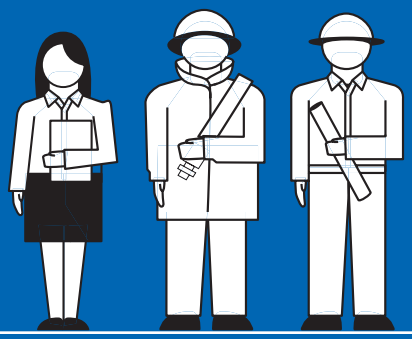


PREFERRED REQUIREMENTS: WATER SUPPLIES AND ACCESS FOR SUBDIVISIONS IN RURAL ZONES

NOVEMBER 2006

TABLE OF CONTENTS

Glossary of Terms	3
Introduction	4
Where Do These Guidelines Apply?	6
Statutory Requirements	6
Water Supply Requirements	7
Hydrants	7
Static Water Supply	9
Access Requirements	11
Roads	11
Battle Axe Lots and Carriageway Easement Access	13

Glossary of Terms

In this document, the terms are limited to the meanings described below.

Building Fire means a fire in a dwelling and the associated structures. It does not apply to fires in other structures that may occur in residential areas such as a milk bar or an aged care facility where other requirements may apply.

CFA means Country Fire Authority

Fire Truck is a vehicle used to combat a fire. A typical fire truck is a 3.4 tanker, which is approximately 3.02m wide and 7.7m long. These are more commonly used in residential areas in rural municipalities. In metropolitan settings, a pumper is more commonly used. Other larger fire trucks (such as aerial appliances) are used occasionally but the characteristics of the 3.4 tanker are used as the benchmark for determining performance levels in rural areas. The dimensions and characteristics of this vehicle are available at CFA if these are required for independent assessment

Hydrant means a facility on a pipeline/ water main where water can be drawn for firefighting purposes and includes a below-ground, L-type, or pillar hydrant.

Referral Authority means a referral authority under Sections 55 of the Planning and Environment Act.

Reticulated Water Supply is permanent infrastructure provided to deliver water to lots from a water supply external to the general vicinity of the subdivision. Water is provided under pressure.

Road means a road as defined in the Planning and Environment Act (includes highway, street, lane, footway, square, court, alley or right of way, whether a thoroughfare
or not and whether accessible to the general public or not). A `constructed road' for the purpose of defining widths, includes the part of the road reserve set aside for traffic and also includes roll-over curbs but does not include the remaining part of the road reserve. Barrier curbs are included to the extent of the riser.

Static Water Supply means a body of water confined within an enclosure (such as a tank located above or below ground) for use in the event of fire. Swimming pools or dams are excluded unless specifically referenced in the document.

Trafficable Width refers to that width of the constructed road that is unimpeded by encroachments such as street furniture or landscaping, and is available for free movement of fire trucks.

Wildfire Management Overlay means an area of land included within an overlay map of a planning scheme within which buildings and people are particularly vulnerable to wildfires.

INTRODUCTION

The Country Fire Authority is responsible for the protection of life and property from the adverse effects of fire. Loss of life and property in building fires, particularly in dwellings, is a major concern. Rural subdivisions must be designed and located to provide ready access by fire trucks to structures and water supplies.

These Guidelines are a planning tool for permit applicants and municipalities. They outline fire safety requirements to cope with structure fires to assist with the design and approvals process for rural subdivisions. Additional considerations are applicable to areas that are at risk from wildfires.

The document outlines objectives, performance levels, CFA preferred requirements and guidelines. The objectives must be met and the performance level gives more detail of the nature of the response expected. The CFA preferred requirements are examples of ways that the relevant objectives and performance levels can be achieved. If a proposed subdivision is designed to meet the CFA preferred requirements the CFA is unlikely to object to the proposal and will process the application with a minimum of delay. Explicit indication of compliance with the CFA preferred requirements on an application will assist in reducing the time required to process the application.

Generally, subdivision in planning schemes deals with the creation of lots. The Subdivision Act clarifies that servicing of a sub-division is a relevant consideration on common land. Permit conditions relating to fire safety requirements associated with the development of individual lots have no effect at sub-division stage. However subdivision lot arrangement, shape, and size, can affect the capacity of individual lots to yield a development that can comply with planning policy. While not an enforceable instrument, subdivision guidelines related to water supply and access for dwellings is provided in this document to help ensure that this capacity to meet planning policy is provided at the subdivision approval stage.

Individual lots within a subdivision may be subject to the Wildfire Management Overlay (WMO). Further considerations of vegetation management apply in a WMO and the objectives and outcomes required to be met are specified in the planning scheme.

