



VicRoads Supplement to Austroads Guide to Traffic Management

Part 4: Network Management (2015)

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1. Introduction

1.1 General

All road agencies across Australia are working towards greater consistency between States/Territories in how road networks are managed. In order to achieve this, the Austroads Guide to Traffic Management and Australian Standards relating to traffic management have been adopted to assist in providing that level of consistency and harmonisation across all jurisdictions. This agreement means that these Austroads Guides and the Australian Standards are the primary technical references.

Austroads Guide to Traffic Management Part 4: Network Management (2015) is a nationally agreed guidelines document outlining the use of traffic control devices on the road network and has been adopted by all jurisdictions, including VicRoads.

All jurisdictions will be developing their own supplement to clearly identify where its practices currently differ and to provide additional guidance to that contained within Austroads Guide to Traffic Management Part 4: Network Management. This document is the VicRoads supplement and shall be read in conjunction with Austroads Guide to Traffic Management Part 4: Network Management.

1.2 How to Use this Supplement

There are two key parts to this document:

- **Classification of Supplement Information:** this table classifies supplement information as a Departure, Additional Information or both. This information assists with identifying its hierarchy in relation to the Austroads Guide to Traffic Management Part 4: Network Management (2015).
- **Details of Supplement Information:** this section provides the details of the supplement information.
 - **Departures:** where VicRoads practices differ from the guidance in the Austroads Guide to Traffic Management Part 4: Network Management. Where this occurs, these differences or 'Departures' will be highlighted in a box. The information inside the box **takes precedence** over the Austroads Guide to Traffic Management Part 4: Network Management section. The Austroads Guide to Traffic Management Part 4, section is not applicable in these instances.
 - **Additional Information:** all information not identified as a departure provides further guidance to the Austroads Guide to Traffic Management Part 4: Network Management and is read and applied **in conjunction** with the Austroads Guide to Traffic Management Part 4: Network Management, section.

Where a section does not appear in the body of this supplement, the Austroads Guide to Traffic Management Part 4: Network Management (2015) requirements are followed.

2. Classification of Supplement Information

The classification of each clause as a Departure, Additional Information or both is shown in the table below.

Section	Classification
4.1.2	Additional Information
5.2	Additional Information
5.3	Additional Information
5.4	Additional Information
5.5	Additional Information
5.6	Additional Information
5.7	Additional Information
5.8	Additional Information
5.10	Additional Information
Appendix A	Additional Information

The Austroads Guide to Traffic Management, Part 4: Network Management (2015) requirements are followed for sections not shown in this table.

3. Details of Supplement Information

Section 4.1.2 – Road Classification Systems

a) Functional Classification

The functional classification of each road in the network defines its 'traffic function'. A map showing the traffic functions of roads is often referred to as a 'road hierarchy plan'. The two principal functions considered are 'traffic movement' (along the road) and 'traffic access' (to and from properties beside the road). The functional extremes are (a) freeway standard roads, where direct access is not permitted and the sole traffic function is through movement, and (b) local cul-de-sacs, where the sole function is local access.

Most roads serve both a property access function and a through-traffic function. However, for effective traffic management of the road network, a clear distinction needs to be made between those roads which are to function principally as 'Traffic Routes' and those which are to function principally as 'Local Streets' (which is not the same as 'Local Roads'). Within each of these two primary categories, finer distinctions can be made. Although the term 'road hierarchy' suggests a grading of roads, with many different mixes of movement function and access function, this should be avoided. In urban areas, unless the two functions are clearly separated by space, they conflict with each other and the mixture results in higher crash rates.

Rural Areas

In rural areas the more important Traffic Routes are managed by VicRoads. These Traffic Routes are designated M, A, B, C. These designations are used as part of the State Route Numbering System on signs, to assist unfamiliar drivers to navigate their way around Victoria.

Other roads are the responsibility of municipal councils. They tend to have lower traffic volumes and a lower traffic function, although a council may classify any of its rural roads as a Traffic Route if it has a significant traffic movement function.

Urban Areas

Please refer to the Section 4.2 of the Austroads Guide to Traffic Management, Part 4 for functional classification guidance for urban areas.

b) The Administrative Classification in Victoria

Federal Classification

Federal classifications are defined in the *Nation Building Program (National Land Transport) Act 2009* and other Acts. They are used as the basis for distribution of federal road funding. The classifications include:

- The National Network, a network of roads defined as the National Land Transport Network (the National Land Transport Network also includes railway lines).
- Off network including local roads.

Nation Building Program consists of the following components:

- Nationally important land transport infrastructure, which includes roads both on and off the National Land Transport Network.
- The Roads to Recovery program for reconstruction of local roads.
- The Heavy Vehicle safety and Productivity Program which aims to increase productivity as well as reduce the proportion of road crashes involving heavy vehicles.
- The Federal Black Spot Programme to fund projects with high road safety benefits.
- The Boom Gates for Rail Crossing Program which provides funding for the installation of boom gates and other safety measures at high risk crossings.

All these programs are delivered in partnership with States and Territories, which may include cost sharing of some projects.

