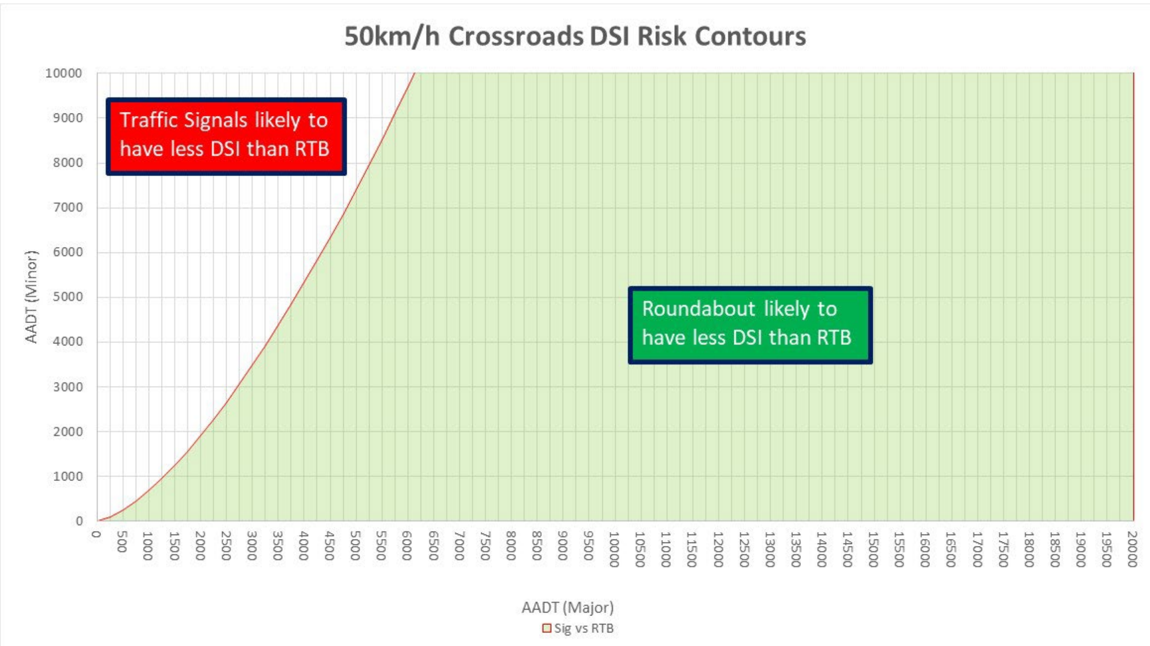


Figure 8-4: DSI Risk, Urban Crossroads

8.5 Traffic speeds

Traffic speeds directly relate to the safety of roads, and it is desirable that actual traffic speeds are recorded, and an accurate assessment of the speeds undertaken.

8.6 Sight distance

NZTA will consider the adequacy of sight distances along any state highway affected by the development. This includes sight distances on any footpaths, cycleways and shared paths affected by the proposal.

'Sight distance' refers to the distance, measured along the carriageway, over which visibility occurs between a driver and an object, hazard, another vehicle, traffic sign, road marking, or traffic signals. It is essential to provide sufficient sight distance to enable drivers to perceive and react to any hazardous situation. A driver's sight distance should be as long as possible. However, it is often restricted by crest vertical curves and horizontal curve obstructions. All these elements should be factored into accessway siting.

The NZTA will evaluate the adequacy of sight distances along any state highway impacted by the development. This includes sight distances on footpaths, cycleways, and shared paths affected by the proposal.

For accessways and intersections onto the highway 'Safe Intersection Sight Distance' (SISD) is the desirable standard (see **Figure 8-5** *Site Distance Diagram* below).

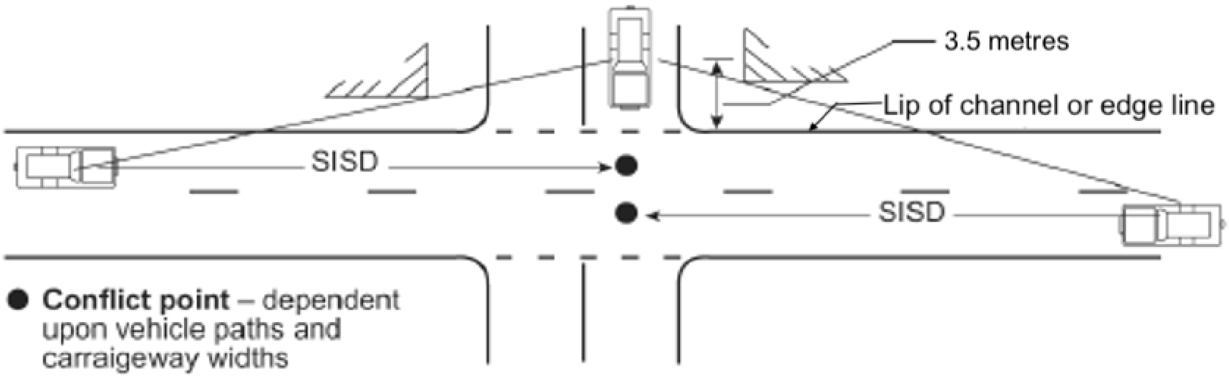


Figure 8-5: Sight Distance Diagram

Figure 8-5: Sight Distance Diagram

Desirable non-grade corrected SISD values are shown in **Table 8-1**, based on the following assumptions:

- reaction time of 2.0 seconds for speed limits of 70km/h or less
- reaction time of 2.5 seconds for speed limits of 80km/h or more
- deceleration 'd' value = 0.36

The assumed 85%ile operating speed is 10km/h above posted speed limit. On site surveys or analysis of traffic and geometry can refine this speed.

Table 8-1: Desirable SISD values

Posted Speed Limit (km/h)	85%ile Speed (km/h)	Desirable SISD (m)
30	40	73
40	50	97
50	60	123
60	70	151
70	80	181
80	90	226
90	100	262
100	110	300
Example: An accessway on to a state highway with 80km/h posted speed has a default speed environment of 90km/h would therefore a minimum of 226m of sight distance. If however, the 85th percentile operational speed measured at the location is only 70km/h, the sight distance may be able to be reduced to 151m.		

Further information on SISD including base formulas, object heights, and gradient correction can be found in Austroads Guide to Road Design (AGRD) part 4A (2021).

Achieving the required SISD may not be possible in all circumstances because of factors such as the terrain or the highway alignment. In such cases the applicant will have to establish what the maximum possible SISD will be achieved and calculate what the impact speed will be at the conflict point and consider how this impact speed relates to the risk of a DSI.

Diagram A **and** Perspective A in **Section 13** illustrate accessway sight line requirements.

8.7 Accessway spacing

NZTA will consider the proximity and use of nearby existing access points (on both sides of the road) and intersections.

Access spacing influences road safety on the transport network. The denser the spacing, the more turning movements are likely to take place which can add to the complexity of the driving environment, this reduces the free-flow capacity of the road and can increase the number of crashes.

8.7.1 Accessway spacing to intersections

Accessways should not be located too close to intersections, as they can add to the complexity of the functional area of the intersection. The functional area of the intersection is where normal braking and accelerating would take place to perform turning movements. **Table 8-2** outlines desirable spacing requirements, these are non-grade corrected values for acceleration lengths[10] for traffic on the major road and braking distances[11] for traffic on the minor road.

[10] Refer Austroads Guide to Road Design part 4A (2021) table 5.5.Length of acceleration lanes for cars
[11] Refer Austroads Guide to Road Design part 4A (2021) table 3.1 Approach sight distance (ASD).

Table 8-2: Desirable spacing to intersections

Posted Speed Limit (km/h)	85%ile Speed (km/h)	Desirable Spacing 'K' (m) on major road	Desirable Spacing 'M' (m) on minor road
30	40	40	40
40	50	70	55
50	60	110	75
60	70	165	95
70	80	235	115
80	90	330	150
90	100	450	180
100	110	610	210
Example: An accessway on to a state highway with 80km/h posted speed desirably should be 330m clear of any intersections to avoid interfering with the braking and accelerating associated with the intersection.			

8.7.2 Spacing between adjacent accessways

The minimum spacing between a proposed new accessway and adjacent accessways will be determined on a case-by-case basis. In particular, the following factors will be considered:

- the category of the road under the ONF
- the volume of traffic on the state highway, including peaks
- the number and type of vehicles using the access, including peaks
- access geometric design
- the speed environment
- the frontage length of the subject land title and others in the vicinity.

Two or more accessways at a common boundary point may be acceptable in some circumstances, e.g. two access ways (one for each site at the common boundary) would be better than two separate accessways 50-350m apart. If two distinctly separate accesses are required, then enough space between access ways for the queuing of right turners is required (to prevent the back of the queue blocking the travelled way). If in conflict, visibility constraints will override access spacing requirements.

Table 8-3: Desirable spacing between access locations

Posted Speed Limit (km/h)	85%ile Speed (km/h)	Recommended minimum distance ('N') between accesses (m)	Desirable[12] distance ('N') between access on highways carrying over 5,000 vpd – 10,000 vpd (m)
30	40	-	90
40	50	-	115
50	60	-	150
60	70	95	185
70	80	115	220
80	90	150	260
90	100	180	305
100	110	210	350

For state highways operating at a volume greater than 10,000 vehicles per day, due to the increase in risk, NZTA at its discretion may seek access spacings greater than those stated above in ***Table 8-3.***

Diagram B and Perspective B in **Section 13** illustrate the minimum access spacing between other intersections, roads and accessways.

8.8 Accessway form and design

State highway road access can impact the mobility, safety, and convenience of all road users, including those accessing sites from the state highway. Therefore, accessway design must be fit for purpose to suit the site, considering the following:

- the type of traffic using the access (particularly the numbers and proportion of use by slow, heavy, or long vehicles)
- the volume and frequency of traffic using the access, including peak traffic movements
- the volume and speed of traffic on the state highway, including peak traffic movements
- access seal widths, tapers, approach gradient and the recessing of gates
- acceleration and deceleration requirements, left turning slip roads, right turning bays, or other amendments to the main carriageway
- opposing-vehicle turning facilities, throat width, and throat and stacking length
- stormwater impacts - accessways should be designed and constructed to ensure runoff is directed away from the state highway to avoid increasing the risk of aquaplaning or other adverse effects on the state highway network such as flooding and erosion.
- location of existing infrastructure in the road corridor (gas or communications utilities etc)
- pedestrian and/or cyclist traffic. Accessways shall be designed to maintain an accessible demarcated route across the accessway and calm traffic speeds when entering or exiting
- the accessway radius, which should accommodate the appropriate design vehicle. This may include light motor vehicles through to heavy commercial vehicles, dependent upon the nature and scale of the development and activity

[12] Derived from Austroads Guide to Road Design Part 4A; Safe Intersection Sight Distance with a 2.5 second reaction time and d = 0.26

- access placement:
  - for entering drivers, this should be such that drivers approaching from the main roadway will have sufficient sight distance to ascertain the accessway's location to safely decelerate and complete the entry manoeuvre
  - for exiting drivers, this should be such that drivers have sufficient sight distance to judge a safe gap in oncoming traffic, the approach angle must be within +/- 20 degrees of perpendicular to the main road
- gravel egress – accessways should be designed to minimise gravel being tracked onto the state highway[13] (refer to **Access Type C** and **Perspective C** in **Section 13**).
- potential headlight glare from driveway users where accessways must run parallel to the state highway. Screening may be recommended to ensure road users are not dazzled, distracted or confused by headlights from oncoming vehicles using the accessway (refer to **Figure 8-6** below).