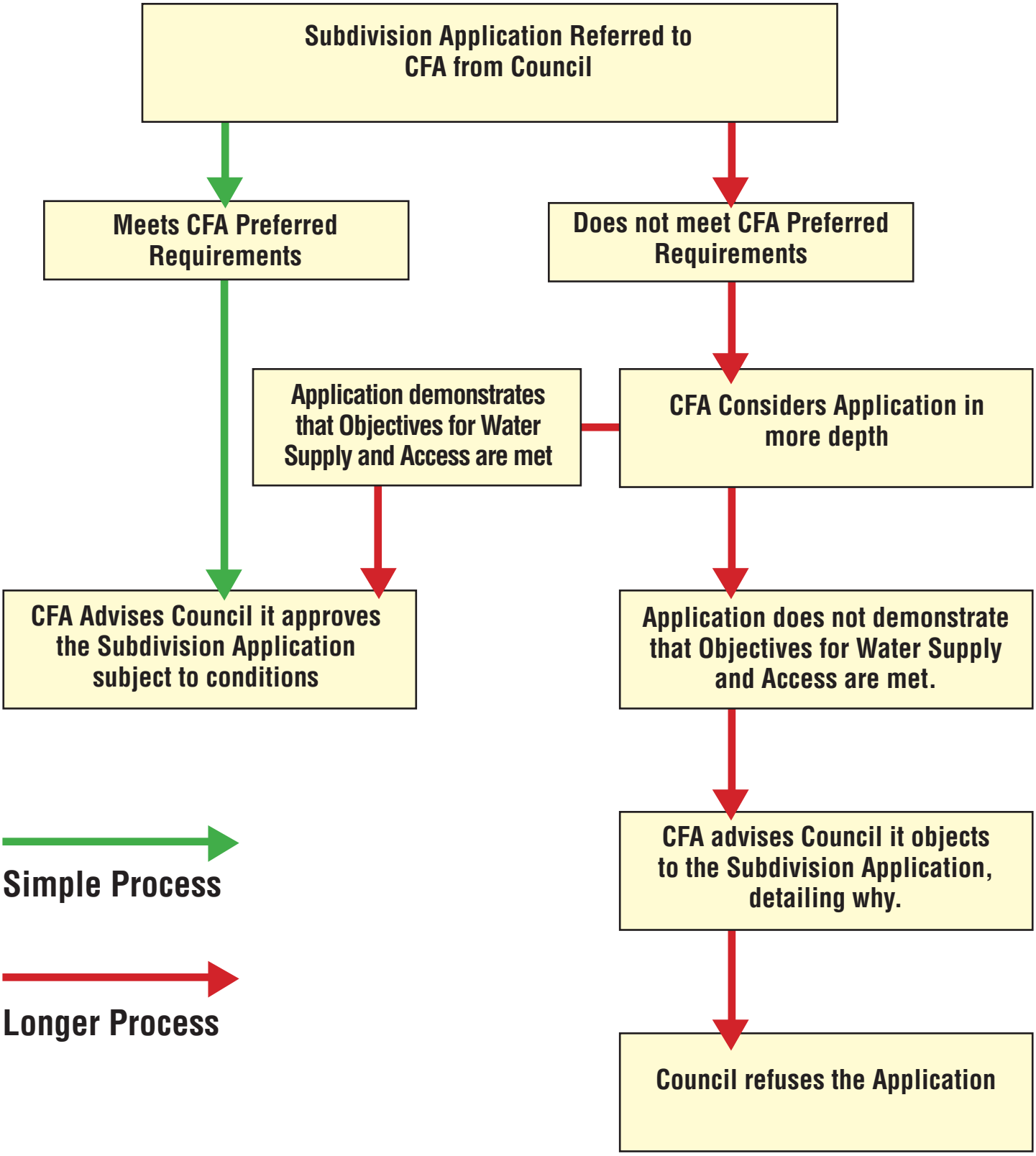
The vegetation management requirements are specified in the CFA document Building in a Wildfire Management Overlay Applicant's Kit, 2002.

An application for subdivision that can demonstrate how the proposal provides adequate capacity for attainment of planning policy for individual lot development may assist the process for subdivision approval. A proposal may specify building envelopes to demonstrate capacity.

While it is anticipated that most subdivisions will meet CFA preferred requirements, an applicant may achieve the objectives in other ways. If an application can demonstrate to the satisfaction of the CFA that a subdivision will achieve the objectives for both access and water supply, the CFA is likely to approve it. The CFA will consider each case on its merits. This assessment process may take longer than one that meets the CFA preferred requirements.

The diagram on the following page demonstrates the alternative processes for assessment.

Alternative Processes for assesment of Subdivisions



WHERE DO THESE GUIDELINES APPLY?

The requirements and guidelines apply to all subdivisions in rural areas in Victoria for the following zones:

- **Rural**
- **Environmental Rural**
- **Rural Living**
- **Rural Conservation**
- **Green Wedge**
- **Green Wedge A**
- **Farming**
- **Rural Activity**

They do not apply to residential township, medium density, commercial or industrial subdivision.

STATUTORY REQUIREMENTS

The CFA is a referral authority under Sections 55 of the Planning and Environment Act for subdivisions that create a road. The council must refuse a planning permit application if CFA objects to the application when acting as a referral authority. If the CFA does not object but advises on conditions, the council must place them on the permit if it decides to issue it.

When a council seeks the advice of CFA in situations where CFA is not a formal referral authority (under Section 52 of the Planning and Environment Act), council is not bound to follow the advice.

This document will be used by CFA as a basis for examining planning permit applications for subdivision. If the subdivision meets CFA requirements CFA is likely to consent to the conditions, particularly in areas not within a Wildfire Management Overlay.

CFA does not require that all applications must meet the requirements. An applicant may decide that the CFA preferred requirements are not appropriate and alternatives may be proposed. The CFA will consider the application in the light of the objectives for water supply and access. If the objectives are met then CFA may approve the application.

If the objectives are not met, CFA will object to the permit application and the council must then decide to not issue the permit. A non-successful applicant may seek an Order for Review at the Victorian Civil and Administrative Tribunal and CFA will defend its decision as appropriate.

WATER SUPPLY REQUIREMENTS

Objective:

Water is available to every lot in a subdivision for firefighting purposes in locations and amounts to enable firefighters to safely and efficiently carry out fire suppression on a building fire.

