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MOVEMENT NETWORK

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Street network objectives

To provide a network of streets with clear physical distinctions between traffic routes and residential streets based on function, legibility, convenience, traffic volumes, vehicle speeds, public safety and amenity.

To provide acceptable levels of accessibility, safety and convenience for all street and road users in residential areas, while ensuring acceptable levels of amenity and minimising the negative impact of through traffic.

To orient the street network to facilitate the production of lots with high solar access potential and integrate the street network with natural drainage and open space systems.

Standard C8

Streets should be designed to meet the adopted functions, carry the volumes and limit target street speeds specified in Table C1.

The design features of each type of residential street should convey its primary functions and encourage appropriate driver behaviour.

Larger roads and traffic routes should be located and designed to provide routes that are more convenient for external traffic than the residential street network.

Larger roads and traffic routes should be provided at intervals of approximately 1.6 kilometres and have adequate capacity to accommodate projected movement.

Internal street layouts should conform to the requirements of the external traffic route network and satisfy the transport provisions of any relevant plan or policy in the scheme. Where appropriate, the proposed external road system should be modified to achieve a better overall network.

The street network should be oriented:

- Approximately east-west and north-south to promote efficient solar access for dwellings.
- Along valleys where the street is part of the drainage system, if this is consistent with the management of stormwater and environmental values of the valley.

Table C1 Classifications of residential streets

RESIDENTIAL STREETS TYPE AND FUNCTION	NUMBER OF DWELLINGS SERVED	VOLUME ¹	TARGET STREET SPEED
Access Lane			
A side or rear lane principally providing access to parking for lots with another street frontage.		300 veh/day	15 km/hr
Access Place			
A minor street providing local residential access with shared traffic pedestrian and recreation use, but with pedestrian priority. The maximum length of an access place is 100m.	Small and fewer than 30.	300 veh/day	15 km/hr

RESIDENTIAL STREETS TYPE AND FUNCTION	NUMBER OF DWELLINGS SERVED	OF VOLUME ¹ veh/day	TARGET STREET SPEED
Access Street			
A street providing local residential access where traffic is subservient, speed and volume are low, and pedestrian and bicycle movements are facilitated.	Fewer than 200 and preferably fewer than 100.	1000 veh/day	30 km/hr
It includes streets serving 30 dwellings or less that are not comprehensively designed as access places.		2000 veh/day	40 km/hr
Collector Street			
The collector street collects traffic from the access places and access streets and carries higher volumes of traffic.		3000 veh/day	50 km/hr 20 km/hr at designated pedestrian or bicycle crossings ²
Trunk Collector			
The trunk collector streets provide a specialised form of connection between the residential streets and the traffic route system where it is desirable to concentrate local traffic to an outlet, but not to attract through traffic. Its principal function is to facilitate the convenient and safe movement of residential traffic to and from the major arterial road system usually at a signalled intersection. It is not a typical residential street. Residential development may be considered on these streets with siting conditions that ensure acceptable amenity and that provide for vehicles to enter the street in a forwards direction.		6000	60 km/hr ³

¹ Indicative maximum traffic volume for 24 hour period. These volumes depend upon location. Generation rates may vary between existing and newly developing areas.

² Requires special design and control so that vehicle speeds are reduced progressively.

³ Design speed on trunk collector streets not to exceed legal speed limit.

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Street network detail objectives

To provide acceptable levels of accessibility, safety and convenience for all street and road users in residential areas, while ensuring acceptable levels of amenity and minimising the negative impact of through traffic.

To discourage residential streets from operating as through traffic routes for externally generated traffic, while limiting the length of time local drivers need to spend in a low speed environment.

To provide the basis for cost effective design and construction of the street network.

Standard C9

Residential streets should:

- Discourage through flow of externally generated traffic.
- Limit the length of time local drivers need to spend at a low speed.

Street networks should be designed to optimise the use of the traffic route investment by ensuring they will operate at high volume/ capacity ratios at peak times in situations where no significant future increases in traffic volume are anticipated.

Trunk collector streets should be less than 150 metres in length, except where topography or the location of traffic routes makes a longer distance unavoidable.

There should be no more than three turns at street intersections or junctions when travelling from any dwelling to the most convenient collector street or higher order street.

The driving distance from any dwelling to the nearest collector or higher order street should be less than 700 metres.

Speed should be controlled by limiting street leg length and providing appropriate slow points at the end of each leg. Slow points may include street junctions, sharp bends and speed humps. Speeds may also be restrained by a continuous series of bends or by a combination of approaches.

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Intersection objective

To ensure street intersections are safe, convenient and appropriate for the type of street.

Standard C10

Intersections between residential streets should be controlled by T-junctions, roundabouts or other appropriate traffic management treatment to slow and control traffic.

Street and road junctions should be spaced in accordance with the requirements specified in Table C2.