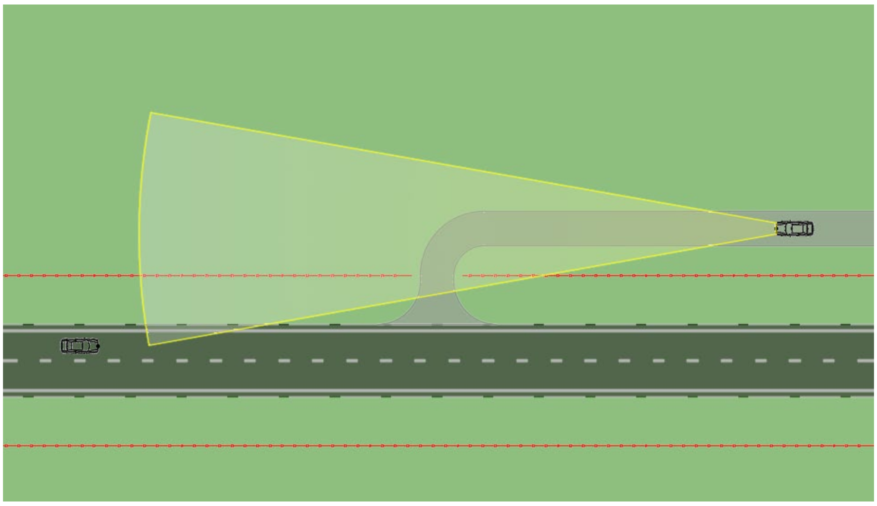


Figure 8-6: Headlight Glare Concern

8.9 Trip generation rates

The form and design of access points is influenced by the volume of traffic using the accessway both daily and during peak times.

NZTA will generally assume the trip generation rates derived from NZTA Research Report 453: *Trips and Parking Related to Land Use- November 2011* unless data is available and provided that justifies the use of alternative generation rates.

Larger developments or mixed use shall demonstrate a trip rate through a variety of sources - including the Trips Database Bureau (TDB).

Larger developments will also need to demonstrate the effect on Level of Service (LOS).

Trip generation is normally reported in vehicles per day (vpd) or vehicles per hour (vph).

For developments which have a large proportion of heavy commercial vehicles (HCVs) (>20%) the vpd/vph figures should be adjusted on the basis that 1 x HCV = 3 x Passenger Car Units (PCUs). This is to account for the fact that HCVs are larger and take longer to accelerate/decelerate which will affect both the LOS and safety risk. Table 8-4 shows typical rates for residential developments.

[13] Gravel on the state highway presents a potential safety hazard to road users including reduced traction and the risk of throwing material up and into vehicles.

Table 8-4: Typical New Zealand Trip Generation Rates[14]

LAND USE	TRIP GENERATION RATES	
	Daily (vpd)	Peak Hour (vph)
Dwelling houses	10.7	1.3
Medium Density Residential (e.g. flats, townhouses)	6.8	0.8

8.10 Other considerations

NZTA will also consider whether there are other upcoming changes to the roading network, including the posted speed limit, scheduled maintenance, or network improvements (speed management or capital infrastructure) that may impact an accessway's location or design.

Individual territorial authorities may also have specific access requirements in their district plan or bylaws.

9. Standard access types

9.1 Urban access types

For urban areas (typically < 60km/h posted speed limit), NZTA may consider the use of local Council road controlling authority (RCA) accessway standards where applicable. If a local Council RCA does not have a specific urban accessway standard or specification, NZTA may consider the use of established standards from larger local Council RCAs such as Auckland Transport (AT) or Christchurch City Council (CCC).

9.2 Rural access types

For rural state highways, NZTA has two standard accessway types suitable for most private accessways:

- **Access type C (low volume rural roads)**: The minimum requirement for a single property.
- **Access type E (high volume rural access)**: Appropriate as property numbers increase or traffic generation increases. Designed to provide enough room for a through vehicle to manoeuvre to the left around a stationary vehicle waiting to turn right into the accessway.

'Diagram D' referenced in the previous Planning Policy Manual 2007 is no longer utilised. This type of treatment was originally intended for use by Milk Tankers with professional drivers who would use the space to pull to the left, however this was not well understood by other road users, and the facility was often not used as intended which created safety issues. Type E now covers the milk tanker scenario turning from the centreline. The situations for the standard access types are outlined in **Table 9.1** below.

Table 9-1 Rural Access Types

ACCESS TYPE	APPLICABLE SITUATION
Intersection Design	Proposed Access greater than 250 vehicle movements per day or 20 vehicle movements per hour
Type C (low volume rural roads)	Proposed Access must satisfy all three following criteria: • Less than 50 vehicle movements per day • SISD requirements met • Maximum of 1 HCV movement per week
Type E (high volume rural access)	All other situations

[14] New Zealand Transport Agency Research Report 453. 2011. *Trips and Parking Related to Land Use – November 2011*, Table 8.10 Comparison of New Zealand, Australian, US and UK trip generation rates 2010.

Conceptual design and layout requirements for Access Type C and E accesses are provided in **Section 13.** Note that the dimensions may need to be increased for a curved centreline to get a geometrically acceptable outcome.

The reasons for any departures from the access standards should be recorded in an agreement with the applicant and attached to NZTA's access approval.

For developments exceeding 250 vpd or that have peak hour flows of 20 or more vph, a site-specific intersection design is likely to be required. This will need to be assessed and designed according to the latest Austroads Design Standards and any relevant NZ supplements.

9.2.1 Rural Access with Median Barrier

For rural sites which have a median barrier, a key minimum requirement is to provide access for a typical Fire Appliance. On-road tracking curves for the 8m rigid truck[15] are used to represent the typical Fire Appliance. The minimum "Access Type C" should be appropriate for most situations to facilitate this manoeuvre (see Figure 9 -1 below). Tracking curve analysis should be done to confirm any site specific issues. For proposed developments which require larger HCV access, tracking curve analysis must be undertaken as part of the application.

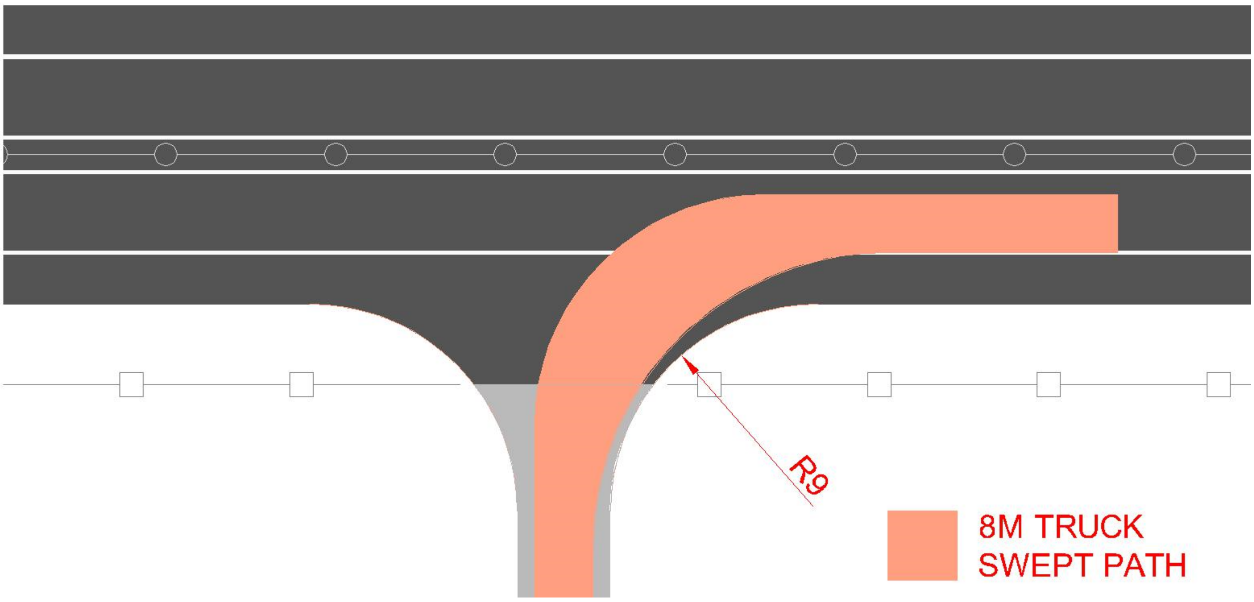


Figure 9-1: Typical Fire Appliance at Median Barrier Site

[15] NZTA RTS-18 on road tracking curves for heavy vehicles (2007)

10. Access for public utilities and private connections within the state highway corridor

There are special requirements associated with access for utilities within the state highway corridor. Refer to the Planning Policy Manual Guide *Public utilities and private connections within the state highway corridor 12 October 2021* for more information.

11. Who to contact for more information

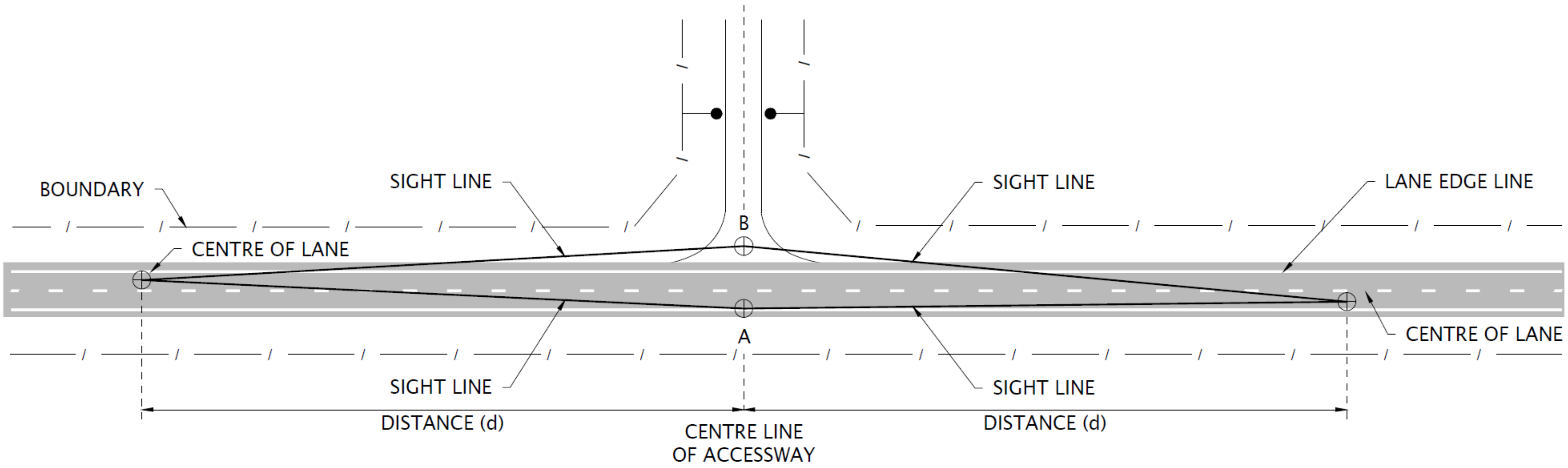
For further information on any of the above, please contact NZTA's Environmental Planning Group at Environmentalplanning@nzta.govt.nz

12. References

• **AustRoads Guides**
• **NZTA Crash risk compendium**

13. Access diagrams and types

- Diagram A and Perspective A - Accessway sight lines
- Diagram B and Perspective B - Accessway separation from intersections and other accessways
- Access Type C - Access requirements for low volume rural roads
- Access Type C perspective
- Access Type E - Access requirements for high volume rural access
- Access Type E perspective



Point A - Edge line

Point B – 3.5 metres from white lane edge line

Notes

- Sight distances shall be measured 1.10m (motorists eyes level) above the finished surface of the accessway and 1.1m above the highway
- There shall be no obstructions to visibility inside the area bounded by the sightlines

Posted Speed Limit (km/h)	85%ile Speed (km/h)	Desirable SISD (m)
30	40	73
40	50	97
50	60	123
60	70	151
70	80	181
80	90	226
90	100	262
100	110	300