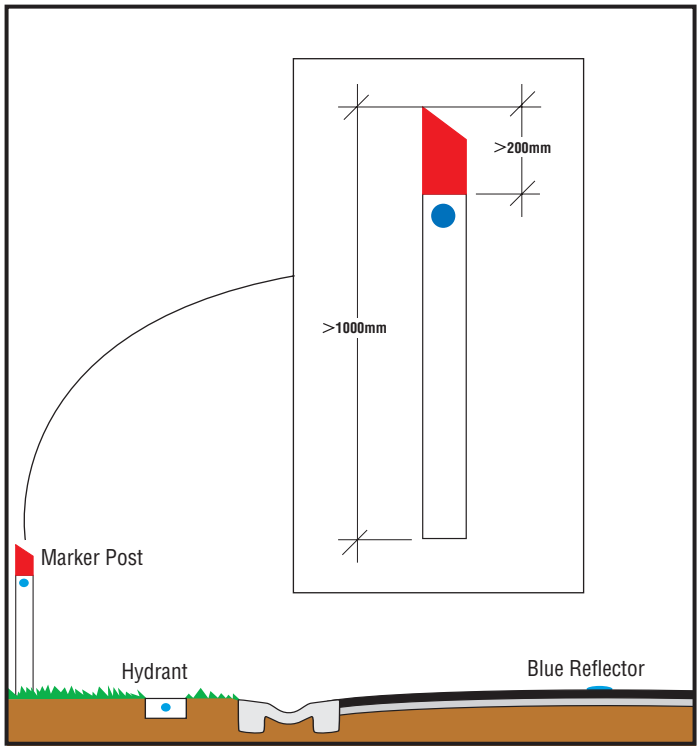


figure: 1

HYDRANTS

Hydrant Provision	
Performance Requirement	**CFA Preferred Requirement**
Where reticulated water is available, operable hydrants are provided.	Hydrants above ground or below must be provided

Rationale

Firefighters use water as a prime tool of attack for structure fires. Reticulated water pipes have hydrants (above ground or below) that enable firefighters to tap into the reticulated system and control the flow.The water is pressurised by pumps in the fire truck and delivered via hoses to the fire.

Hydrant markers	
Performance Requirement	**CFA Preferred Requirement**
Hydrants are suitably identified so that firefighters can locate them at all hours.	Hydrants must be identified as specified in *'Identification of Street Hydrants for Firefighting Purposes'* (see fig. 1) available under *Publications* on the CFA web site **(www.cfa.vic.gov.au)**

Rationale

Firefighters need to rapidly locate water supplies in emergencies. A separate set of guidelines has been published by the fire services to ensure that a hydrant is identified as a hydrant, the location is easily identified by the fire appliances approaching from either direction and the exact location is found.

Hydrant Location	
Performance Requirement	**CFA Preferred Requirement**
Hydrants are located in positions that will enable firefighters to access water safely, effectively and efficiently.	The maximum distance between a hydrant and the rear of a building envelope (or in the absence of a building envelope, the rear of a lot) must be 120 m (see figure 2).

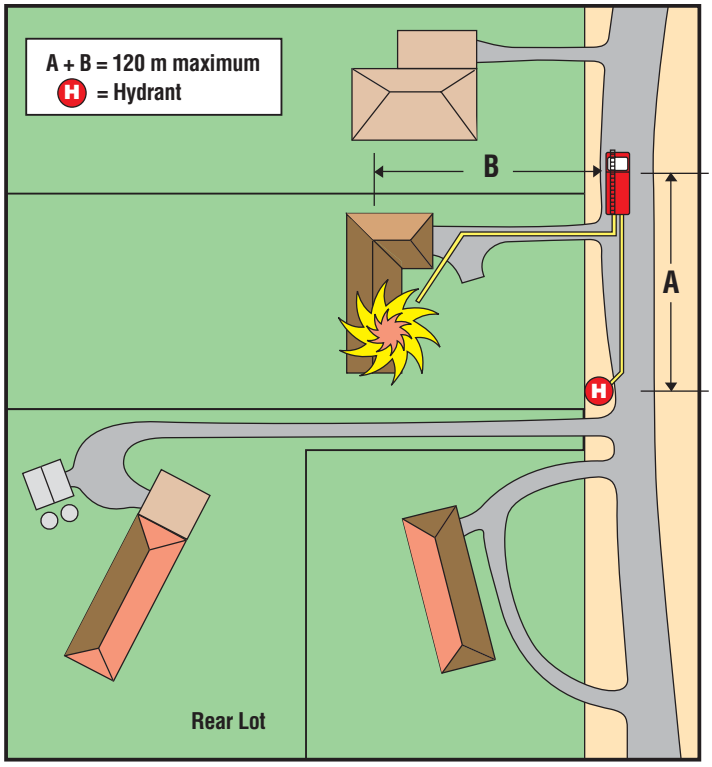


figure: 2

Rationale

On arriving at a structure fire firefighters park the fire truck so they can safety access both the building and the water supply.

The location of the fire truck is based on the need to:

- **Establish a safe control point as a base for managing the fire.**
- **Effectively supply water for rescue, crew safety, protection of other buildings under threat and firefighting.**
- **Carry out multiple tasks quickly**
- **Communicate by voice and visually (including, but not limited to hand signals)**
- **Collect information visually**
- **Light the scene using facilities on trucks**
- **Access equipment (such as breathing apparatus, first aid kit, axe or a ladder) at short notice**

Note: If reticulated water is not accessible, or is more than 120 metres from the rear of a building envelope, a static water supply must be provided (See Static Water Provision and Access, next page)

STATIC WATER SUPPLY

Static Water Supply Provision	
Performance Requirement	**CFA Standard**
Where reticulated water is not available, a static water supply must be provided.	The minimum supply of 10,000 Litres per lot is maintained solely for fire fighting.