The Australian Government also provides open grants to local government.

State Classification

State classifications are defined in the *Road Management Act 2004*.

With the exception of CityLink, the Exhibition Street Extension and EastLink, roads are either:

- State Roads, or
- Municipal Roads.

A State Road may be:

- a Freeway or Arterial Road, in which case the coordinating road authority is VicRoads, or
- a non-arterial State Road, in which case the coordinating road authority is the relevant road authority under Section 37(1)(c) or 37(1)(d) of the *Road Management Act 2004*. Typically the authority is another State entity.

A Municipal Road means any road which is not a State Road, and includes any road declared to be a Municipal Road under the *Road Management Act 2004*.

The total road length in Victoria was estimated in 2009 to be approximately 196,000 km, of which approximately 22,450 km are freeways and State arterial roads.

Section 5.2 – Network Operation Objective

For additional information please refer to Section 3 of the VicRoads Smartroads Guidelines¹.

Section 5.3 – Road Use Priorities

For additional information please refer to Section 4 of the VicRoads Smartroads Guidelines¹.

Section 5.4 – Network Performance

For additional information please refer to Section 5 of the VicRoads Smartroads Guidelines¹.

Section 5.5 – Network Strategies

For additional information please refer to Section 6 of the VicRoads Smartroads Guidelines¹.

Section 5.6 – Development of Traffic Management, Operation and Improvement Plans

For additional information please refer to Section 8 of the VicRoads Smartroads Guidelines¹.

Section 5.7 – Use and Implementation of the NOP

For additional information please refer to Section 7 of the VicRoads Smartroads Guidelines¹.

Section 5.8 – Evaluation and Feedback

For additional information please refer to Section 2.5 of the VicRoads Smartroads Guidelines¹.

Note ¹: To obtain a copy of the VicRoads Smartroads Guidelines, please contact Team Leader- Network Access, VicRoad Road Operations, Phone 03 9229 6093

Section 5.10 – Benefits of Network Operating Plans

For the road network

The Network Operating Plan is a key planning tool to ensure better decisions are made by considering strategic and wider network objectives in the operation of the road network.

The Network Operating Plan will better inform decisions about a number of aspects of the network including:

- allocating public transport priority
- allocating lanes for high occupancy vehicles
- improving traffic flow at highly congested intersections
- responding to traffic incidents
- optimising the operation of other parts of the network during incidents
- controlling access to and from the arterial network
- supporting events and community activities, and
- managing parking.

For road users

A key aspect of the Network Operating Plan is about assisting road users to make more informed transport decisions and choosing the most appropriate mode of transport and time of travel for the purpose of their trip.

Over time, road users can expect:

- greater priority being given to trams and buses on designated routes
- more opportunities created for cycling and walking
- improvements to the operation of roads that provide better alternatives for through traffic including trucks around activity centres
- better information about available travel choices
- more vibrant, connected activity centres
- a change in the nature of trips and travel, with public transport, walking and cycling being recognised as increasingly important transport modes.

Appendix A - Planning Future Roads and Land Uses

The VicRoads Transport Planner Handbook should be read in conjunction with additional information provided below. To obtain a copy of the Transport Planners Handbook, please contact, Manager Operations Policy, Network Policy and Standards, on 03 9854 2440

A1 Future Traffic Route Networks

An adequate network of Traffic Routes should be provided to avoid problems of planning for future urban areas:

- traffic infiltration and high volumes into local areas
- delays and congestion at major intersections
- mixed function roads, where the traffic access function conflicts with the traffic movement function, as is the case on many existing "Collector" roads.

These problems can affect all types of road users, but they particularly affect trucks, buses and emergency vehicles due to:

- the vehicles' size and weight
- their need for access to properties.

Any congestion or conflicts (between through movement and access) have a greater effect on the efficiency of large vehicles than on the efficiency of cars, which can decelerate and accelerate more quickly. People tend to notice and complain about large vehicles first when traffic networks are inadequate and vehicles seeking access become a volume or speed problem.

Traffic Routes should:

- be provided as an identifiable, interconnecting network of roads, clearly separate from streets with a significant land access function
- be at a sufficiently close spacing to each other
- be of an adequate capacity (or with provision for widening to such)
- be direct in the way they interconnect
- have appropriate access management in place.

All traffic routes in newly developing urban areas should be able to operate safely at a speed limit of at least 80 km/h. The adoption of a lower speed limit is an indication of inadequate separation of traffic movement and land access functions (ie. inadequate access control) and the consequent safety and congestion problems. For an 80 km/h speed limit, a traffic route's layout will need to comply with the speed zoning requirements of 80 km/h (or higher speed) roads. It should have little or no direct frontage access for vehicles. If development faces the road, it will need to be via a service road.

The separation of the traffic movement function and the land access function on roads and the provision of an adequate network of traffic routes results in better safety, less congestion and fewer amenity and environmental problems than mixing the traffic and access functions on a road.