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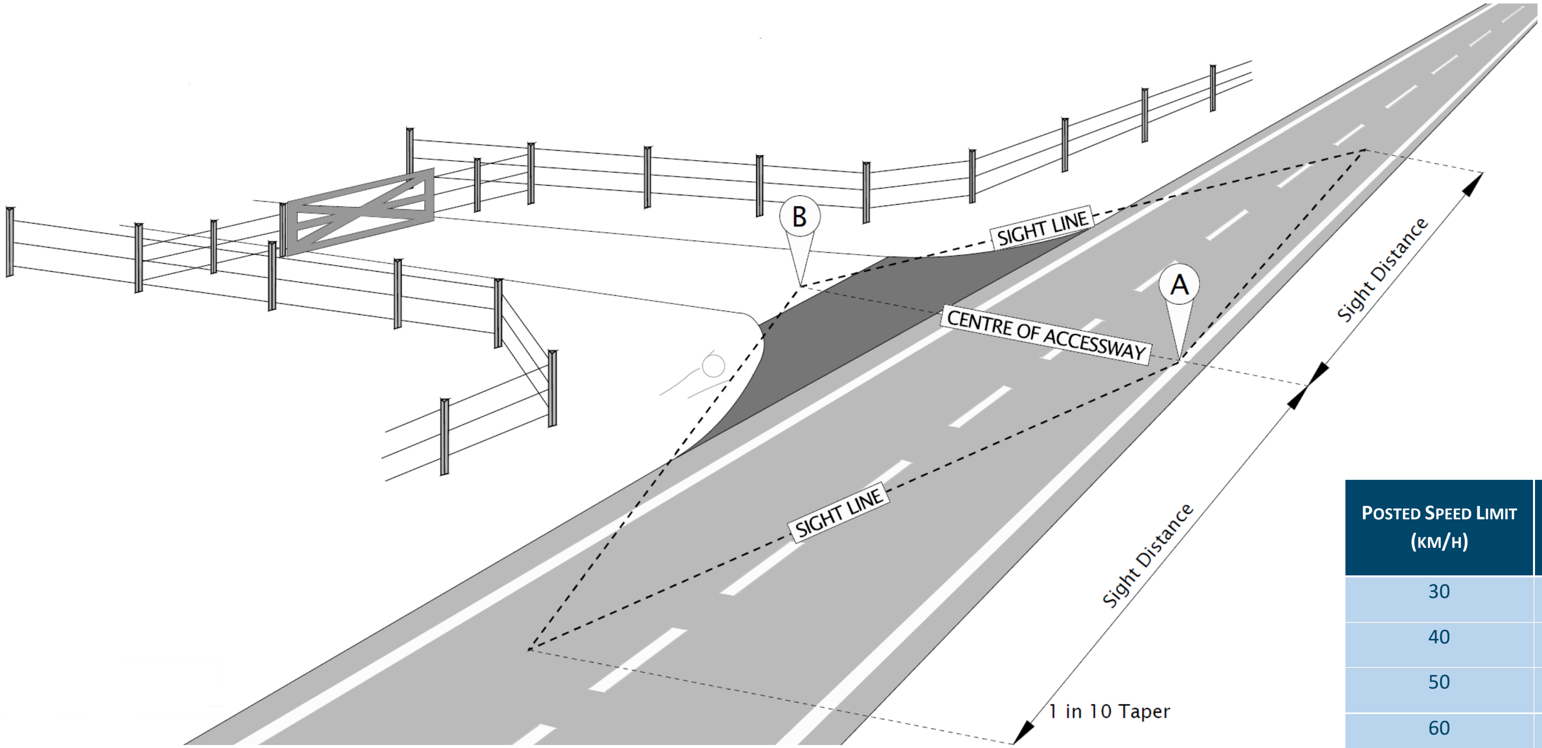
Diagram A: Accessway sight lines *(not to scale)*



Posted Speed Limit (km/h)	85%ile Speed (km/h)	Desirable SISD (m)
30	40	73
40	50	97
50	60	123
60	70	151
70	80	181
80	90	226
90	100	262
100	110	300

Point A - Edge line

Point B – 3.5 metres from white lane edge line

Notes

- Sight distances shall be measured 1.10m (motorists eyes level) above the finished surface of the accessway and 1.1m above the highway
- There shall be no obstructions to visibility inside the area bounded by the sightlines

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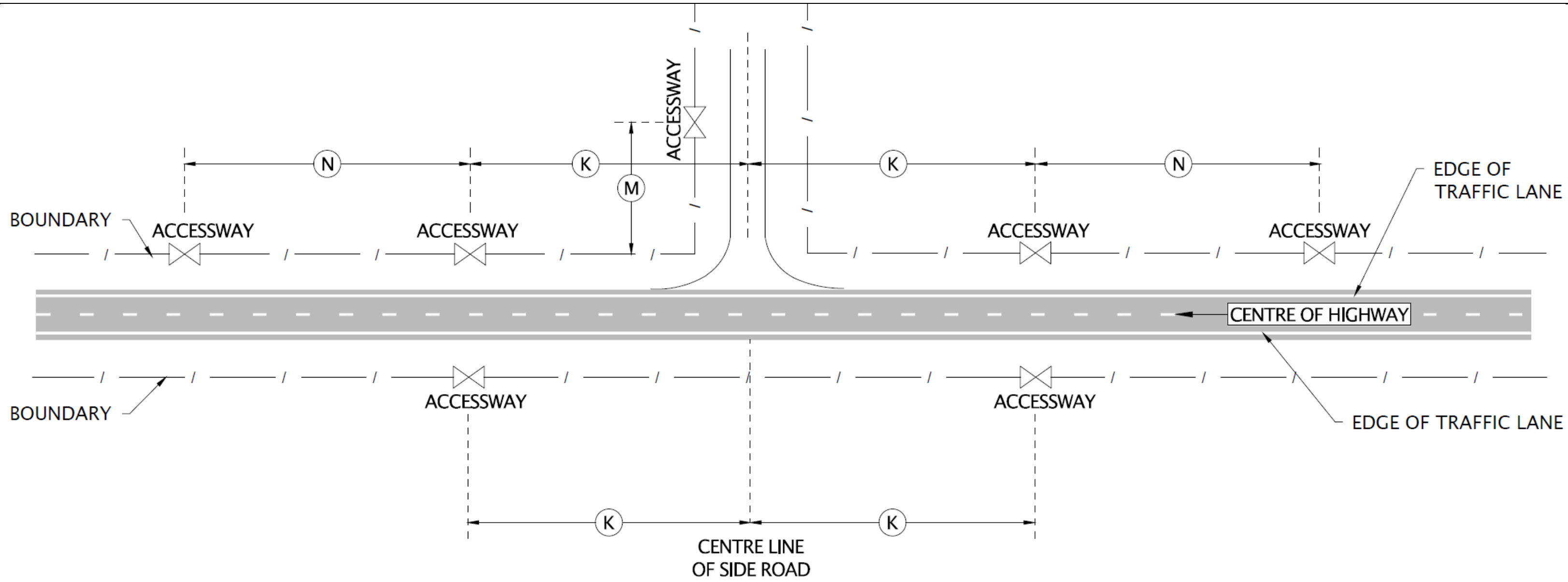
Perspective A: Accessway sight lines *(not to scale)*



Notes

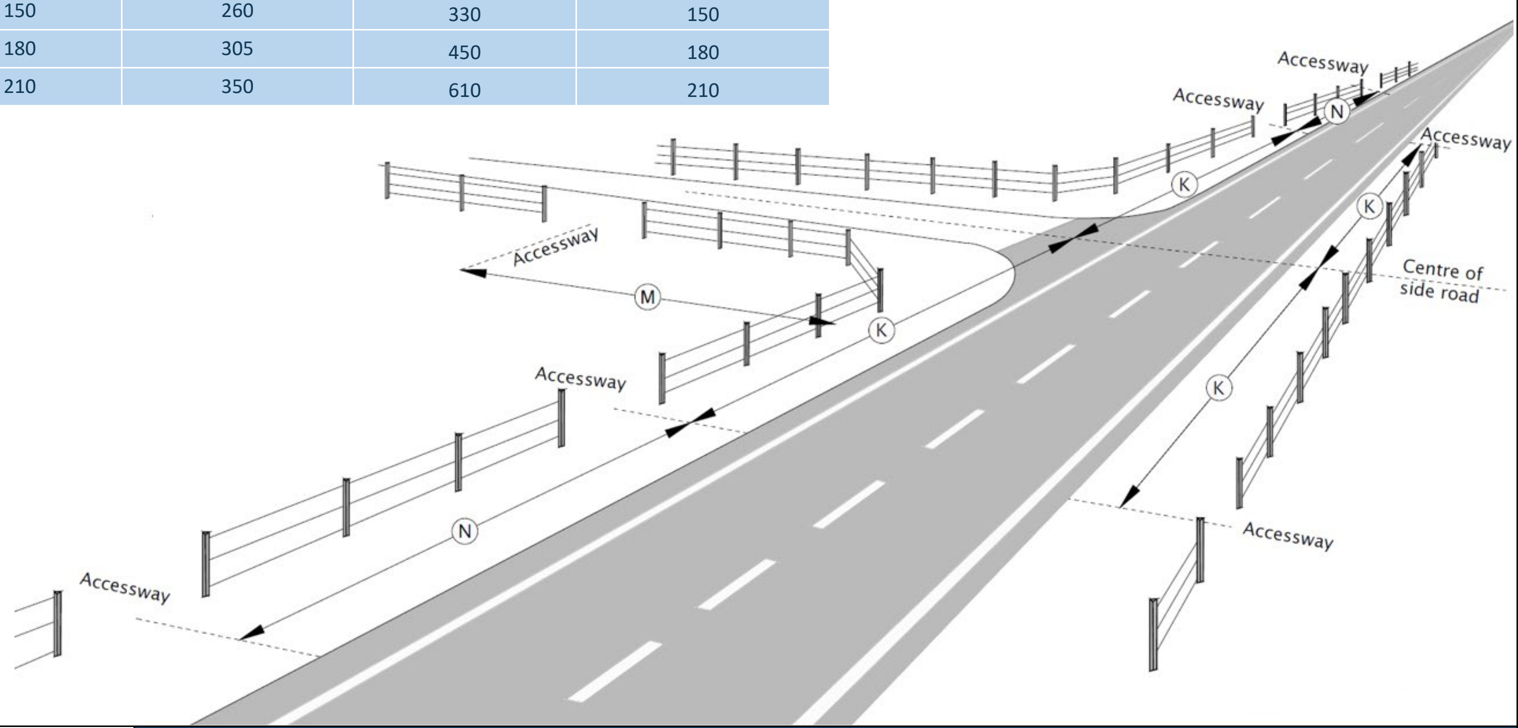
Where lot frontage lengths do not enable the specified recommended minimum distances (N), these will be determined on a case-by-case basis (refer section 8.7.2).