Rationale

Fire fighters use water as a prime tool of attack for structure fires.

Fire fighters need quick access to secure supply water for rescue, crew safety, protection of buildings under threat and firefighting.

A static water supply must permanently set aside on each lot or a shared resource on common property for firefighting either as a separate tank or reserved by tapping domestic supply at the minimum 10,000 litre level per lot. CFA fittings must be provided for each supply. Ornamental lakes with an assured supply could suffice (while farm dams or swimming pools with no assured supply may not).

Static Water Supply Pipelines	
Performance Requirement	**CFA Standard**
Static water supplies are constructed to be able to withstand damage from fire, traffic or normal land use	Below ground pipelines must be installed to the following depths: • subject to vehicle traffic: 300 mm • under house or concretes slabs; 70 mm • all other locations; 225 mm Above ground water pipelines and fittings must be constructed of non-corrosive and non-combustible materials, or protected from the effects of radiant heat and flame

Static Water Supply Fittings	
Performance Requirement	**CFA Standard**
Static water supply can be connected to CFA fire fighting appliances and delivered at optimal volume	All above ground static water supply must provide at least one 64 mm, 3 thread/25 mm x 50 mm nominal bore British Standard Pipe (BSP), round male coupling (figure 3) All pipework and valving between the water supply and the outlet must be a minimum of 50 mm nominal bore (figure 3)

Rationale

Damaged supply pipelines, incorrect fittings, or absence of appropriate fittings may delay the supply of water in emergencies

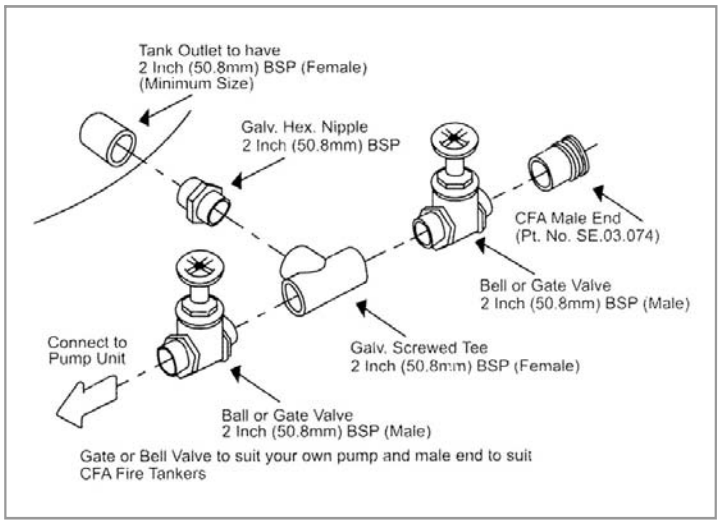


figure: 3

Static Water Supply Location	
Performance Requirement	**CFA Standard**
Static water supply is located in positions that will enable firefighters to access water safely, effectively and efficiently.	The maximum distance between a static water supply outlet and the rear of a building must be no more than 60 m and no less than 10 m from the building. The static water supply outlet must be no more than 3 m above the static water supply base Fire brigade vehicles must be able to get to within 4 m of the static water supply outlet A safe fire truck hard standing area of 10.3 m x 5.5 m clear of obstructions is provided at least 10 m from the building (figure 4).

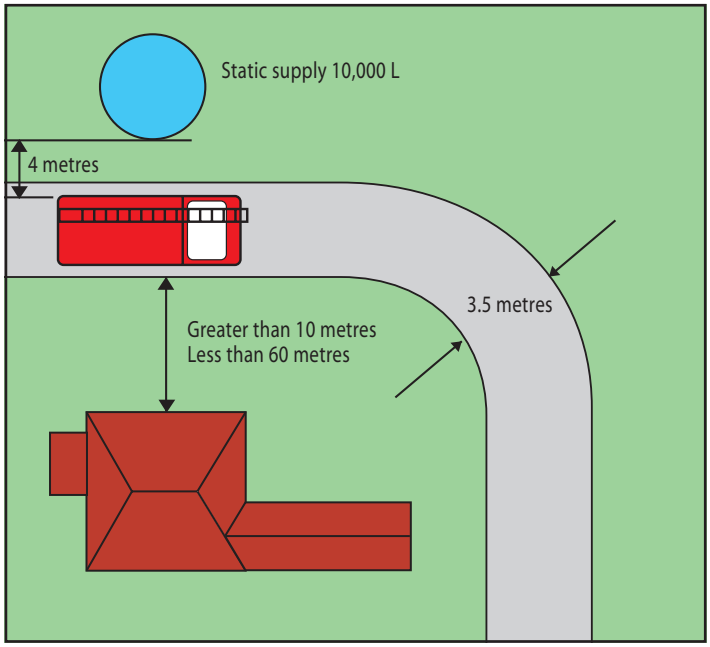


figure: 4

Rationale

On arriving at a structure fire firefighters park the fire truck so they can safely access both the building and water supply.

Firefighters require clearance to enable doors to be opened and equipment such as breathing apparatus or a ladder to be removed from the truck, hoses to be connected and the pump to be operated.