As a guide, adoption of the following elements will provide a system of traffic routes which can adequately cater for future urban road travel needs, including public transport, emergency vehicles and delivery vehicles.

a) Spacing and Capacity

Table 1 sets out the desirable traffic route spacing and capacity (ie. number of traffic lanes). It is far more desirable to provide four lane traffic routes at 1.0 km to 1.3 km spacing than to provide six lane roads at 1.6 km to 2.0 km spacing, as travel distances (and traffic volumes) on local streets are lower and the provision for right turns between intersecting traffic routes is more frequent, thereby reducing the pressure to shortcut via local streets. The Network Operating Planning process calls for traffic routes to be generally provided at 0.8 km to 1.5 km spacing in two perpendicular directions in new areas.

Table 1: Urban Traffic Route Spacing, Excluding Freeways

Population Density (people /km ²)	Grid Road Spacing (km)	
	4 lane	6 lane
1600 (urban fringe)	2.5 - 3.0	3.5 - 4.0
3200 (suburban)	1.0 - 1.3	1.6 - 2.0
4600 (inner urban)	0.8 - 1.0	1.0 - 1.3

1. Source: O'Brien, A. (1996) *Design of New Urban Networks, in Traffic Engineering and Management*, KW Ogden & SY Taylor (Eds), Monash University

b) Direct Interconnection

Traffic routes should be provided in a way which makes them the most attractive route between two points for the majority of vehicle journeys. An evenly spaced grid of traffic routes which intersects at crossroads provides a better traffic route network than one with circuitous alignments or one containing numerous discontinuities and consequent T-intersections between traffic routes. Such discontinuities and changing alignments lead to localised congestion, detours and imbalances in traffic flows.

A2 Future Local Streets

Local streets will not need restrictive devices added later if they are effectively designed to contain speeds and are oriented to discourage shortcutting and extraneous traffic in the first place - and as long as local areas are suitably small, because sufficient traffic routes have been provided.

Street sections should be of limited length to contain speeds. When designing new local streets, the access needs of the appropriate design vehicle and checking vehicle need to be considered.

The street and road widths need to be adequate and include provision for parking, where necessary. Widths need to be adequate to allow fire brigade vehicles to access properties within the necessary response times. Although the *Road Safety Road Rules 2009* require a driver to leave a clear width of 3.0 m when parking a vehicle, it is necessary to provide at least 3.5 m clear between any possible parked vehicles and/or structures when designing a new local street. The MFB's 'Planning Guidelines for Emergency Vehicle Access and Minimum Water Supplies within the Metropolitan Fire District' includes an amended Table C6. It can be downloaded from the MFB website: www.mfb.vic.gov.au > Industry > Fire Safety > Fire Safety Guidelines > GL-27.

A3 Future Land Uses (in Old and New Areas)

As well as being applicable to land in future urban areas, this section is applicable to:

- the future use of land adjacent to existing traffic routes
- the future use of land in existing local areas.

Residential land uses should be kept separate from:

- non-residential land uses (except those of a local nature such as a local milk bar)
- roads with traffic volumes and/or vehicle mixes incompatible with residential activities.

Traffic generated by non-residential land uses (except vacant land and low-scale passive recreation) usually includes large vehicles. These vehicles must access the non-residential properties to supply goods and services and allow the activities on the land to function. Invariably, these vehicles are seen by residents as a threat to the amenity of a residential area. Repetition of existing problems of this nature should be strenuously avoided; often they cannot be solved at all in a way which satisfies demands for residential amenity.

Access routes to non-residential land uses should be kept separate from residential areas. Non-residential areas often need two or more access routes to traffic routes, unless the grid of traffic routes has been provided at a close spacing (ie. at 1.0 km or closer). Assessing this need requires an understanding of the origins and destinations of the non-residential traffic. This understanding should be gained before agreeing to the land use and determining its access routes.

Some land uses generate a demand for short-term parking and loading. This should be provided where it is readily accessible to the approaching driver. This usually means at the front of the property. Where offices and other land uses which generate demands for:

- short-term visitor parking
- couriers
- quick deliveries
- deliveries which can practically only be brought in via the front door

- are located on traffic routes, the parking/loading space needs to be provided in a convenient location (usually in front), clear of the traffic lanes. If this is not done, the demand for parking/loading will spill onto the traffic route and disrupt passing traffic, including delivery trucks, emergency vehicles, trams and buses.

In existing commercial, business or industrial zones, this provision for short-term parking and loading can be achieved by setting buildings back from the property line and requiring parallel indented parking/loading bays to be provided. This type of setback should be sought for any new office, commercial or industrial development on any existing traffic route which does not have a service road.

No new development on or near an existing or future traffic route should be permitted to result in cars, trucks or other vehicles being stopped or parked on the trafficable road space. Serious consideration should be given to having Clearways, No Stopping or No Parking restrictions, possibly over an extended length of the traffic route, as a permit condition for a development. Refer to the Austroads Guide to Traffic Management, Part 9 – Parking, and VicRoads Supplement to that Guide.

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Previous versions of this document are available on request by contacting the VicRoads – Network Standards team.

For enquiries regarding this supplement, please contact the VicRoads – Network Standards team via tem@roads.vic.gov.au or 9854 2417.