Speed Limit (km/h)	85%ile Speed (km/h)	Recommended minimum distance (N) between Accesses (m)	Recommended distance ('N') between accesses on highways over 5,000 vpd	Recommended Spacing to an intersection 'K' on major road (m)	Recommended Spacing to an intersection 'M' on minor road (m)
30	40	-	90	40	40
40	50	-	115	70	55
50	60	-	150	110	75
60	70	95	185	165	95
70	80	115	220	235	115
80	90	150	260	330	150
90	100	180	305	450	180
100	110	210	350	610	210

Diagram B: Accessway separation from intersections and other accessways

(not to scale)

Speed Limit (km/h)	85%ile Speed (km/h)	Recommended minimum distance (N) between Accesses (m)	Recommended distance ('N') between accesses on highways over 5,000 vpd	Recommended Spacing to an intersection 'K' on major road (m)	Recommended Spacing to an intersection 'M' on minor road (m)
30	40	-	90	40	40
40	50	-	115	70	55
50	60	-	150	110	75
60	70	95	185	165	95
70	80	115	220	235	115
80	90	150	260	330	150
90	100	180	305	450	180
100	110	210	350	610	210



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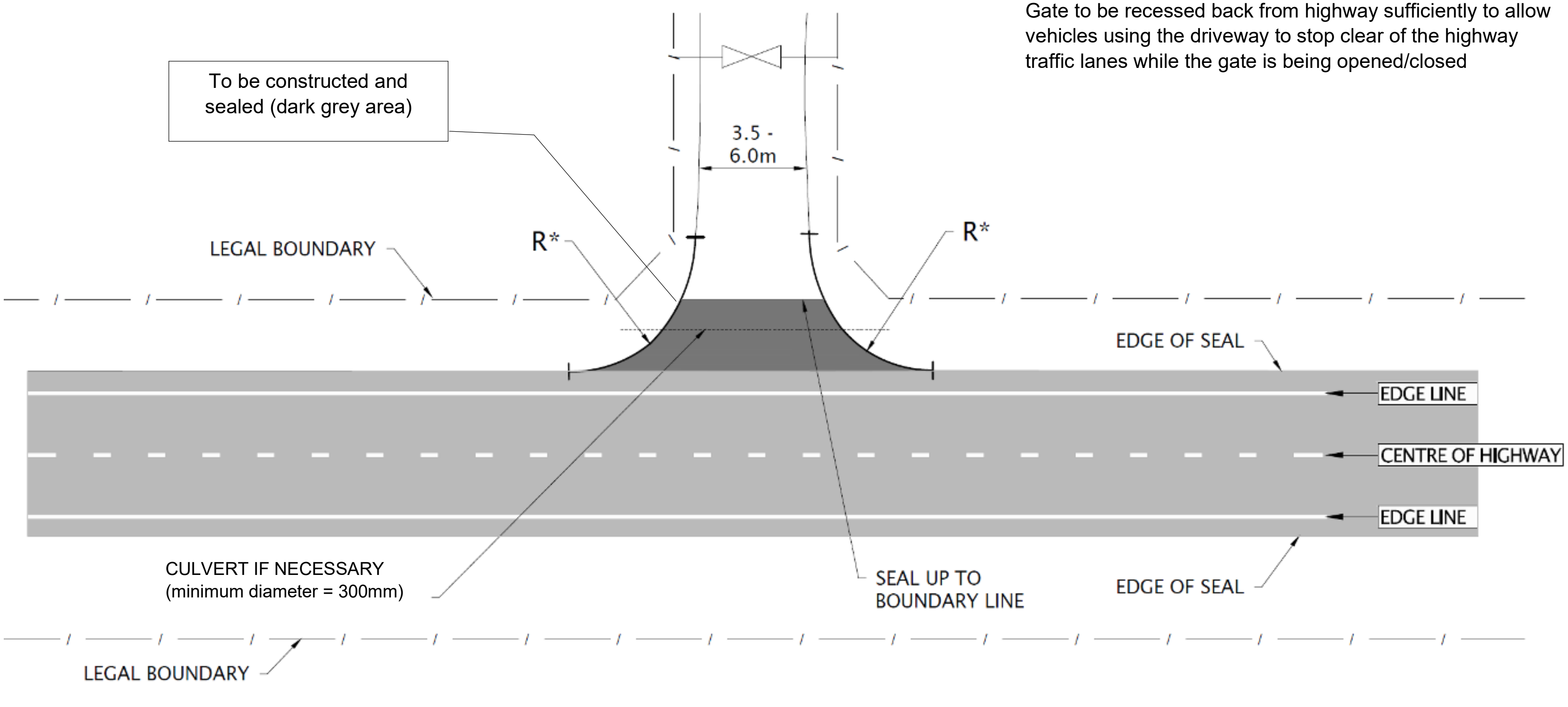
Perspective B: Accessway separation from intersections and other accessways
(not to scale)

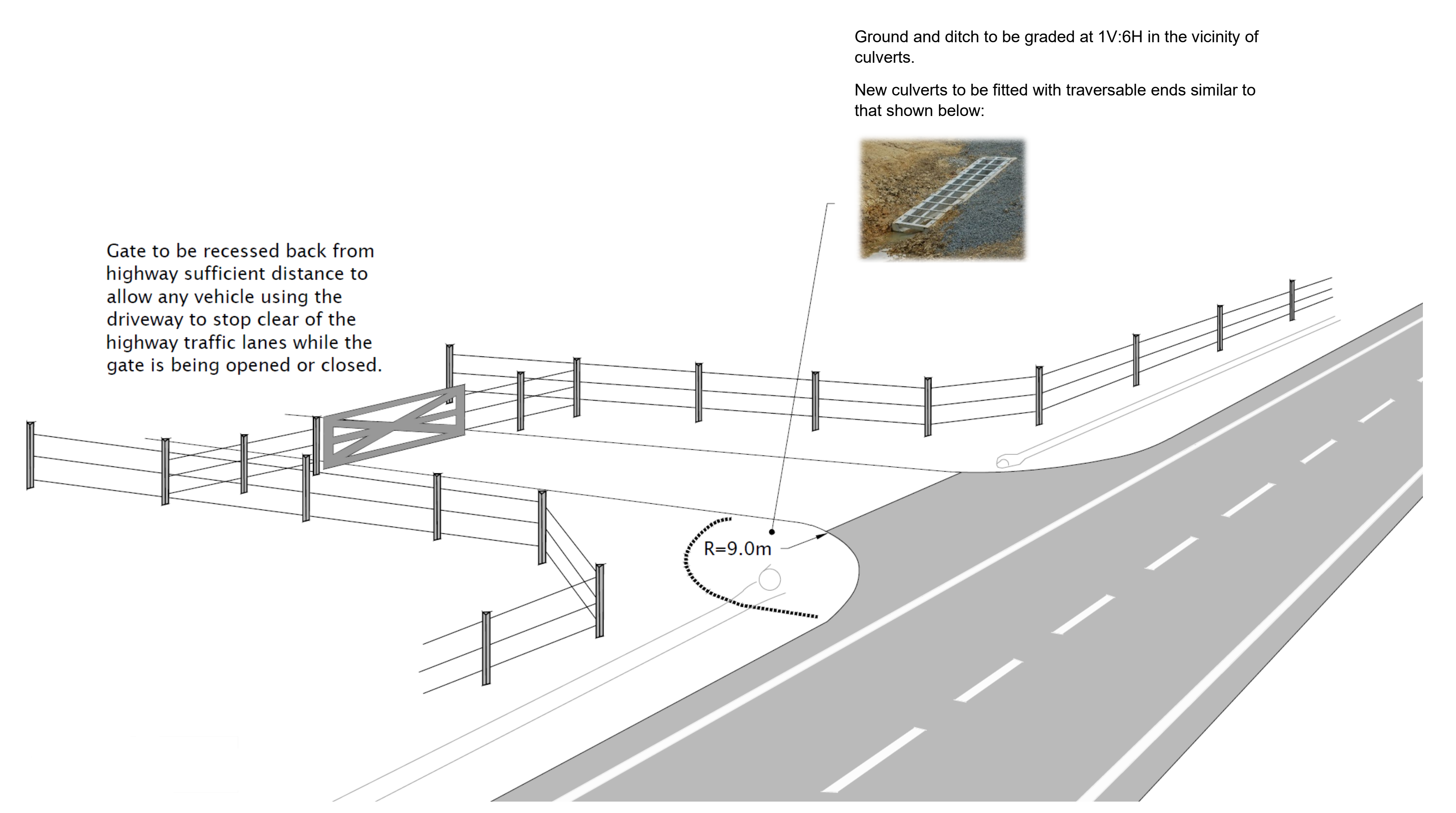
Notes:

*R= 9.0m (light vehicles only)

Gate to be recessed back from highway sufficiently to allow vehicles using the driveway to stop clear of the highway traffic lanes while the gate is being opened/closed



Access Type C: Low volume rural roads access requirements *(not to scale)*



Access Type C perspective: Low volume rural roads access requirements *(not to scale)*

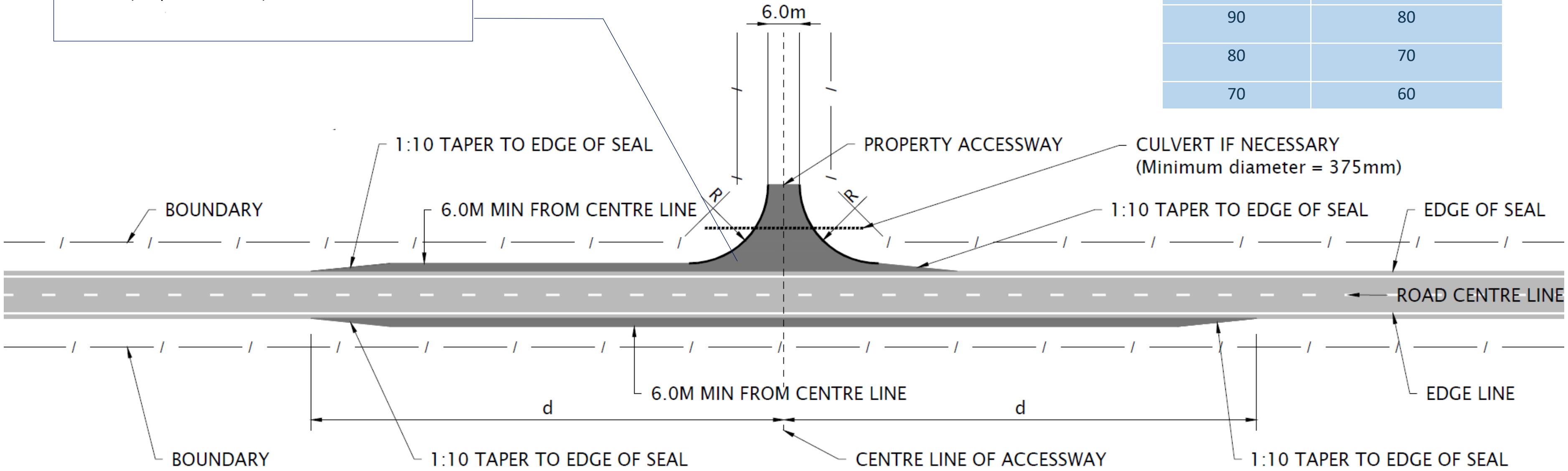
Notes:

To be constructed and sealed (dark grey area)

R= 9m (light vehicles only)