The location of the fire truck is based on the need to:

- **Safely establish a control point as a base for managing the fire.**
- **Effectively establish water supply for rescue, crew safety, protection of other buildings under threat and firefighting.**
- **Enable fire fighters to carry out multiple tasks quickly**
- **Enable communication by voice and visually (hand signals)**
- **Collect information visually**
- **Light the scene using facilities on trucks**

Static Water Supply Markers	
Performance Requirement	**CFA Standard**
Static water supplies are suitably identified so that fire fighters can locate them at all hours	If the water supply is not identifiable from the building, visible signage (figure 5) must point to the water supply.

Rationale

Firefighters need to rapidly locate water supplies in emergencies

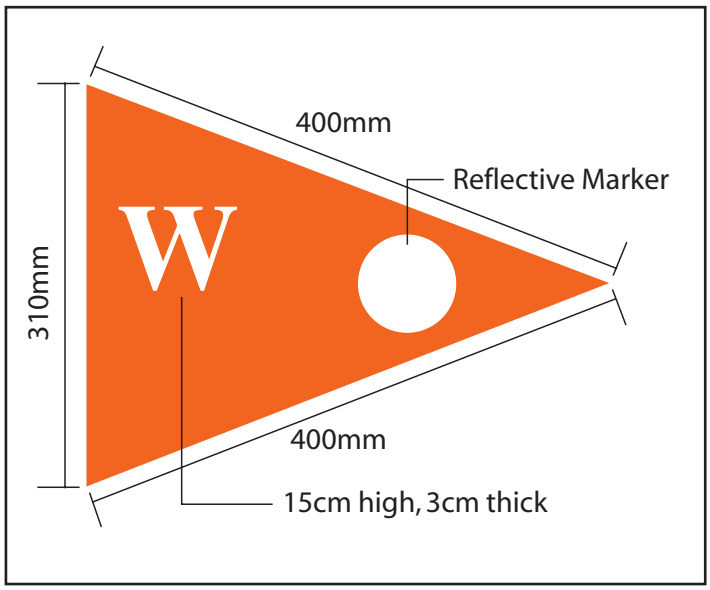


figure: 5

ACCESS REQUIREMENTS

Objective:

To enable fire trucks to gain access to locations in the close vicinity of buildings to deliver water to the fire and to facilitate the provision of services and equipment to firefighters.

Roads

Road Width	
Performance Requirement	**CFA Standard**
Roads are wide enough for fire trucks to gain access to a safe working area close to buildings and water supplies whether or not on-street parking spaces are being occupied.	Constructed roads must be: • A minimum of 7.3 m in trafficable width where cars park on both sides, or • 5.4 m in trafficable width where cars may park on one side only (Figure 6 and 7) • 3.5 m width with no parking and 0.5 m clearance to structures on either side, and if this width applies, there must be passing bays at least 20 m long, 6 m wide, and located not more than 200 m apart

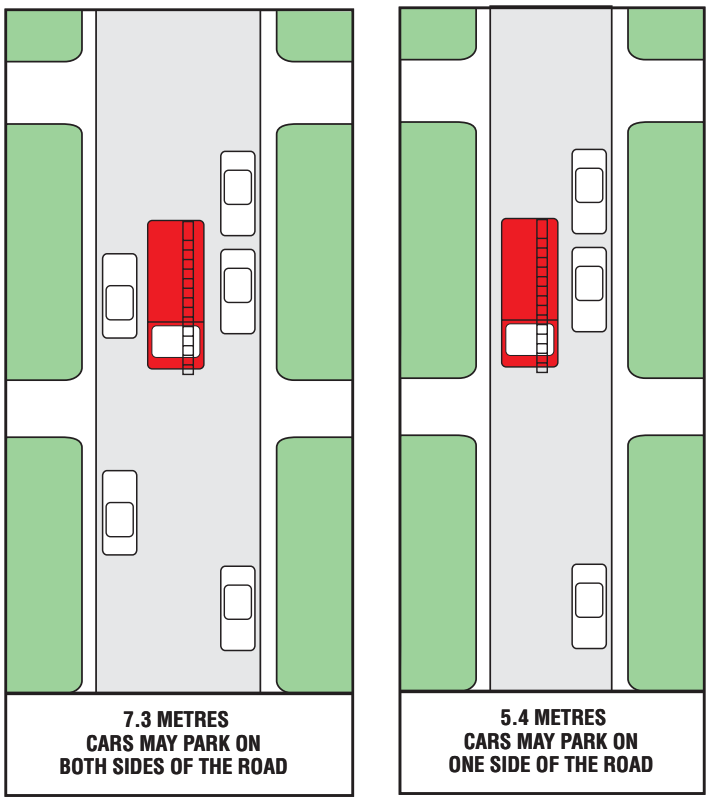


figure: 6

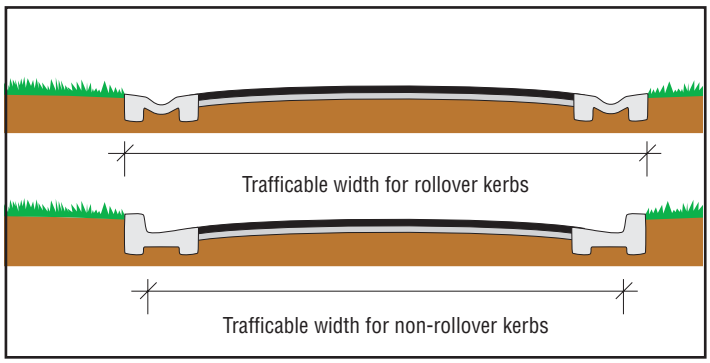


figure: 7

Rationale

Fire trucks are typically 3.02 m wide and 7.7 m long. The road width must allow room for safe passage of a fire truck with additional margins for human error and safe clearances. A 4.5 m clearance is required horizontally and 4 m vertically for access by a fire truck. A road at least 7.3 m wide will allow for parking on both sides of the road and still enable access by a fire truck. A road 5.4 m wide will allow parking on one side of the road and still enable access by a fire truck.