Table C2 Junctions along residential streets and traffic routes

	TYPICAL AVERAGE ¹ JUNCTION SPACING	MIN. SPACING OF STAGGERED JUNCTION-- LEFT/ RIGHT STAGGER	MIN. SPACING OF STAGGERED JUNCTION-- RIGHT/ LEFT STAGGER
Residential Streets			
Access Place			
Access Street	40	20	20
Collector Street	40	20	20
Trunk Collector	80	40	20
Traffic Routes			
2-lane sub arterial	100	60	30
3-lane sub arterial	100	100	30
Divided sub arterial	150	150	50
Divided arterial	150	150	50
Divided major arterial	200	150	50

¹ The typical average junction spacing relates to the total number of junctions along both sides of the specified residential street or traffic route. Each cross-road counts as one junction. A right/left stagger on a three lane sub-arterial or higher order road also counts as one junction. Other junctions may form T-junctions or allow only restricted vehicle movement.

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Controlling speed objective

To provide accessibility, safety and convenience for all street users in residential areas by ensuring that the speed of traffic is appropriate for the type of the street.

Standard C11

Street leg lengths should be:

- Designed as specified in Table C3.
- Limited to control vehicle speed between slow points designed to restrict design speeds to 20 kilometres per hour.

Table C3 Street leg length and design speed

STREET TYPE	TARGET STREET SPEED	MAXIMUM LEG LENGTH BETWEEN 20 km/hr SLOW POINTS.
Access Street	30 km/hr	75 to 100 m
	40 km/hr	100 to 140 m
Collector Street	50 km/hr	120 to 155 m
Trunk Collector	60 km/hr	120 to 155 m

Slow points and carriageway narrowing should be designed taking into account the need of cyclists by ensuring:

- Speed compatibility.
- Adequate space for concurrent passage.
- Off-street diversions.

Where bends are introduced to control speeds to 20 kilometres per hour or less, the deflection angle in the change of alignment of a street pavement should be at least the angle specified in Table C4.

Table C4 Minimum deflection angles for speed control to 20 km/hr

BEND TYPE	STREET PAVEMENT WIDTH ¹		
	3.5 m	5-5.5 m	7-7.5 m
Single bend	60 degrees	70 degrees	90 degrees
Chicane (2 reverse bends)	30-30 degrees	45-45 degrees	60-60 degrees

² Pavements may be reduced to 3.5 metres at bends by the use of medians.

Where bends or slow points are used which allow speeds greater than 20 kilometres per hour, the length of street between two bends or slow points should meet the distance specified in Table C5.

Table C5 Slow point speed and length of street between slow points

SPEED AT SLOW POINT OR BEND	MAXIMUM LEG LENGTH OF STREET BETWEEN SLOW POINTS/ BENDS TO LIMIT TARGET STREET SPEED TO:		
	30 KM/HR	40 KM/HR	50 KM/HR
20 km/hr	Refer Table C3		
25 km/hr	45 m	80 m	135 m
30 km/hr	–	65 m	115 m
35 km/hr	–	50 m	100 m
40 km/hr	–		80 m
45 km/hr	–		60m

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Local accessibility objectives

To provide a safe, convenient and legible movement network for pedestrians and cyclists along streets and paths to points of attraction within and adjoining the development.

To provide a movement network that contributes to limiting the use of fossil fuels.

Standard C12

The street network should:

- Facilitate walking, cycling and the use of public transport for access to daily activities.
- Enable relatively direct local vehicle trips within the neighbourhood and to local activity points.

The street network and paths should provide a movement system for pedestrians and cyclists that is efficient, cost effective and substantially capable of visual surveillance by residents.

Links should be provided to facilitate major pedestrian or cyclist movement where cul-de-sac heads abut other streets or public open space.

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Public transport objectives

To provide for bus routes that are accessible from all dwellings and activity centres and efficient to operate.

To provide a movement network in the vicinity of fixed rail that is focused towards passenger stops.

To establish a movement network that provides convenient linkages to activity centres and local facilities either within or adjoining the development.

Standard C13

The street and road network should provide for access to public transport within a reasonable safe and convenient walking distance of all dwellings.

Proposed bus routes should connect efficiently with existing or likely future bus routes, to provide for ease of movement of buses between developments, and to link major activity centres internal and external to the development.

Buses should be able to safely access the development and move safely between developments without complicated turning manoeuvres.

The alignment and geometry of streets that form bus routes should provide for the efficient and unimpeded movement of buses.

Streets suitable for bus routes through the development should be no more than 30 per cent longer than the bus routes available on the adjacent traffic route network.

Street networks near railway stations and major tram routes should be focussed towards stops to provide high levels of accessibility and surveillance.

At least 90 per cent of dwellings should be within 400 metres safe walking distance from an existing or proposed bus or tram route and should not be more than 500 metres from the nearest stop, or within 800 metres of a railway station.