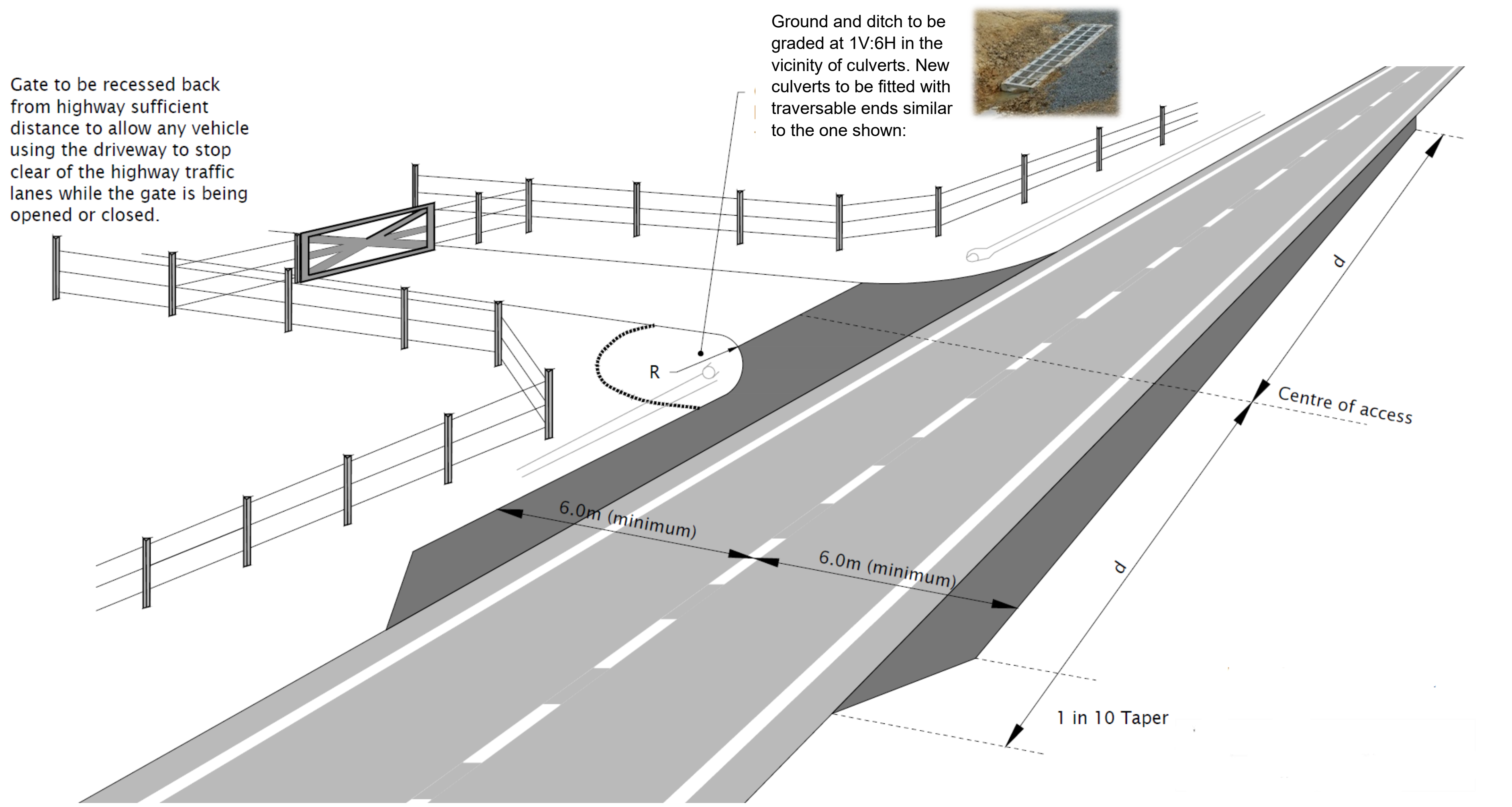
R= 15m (frequent HCV use)

Length of shoulder widening	
Speed limit (km/h)	Distance 'd' (m)
100	90
90	80
80	70
70	60



Gate to be recessed back from highway sufficient distance to allow any vehicle using the driveway to stop clear of the highway traffic lanes while the gate is being opened or closed.

Access Type E: High volume rural road access requirements *(not to scale)*



Access Type E perspective: High volume rural road access requirements *(not to scale)*

APPENDIX A: Rural access and intersection treatments for State Highways

This appendix outlines the development of the risk-based graph in **section 8.4 *Traffic volumes.*** Note that this graph is specifically for high-speed locations, i.e. a posted speed limit of 80km/h or greater.

1. High level principles

1.1 Road hierarchy

A rural State Highway primarily functions to move traffic and is considered an *arterial* road. It is highly desirable that arterial roads generally only connect to *collector* roads.

1.2 Safe System approach

The safe system philosophy focuses on creating a forgiving road transport system which reduces the likelihood of deaths and serious injuries (DSIs) on the road network. Achieving this requires:

- Elimination of conflicts at accessways and intersections or management to within survivable tolerances.
- Controlling access to the rural state highway and requiring safe system intersection treatments such as:
  - left-in, left-out (LILO)
  - roundabout
  - grade separation.

Challenges to achieving a coherent, consistent, safe and efficient rural state highway network include:

- existing historic piecemeal development along the state highway; and
- cumulative impacts on the safety of the wider state highway network over time from individual developments. While the safety effects of an individual intersection may be minor, the net effect over time is a degradation of safety as the sum of multiple access points can lead to a tangible increase in deaths and serious injuries.

2. Industry tools

Current tools used by industry are volume-based approaches as outlined in the table below.

TOOL	DESCRIPTION
Planning Policy Manual	For lower volume accesses, Access Type C and E thresholds are used (see **Section 13**)
Austroads Right Turn Bay Warrants	As volumes increase, Right-Turn Bay (RTB) warrants from Austroads are used.
Crash Prediction Models	NZ rural crash prediction models can determine the need for a rural roundabout for larger developments.

3. Co-ordination of tools

An access is essentially a "mini-intersection" in terms of vehicle conflicts, and safety risk increases as either the volume of the main road increases, or the volume of the development increases. This is illustrated by **Figure 3-1** below.

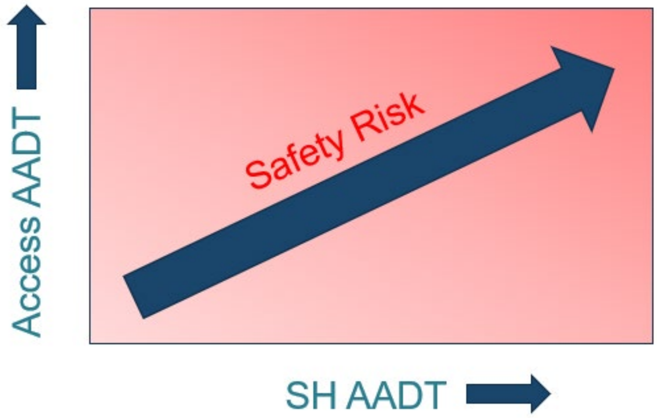


Figure 3-1: Safety risk increase

3.1 Crash risk contours – rural T-intersection

Crash risk contours can be created by using:

- the crash prediction models found in the NZ *Crash Estimation Compendium (2024),* which predicts the number of injury crashes per year, and
- historical crash data from NZ Crash Analysis System (CAS) which shows what percentage of injury crashes at rural T-intersection result in DSIs.

Each contour (see **Figure 3-2**) represents a predicted DSI crash rate for a combination of State Highway and Development volumes. This is the general crash prediction model, which does not consider any nuanced high-volume, high-risk movements.

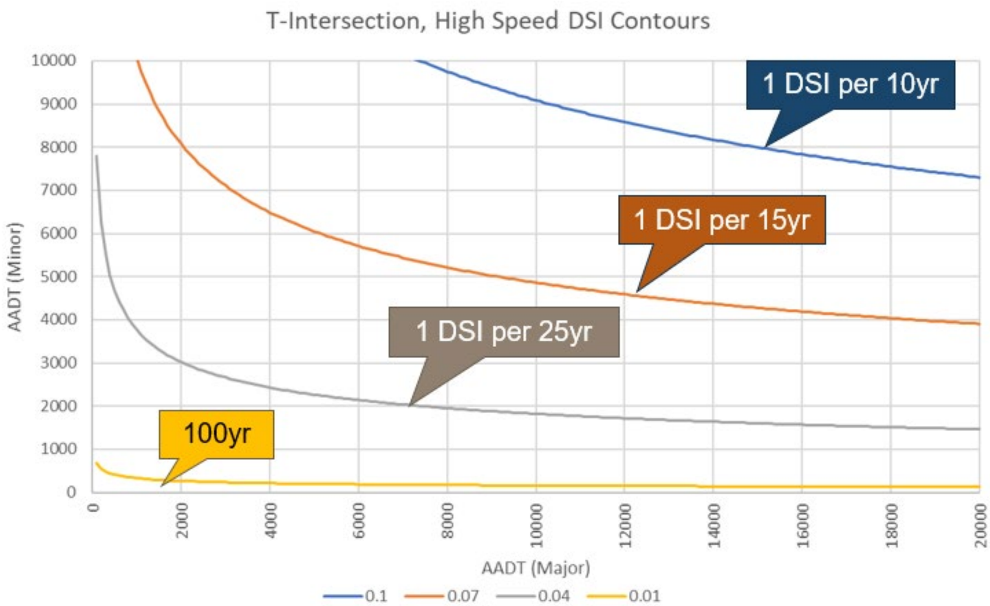


Figure 3-2: Baseline Crash Risk Contours

3.2 Addition of access Type E and RTB warrants

Current industry tools provide a helpful reference point in understanding predicted risk (see **Figure 3-3**).

The Austroads rural right-turn bay warrant[16] uses peak hour turning volumes. AADT figures can be estimated by scaling up peak-hour volumes by a factor of 10, and for the purposes of **Figure 3-3**, turning volume demands over a 24hr period are presumed to balance out (e.g. broadly an AM peak right-turn in demand would have an equivalent PM peak left-turn out demand).

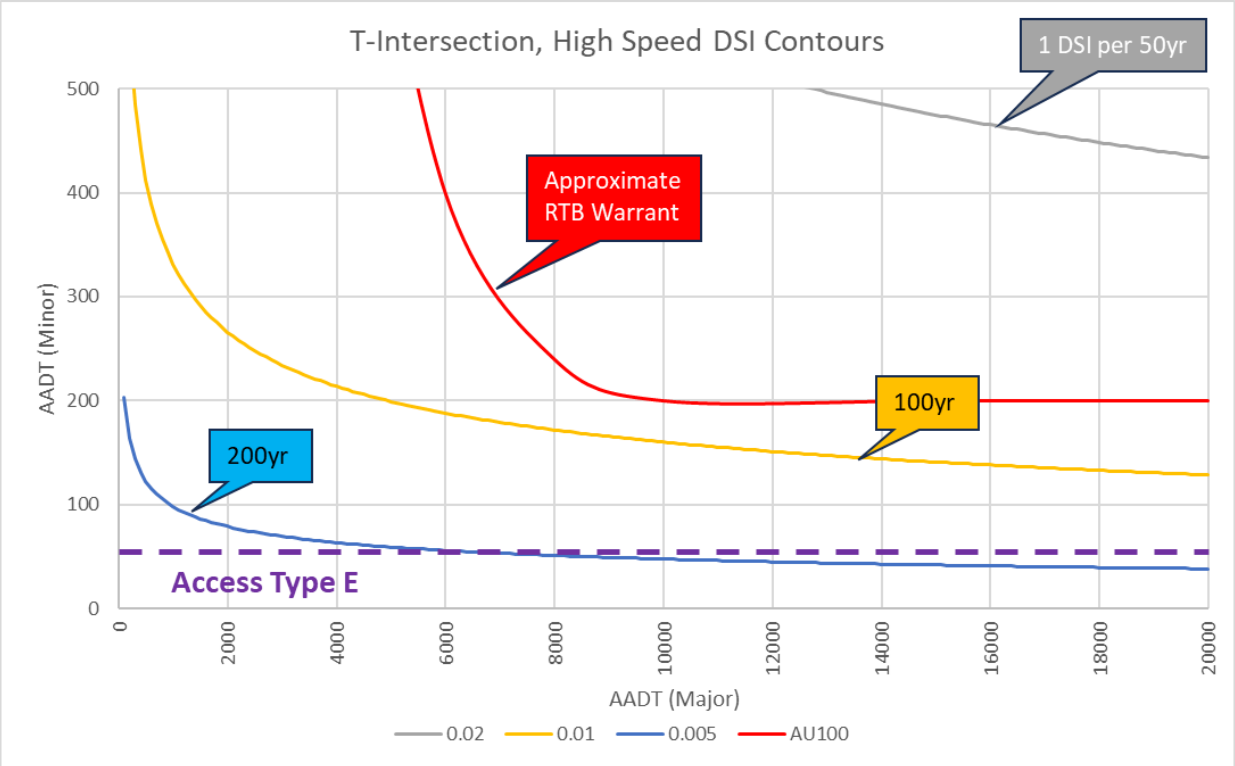


Figure 3-3: Access Type E and RTB Warrants

The Austroads RTB warrant is of similar shape to the NZ risk contours, and the Access Type E threshold of 50 vehicle movements per day is generally aligned with the 1 DSI per 200 years risk contour.