Widths between these may encourage parking on both sides of the road so that access by a fire truck is not possible. Roads narrower than 5.4 m require passing bays.

Road Construction	
Performance Requirement	**CFA Standard**
Roads must be constructed to facilitate the safe passage of a laden fire truck in all seasons	Roads must be constructed to a standard so that they are accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes for the trafficable road width.

Rationale
Roads must be trafficable in all weather conditions. Most fire trucks currently weigh less than 13 tonnes. However, trucks heavier than 13 tonnes are possible in future. To deal with this circumstance, the CFA standard is 15 tonnes.

Note:
If roads are constructed to cater for the Austroads Design 8.8 m Service Vehicle they will cater for a fire truck.

Road Grades	
Performance Requirement	**CFA Standard**
Grades of roads must facilitate the safe passage of a fire truck. degrees) for no more than 50 metres (figure 12).	The average grade must be no more than 1 in 7 (14.4%) (8.1 degrees) with a maximum of no more than 1 in 5 (20%) (11.3 degrees) for no more than 50 metres (figure 12). The minimum radius for driveway curves is 10 m. Dips must have no more than a 1 in 8 (12.5%) (7.1 degree) entry and exit angle.

Rationale
Steep slopes and tight radius affect the free movement of fire trucks and hinder safe firefighting. Severe short dips may limit access due to the overhang of the body from the wheels.

If relevant, an applicant may demonstrate compliance with the dip requirement by placing a fire truck profile over a cross section of the road.

Turning Bays	
Performance Requirement	**CFA Standard**
Provision is made for fire trucks to turn at the end of dead end roads.	Constructed roads more than 60 m in length from the nearest intersection must have a turning circle with a minimum radius of 8 m (including roll-over curbs if they are provided). Other solutions using T or Y heads of specified dimensions are also appropriate (figure 8).

Rationale

It is dangerous for emergency vehicles to be required to back along roads for excessive distances. Turning is normally carried out after the incident is under control when an emergency movement is not required. Even then, large trucks backing can create safety concerns.

Fire trucks occasionally need to seek an alternative route necessitating a 180-degree turn in emergency conditions. Using a three-point turn, fire trucks require a turning circle radius of 8m to turn safely. Alternative designs using specified T or Y heads are also appropriate. This area needs to be clear of obstructions.

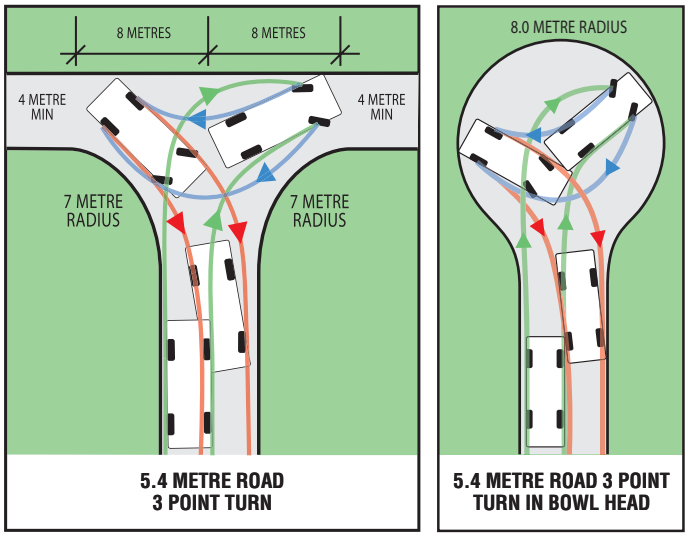


figure: 8

BATTLE AXE LOT AND CARRIAGEWAY EASEMENTS ACCESS

Battle Axe and Carriageway Easement Access Width	
Performance Requirement	**CFA Standard**
Driveways are wide enough for fire trucks to gain access to a safe working area close to buildings and water supplies	Constructed driveways within battle axe lot or carriageway easement must be: • A minimum trafficable width of 3.5 m • A minimum 0.5 m clearance to structures either side of the trafficable width • Maintained with minimum vertical clearance of 4m (figure 9)

Rationale

If the distance from the road to a dwelling and water supply is less than 30 m it is possible to fight a fire from the road. Greater distances may require the driveway to be used for access.

It is dangerous for a fire truck to be backed along a driveway, particularly if the driveway is narrow or there is poor clearance.

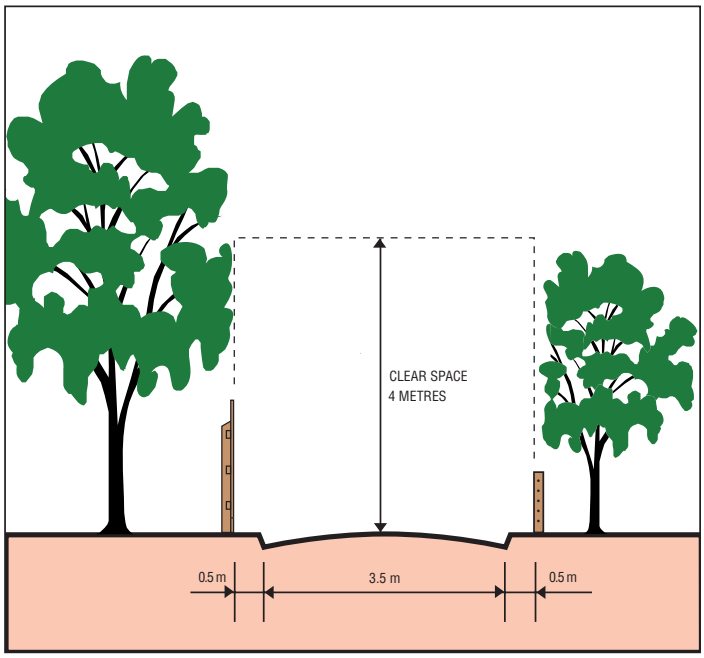


figure: 9

Battle Axe and Carriageway Easement Access Width	
Performance Requirement	**CFA Standard**
Driveways are constructed to allow the safe passage and turning for a fire truck in any weather conditions	Constructed driveways within battle axe access or carriageway easement greater than 30m from the road to the dwelling including gates culverts and bridges, must be constructed and maintained for a load limit of at least 15 tonnes, and be all weather construction If the driveway is longer than 100m, a turning area for fire fighting vehicles close to the building is provided by either: • a turning circle with a minimum radius of 8 m, or by the driveway encircling the building; or • a T head or Y head of 4m trafficable width (figure 10) If the length of the driveway is greater than 200m, passing bays are provided. Passing bays are: • 20m long and provided every 200m, • 6m minimum trafficable width measured at the parking bay (figure 11)