From a risk contour perspective, the Access Type E threshold is not as critical if the State Highway volume is below 2000 AADT.

[16] Austroads Guide to Traffic Management Part 6 (2017) Figure 2.26

4. Threshold for a rural roundabout

Given NZ crash prediction models exist for both rural T-intersections and rural roundabouts, it is possible to estimate what combinations of major and minor AADTs represent the 'boundary' line of crash risk between the two intersection layouts. Similarly with the crash risk contours, the prediction models can be adjusted to account for DSI crashes. The results are shown in **Figure 4-1**.

It should be noted that relatively low minor road (or access) volume is needed before a roundabout becomes the safest option.

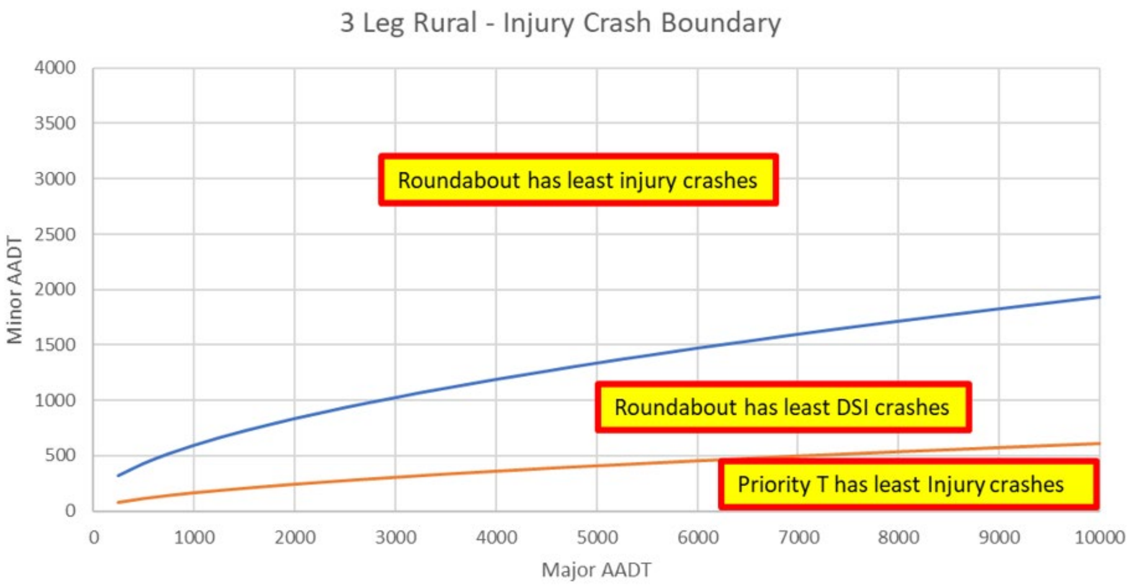


Figure 4-1: Crash Risk Boundaries

4.1 Accounting for a right-turn bay

The crash prediction model for a rural T-intersection is a general model and does not specifically account for the safety benefits of a right-turn bay. The intersections used in developing the model included many intersections both with and without right-turn bays.

Current NZ guidance states that the installation of a rural RTB can reduce injuries by 40%[17]. This factor can be used to adjust the "boundary lines" of crash risk (see **Figure 4-2**).

The safety benefits of a right-turn bay have the effect of pushing the crash risk boundary lines higher.

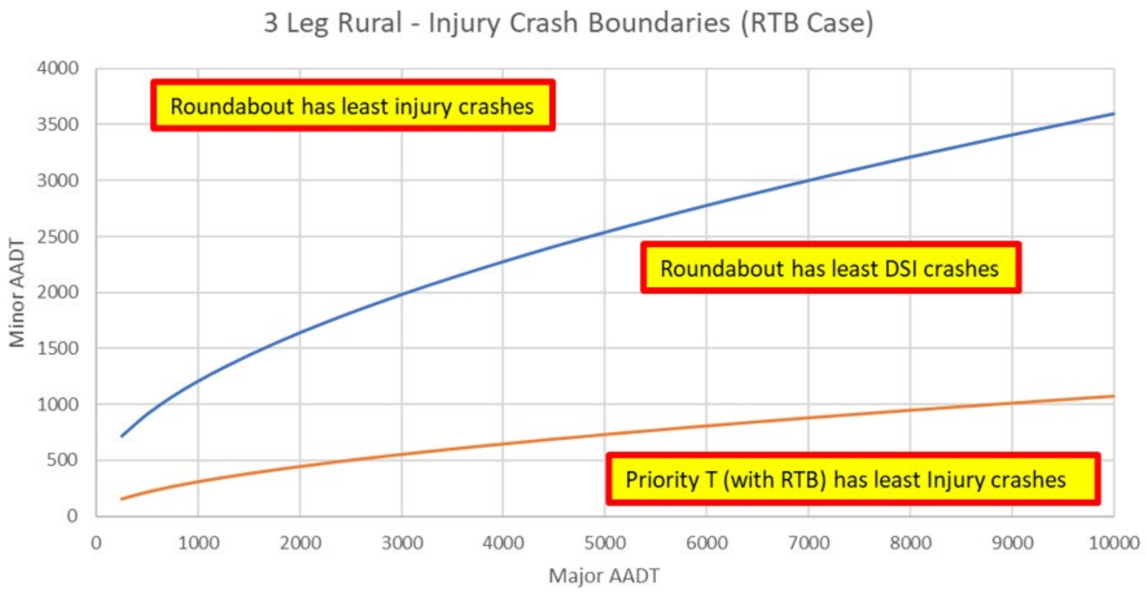


Figure 4-2: Crash risk Boundaries (with RTB)

5. Conclusion

The consideration of risk contours, Austroads RTB warrant, Type E threshold, and NZ crash prediction models combined with historic DSI data yields the following graphs as general guides. Smaller developments less than 500 AADT should consider

[17] Table 9-4, NZTA Crash Estimation Compendium (2024 V2)

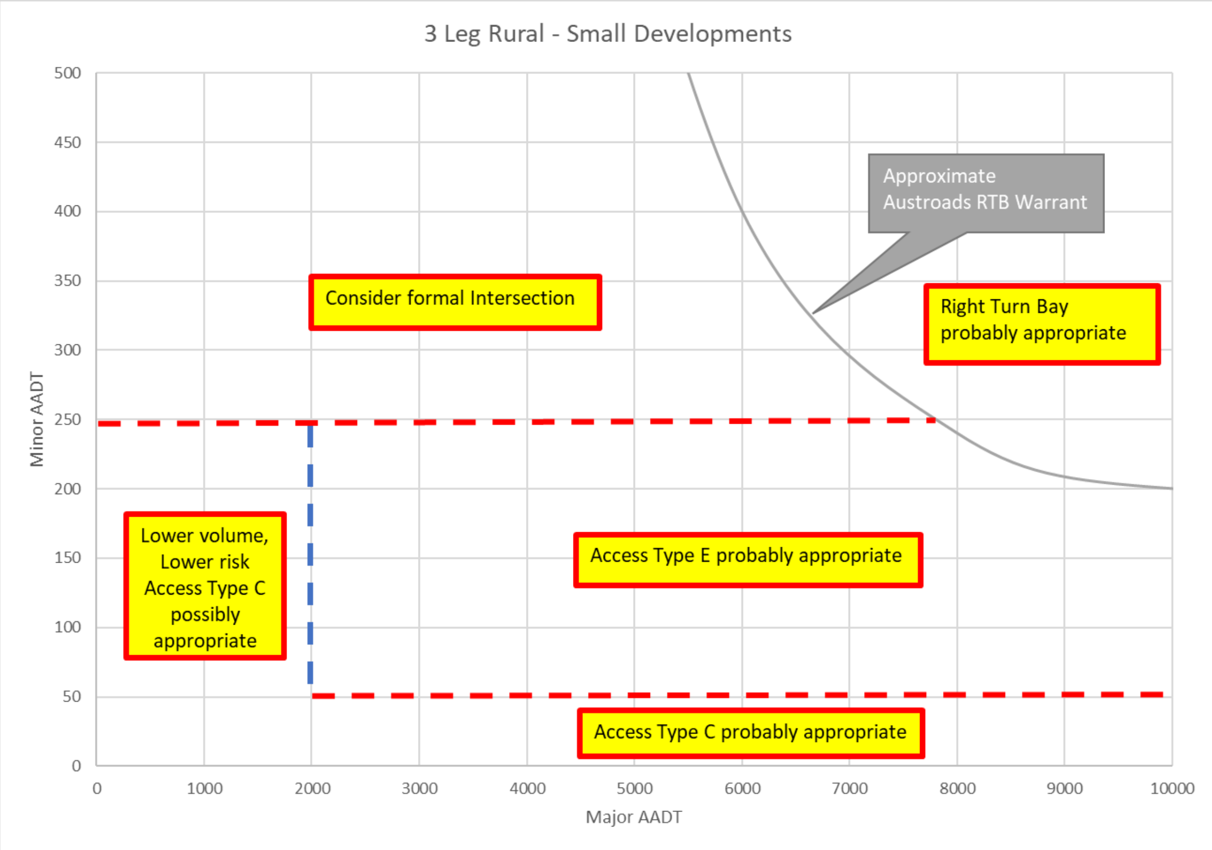


Figure 5-1 *Small Development Guide*. Larger developments should consider

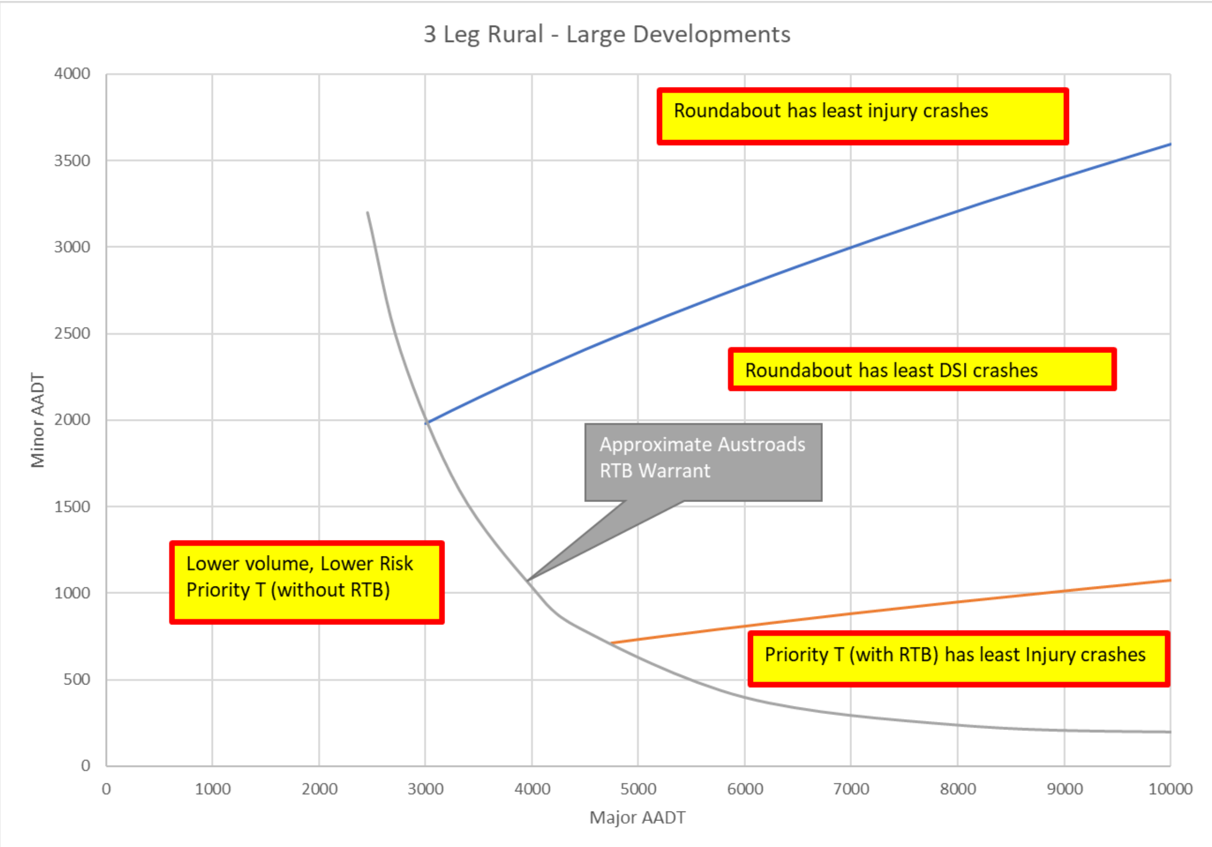


Figure 5-2 *Larger Development Guide.*

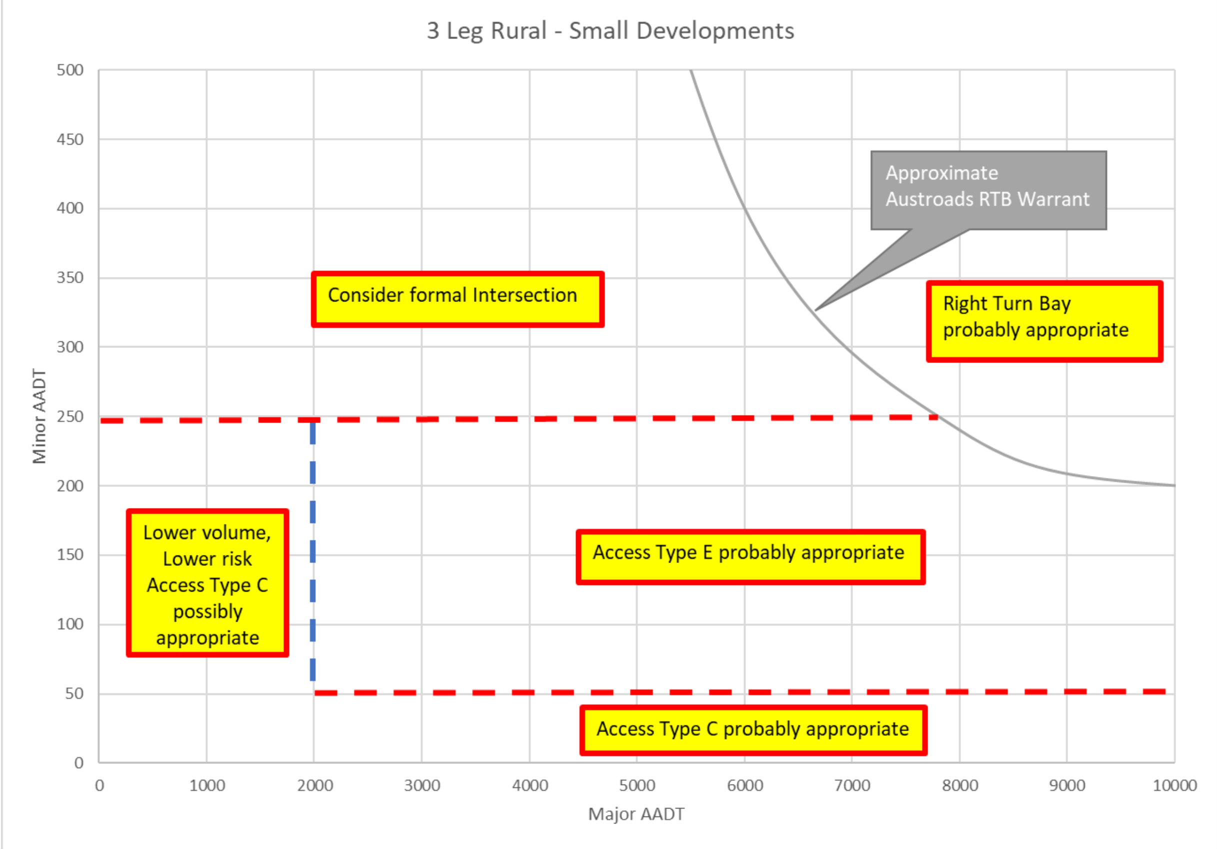


Figure 5-1: Small Development Guide

Figure 5-2: Larger Development Guide

APPENDIX B: Crash models for urban intersection treatments for State Highways

Following the same principles as Appendix A *Rural Access and Intersection Treatments for State Highways*, Appendix B uses Right turn bay warrants and crash models for 50km/h environments.

Lower speed urban environments are much safer for car occupants than rural areas due to the lower speeds involved. However, many urban speed limits remain higher than the generally accepted serious injury threshold for vulnerable users (i.e. 30km/h for pedestrians and cyclists).

1. Three leg T-intersections

1.1 Industry tools available

1. Austroads Right-Turn Bay Warrant[18]
2. New Zealand Crash Prediction Models[19], specifically:
    - General Model 7.1 - Urban Priority and Signalised Crossroads and T-junctions 50-70km/h
    - General Model 7.2 - Urban Roundabouts 50-70km/h

1.2 Crash risk contours: urban T-intersections

Similar to the process in Appendix A, predicted DSI crash contours can be plotted against Main Road and Side Road volumes. These are shown in **Figure 1-1** below.

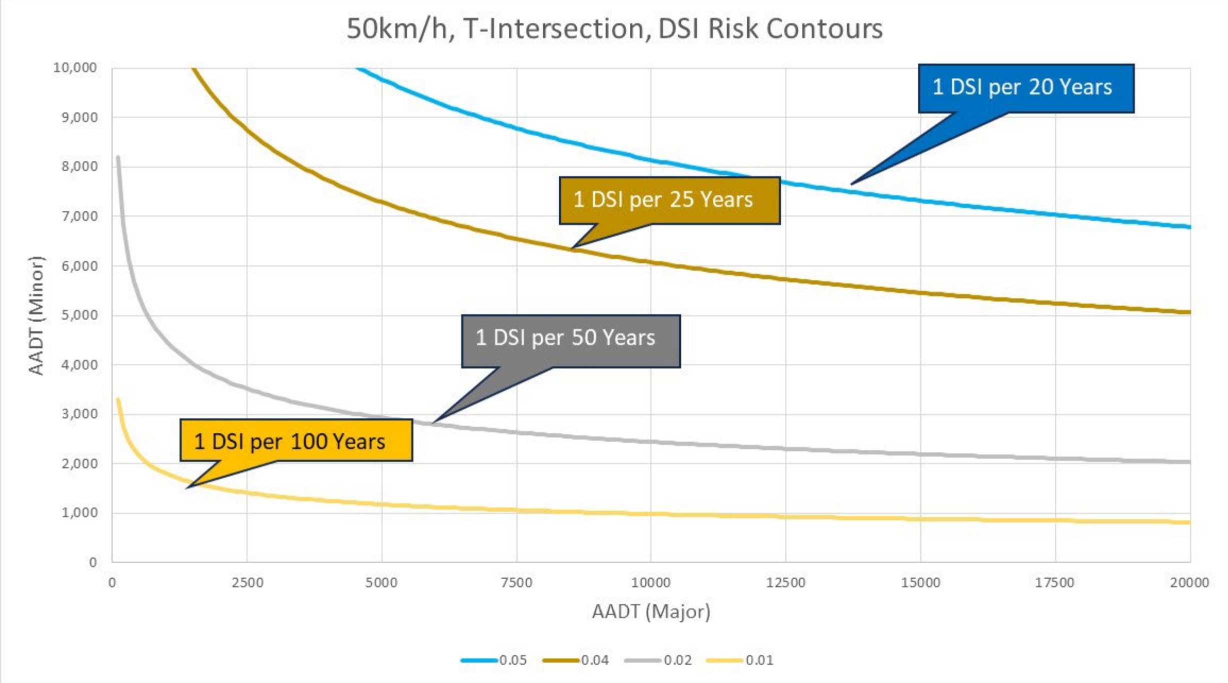


Figure 1-1: DSI Risk Contours - Urban T-Intersection

[18] Austroads Guide to Traffic Management Part 6 (2017) Figure 2.26
[19] NZTA Crash Estimation Compendium (2024 V2)

1.3 Co-ordination of tools

1.3.1 Austroads Right-Turn Bay Warrant

Similar to the process in Appendix A, the urban 50km/h Austroads Right Turn Bay (RTB) warrant can be compared to predicted risk contours.

The Austroads right-turn bay warrant uses peak hour turning volumes. AADT figures can be estimated by scaling up peak-hour volumes by a factor of 10, and for the purposes of this graph, turning volume demands over a 24hr period are presumed to balance out (e.g. broadly an AM peak right-turn in demand would have an equivalent PM peak left-turn out demand).

The addition of a simplified RTB warrant to DSI Risk contours is shown in **Figure 1-2** below. This shows that the Urban Right-Turn Bay Warrant is broadly similar to the shape of DSI contours.

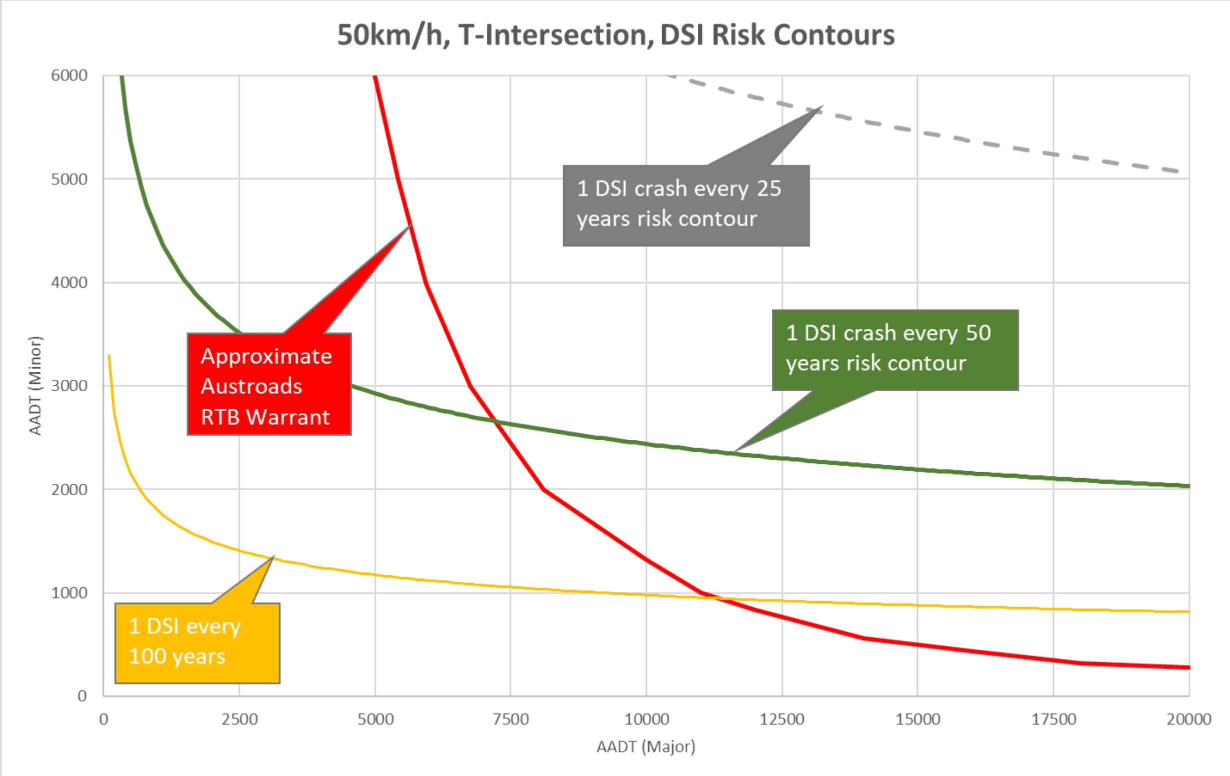


Figure 1-2: Right-Turn Bay Warrant – Urban T-Intersection

1.3.2 Urban roundabout crash model

Similar to Appendix A, given NZ crash prediction models exist for both urban T-intersections and urban roundabouts, it is possible to estimate at what combinations of major and minor AADTs represents the 'boundary' line of crash risk between the two intersection layouts.