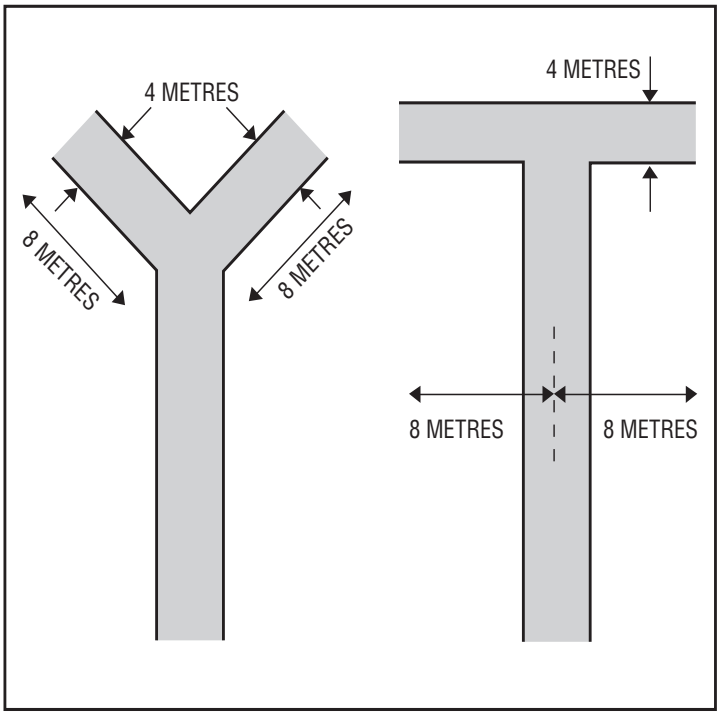


figure: 10

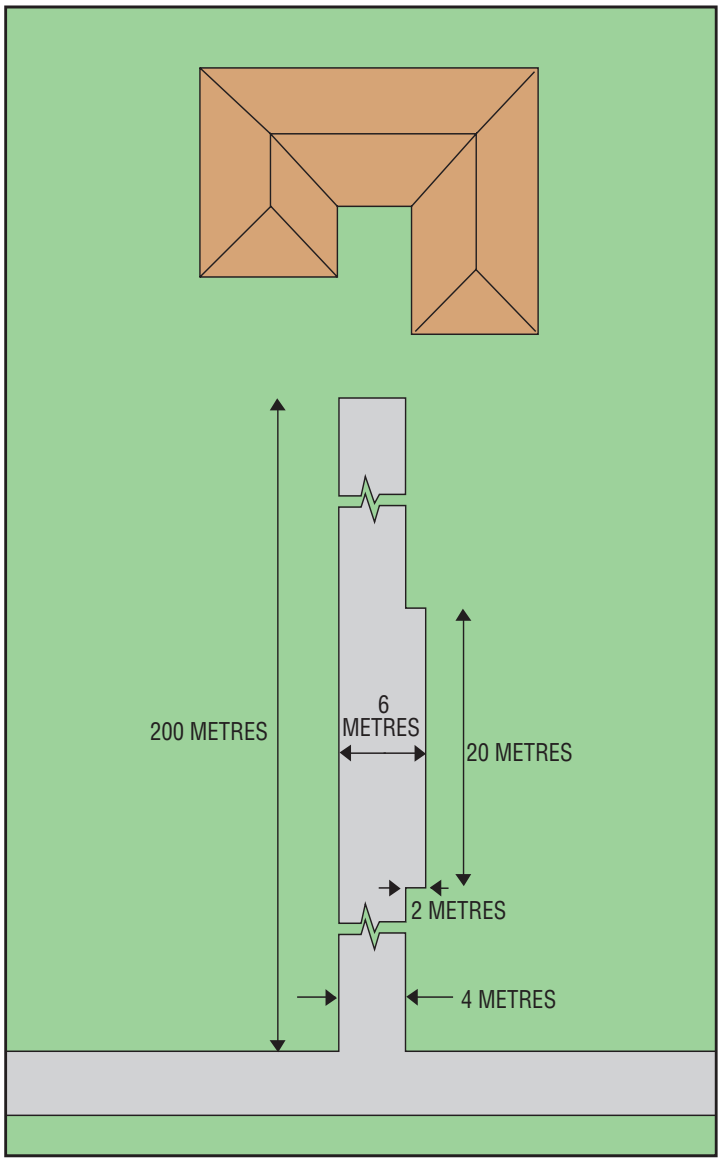


figure: 11

Battle Axe Lot and Carriageway Easement Access Grades	
Performance Requirement	**CFA Standard**
Grades for a driveway facilitate the safe passage of a fire truck.	Constructed driveway grade within battle axe access or carriageway easement must be no more than 1 in 7 (14.4%) (8.1 degrees) with a maximum of no more than 1 in 5 (20%) (11.3 degrees) for no more than 50 metres. The minimum radius for driveway curves is 10 m. Dips must have no more than a 1 in 8 (12.5%) (7.1 degree) entry and exit angle (figure 12).

Rationale

Steep slopes and tight radius affect the free movement of fire trucks and hinder safe firefighting. Severe short dips may limit access due to the overhang of the body from the wheels.

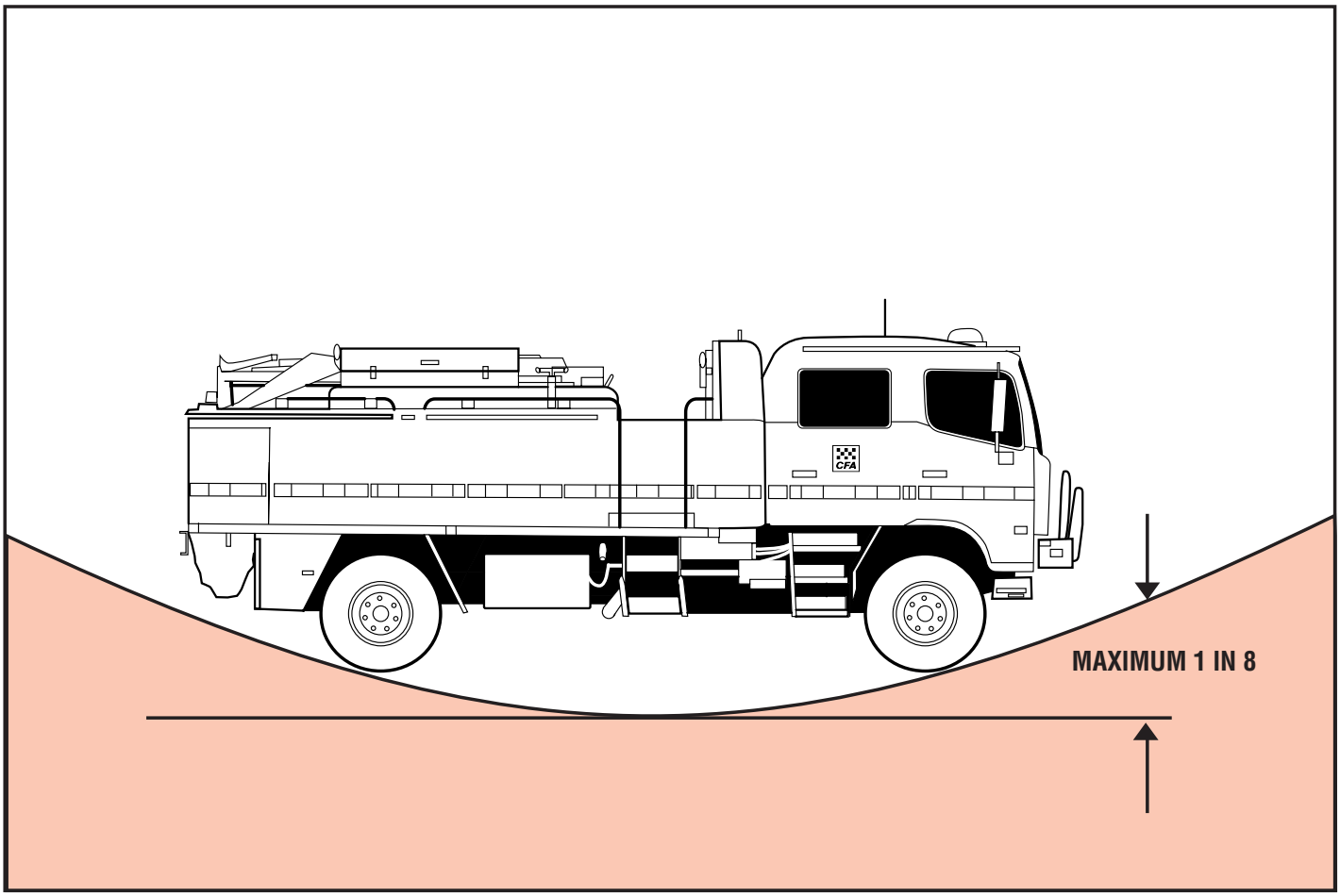


figure: 12