The expected crash benefits of a Right-Turn Bay (35% for an urban T-intersection[20]) can be accounted for.

The results are shown in **Figure 1-3**. This indicates, as expected, that from a safety perspective, as main road and side road volumes increase, the use of firstly right-turn bay / flush median treatment and then a roundabout treatment becomes the preferred option. Note that depending on context, traffic signals may be appropriate for Level of Service (LOS) and/or vulnerable user considerations.

[20] Table 9-4, NZTA Crash Estimation Compendium (2024 V2)

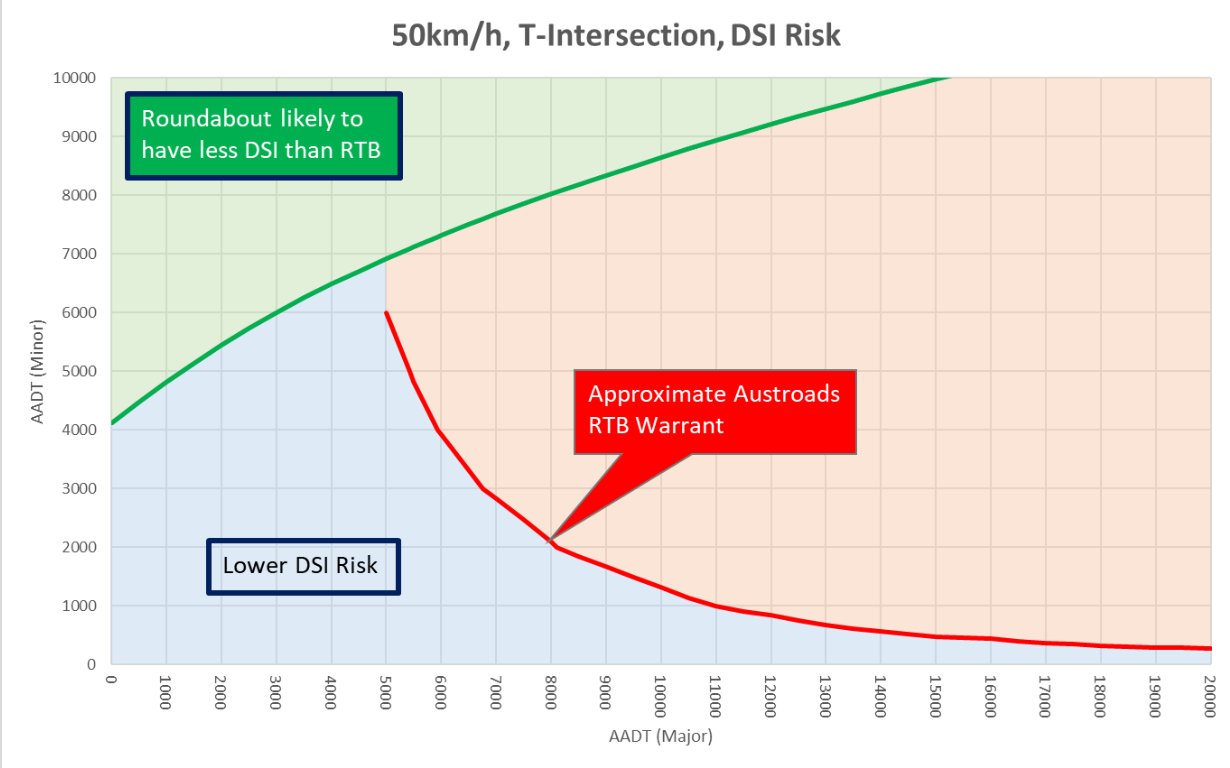


Figure 1-3: Urban T-Intersection: Co-ordination of Tools

2. Four leg crossroads intersections

For large urban developments (>250vpd) that either add a fourth leg to a T-intersection or significantly increase volume at an existing 4-leg intersection, crash modelling graphs can be developed to guide the choice of intersection form to reduce deaths and serious injuries.

2.1 Industry tools

- New Zealand Crash Prediction Models[21], specifically:
  - General Model 7.1 - Urban Priority and Signalised Crossroads and T-junctions 50-70km/h
  - General Model 7.2 - Urban Roundabouts 50-70km/h
- Austroads Right Turn Bay (RTB) Warrant. Note for the purposes of a 4-leg intersection, it is more difficult to estimate main and side road AADT volumes correlated with peak hour turning volumes. For the purposes of this appendix, it is assumed the introduction of a flush median or RTB can provide about 35% of crash benefits[22].

[21] NZTA Crash Estimation Compendium (2024 V2)
[22] Table 9-4, NZTA Crash Estimation Compendium (2024 V2)

2.2 Crash risk contours: urban crossroads

Similar to the process in Appendix A, predicted DSI crash contours can be plotted against main road and side road volumes. As shown in Figure 2-1, compared to the 3-leg intersection, DSI's will be more common for any given combination of traffic volumes.

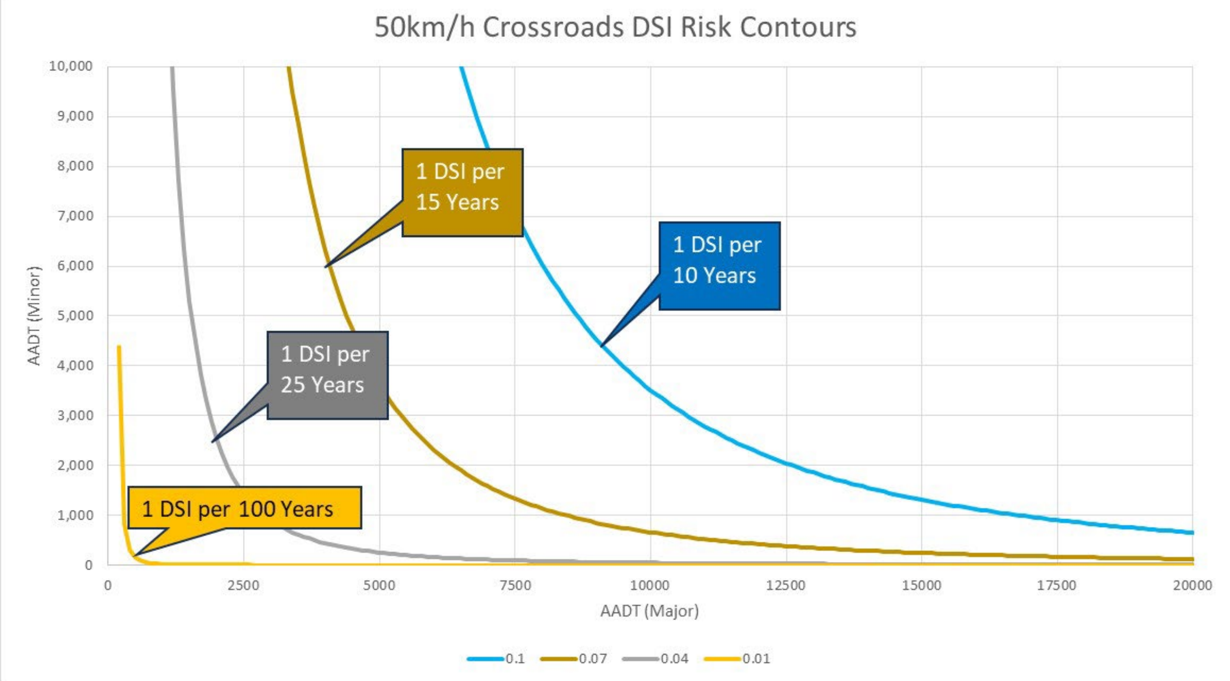


Figure 2-1: Urban Crossroads - DSI Risk Contours

2.3 Roundabout and signal thresholds

Similar to Appendix A, given NZ crash prediction models exist[23] for both urban crossroads, traffic signals and roundabouts, it is possible to estimate at what combinations of major and minor AADTs represents the 'boundary' line of crash risk between the various intersection layouts. The expected crash benefits of a Right-Turn Bay (35% for an urban crossroads) can be accounted for. The results are shown in **Figure 2-2** below.

Figure 2-2 illustrates that from a DSI safety perspective, a roundabout is likely to be the best performing option for all traffic volumes with a side road volume greater than 40 AADT. This is due to their ability to control vehicle speeds and reduce the number of conflict points. At higher volumes, traffic signals can provide safety DSI safety benefits over an RTB, however they are more likely to be required for capacity and LOS issues as well as consideration for vulnerable users.

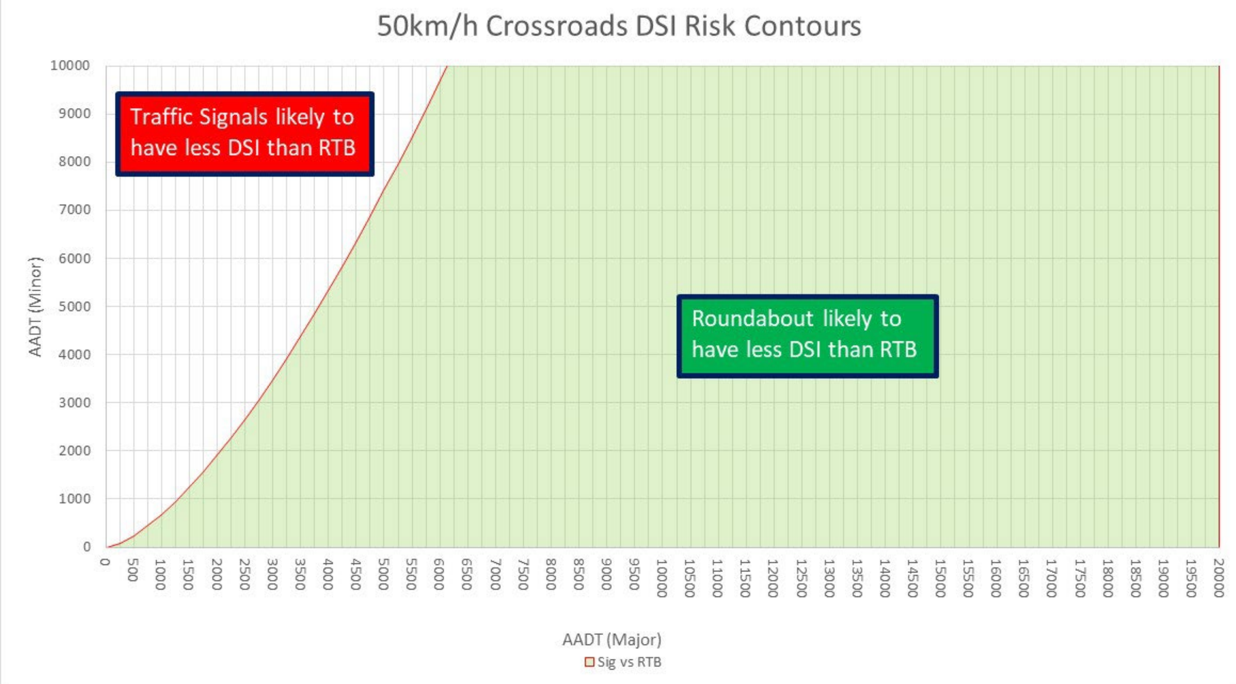


Figure 2-2: Urban Crossroads – Treatment Selection

[23] NZTA Crash Estimation Compendium (2024 V2)