

Orange County Fire Authority  
Community Risk Reduction

1 Fire Authority Road, Building A, Irvine, CA 92602 [www.ocfa.org](http://www.ocfa.org) 714-573-6100

# Fire Master Plans for Commercial & Residential Development



## Guideline B-01

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## Fire Master Plans for Commercial & Residential Development

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# Fire Master Plans for Commercial & Residential Development

## PURPOSE

The effectiveness of emergency response and firefighting operations is directly related to the proper installation and maintenance of fire access roadways, proper location of hydrants, adequate water supply, and access to buildings and facilities. This document is a general guideline pertaining to the creation and maintenance of fire department access roadways, access walkways to and around buildings, and hydrant quantity and placement as required by the 2022 California Fire and Building Codes (also known as CFC and CBC, respectively) and as amended by local ordinance.

## SCOPE

This guideline applies to fire apparatus access roads which provide access to new, reconstructed, relocated residential or commercial structures, developments, and facilities.

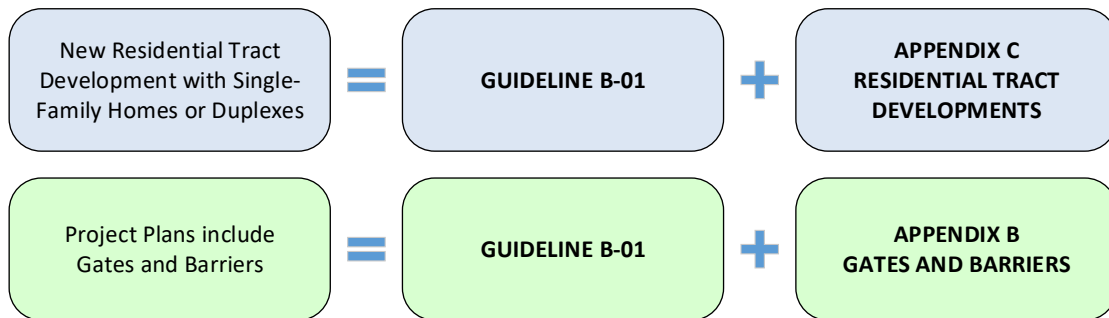
**Note:** *In addition to the requirements of OCFA Guideline B-01, for buildings and facilities located within State Responsibility Area (SRA) or the Very High Fire Hazard Severity Zones (VHFHSZ) in the Local Responsibility Area (LRA), refer to California Code of Regulations (CCR) Title 14 from CA Board of Forestry & Fire Protection site: <https://bof.fire.ca.gov/>.*

## HOW TO USE THIS GUIDELINE

The guideline consists of two main parts: Guideline B-01 and a series of lettered appendices: Appendix A, B, and C. The first part, Guideline B-01, provides instructions on how to prepare and submit a generic Fire Master Plan. The second part, the appendices to Guideline B-01, contain additional information that may be applicable based on the type of project submission.

**To prepare a Fire Master Plan, provide the information and comply with the requirements in both B-01 and all pertinent appendices.**

*Example:*



## SECTION 1: SUBMITTAL REQUIREMENTS

- 1. Universal Submittal Requirements** - Refer to Guideline A-02 from OCFA Planning and Development website ([www.ocfa.org](http://www.ocfa.org)). Complete the Fire Master Plan Submittal Checklist (Attachment 1) and verify that basic project information has been provided and that general access and water requirements have been addressed on the plan.

## SECTION 2: FIRE LANES

2. **Fire Lanes** - On-site private fire lanes shall be provided for every facility or building when any portion of an exterior wall of the first story is located more than 150 feet from a public roadway, as measured along an approved route. Extenuating circumstances, increased hazards, and additional fire safety features may affect these requirements.

2.1. **Loading** – Fire lanes shall be designed, constructed, and maintained to provide all-weather driving capabilities and support the imposed load of 94,000-pound fire apparatus with weight distributed as follows:

- No more than 32,000-pounds per axle.
- Bridges and underground vaults, culverts, and other features beneath fire access roadways shall be designed, at a minimum, to the AASHTO H-17 standard.
- A letter or statement, signed by a registered engineer, shall be provided on the plans certifying that any new roadway meets these loading and all-weather criteria. Natural or artificial turf products, and road base without an approved topping material does not satisfy the all-weather requirement and may not be approved.

2.2. **Number Required** - One fire lane is required if any portion of an exterior wall of the first story of a building is located more than 150 feet from a fire lane. The hose pull distance is to be measured by an approved route around the exterior of the building.

EXCEPTION: Hose-pull distance to the most remote exterior portion of a detached single-family home or duplex or related accessory structure (e.g., pool house, casita, garage, workshop, barn, etc.) may be up to 300 feet when protected throughout by a fire sprinkler system or as approved by the fire code official.

EXCEPTION: When approved by the fire code official, this distance may be increased up to 300 feet for open parking garages that comply with the following:

The structure is protected throughout with an NFPA 13 sprinkler system, or the structure meets the below requirements:

- Two stairways, both directly accessible from the exterior.
- Both stairways provide direct access to all tiers of the parking structure.
- Both stairways are equipped with Class I Wet Standpipe Outlets at each floor or intermediate landing.
- Access to both stairways is within 40-foot walking distance from a fire lane.
- The stairways are sufficiently separated from each other and located in a manner that facilitates firefighting operations within the structure, as determined by the fire code official.

2.2.1. More than one fire lane is required when access to a single road may be insufficient due to the following: terrain, location, travel distance, potential fire, life-safety hazards, vehicle congestion, railways, weather condition that may impair single-entry point, or other factors that could limit access. Supplementary access points shall be located to facilitate evacuation and emergency operations and minimize congestion or obstruction during an emergency incident. At least two of

the access points shall be separated by a distance of at least one-half of the longest dimension, as measured between the two points of the development that are furthest from one another, when any of the following conditions exist.

- A minimum of two vehicle access points is required for any area containing 150 or more residential dwelling units, including new and existing dwelling units.
- A minimum of two vehicle access points is required for any multi-family residential structure containing 200 or more dwelling units. Each entry point shall provide access to at least one of two (or more) required vehicle laddering areas. Laddering areas shall be remotely located on at least two sides of the structure in locations that facilitate fire department access to the roof as well as interior firefighting.
- A secondary access point is required for commercial projects with a cumulative building area of more than 124,000 square feet.

2.3. **Location** - For purposes of determining the suitability of public roads and private roads for staging fire apparatus and facilitating fire suppression operations for a particular structure, the following criteria shall apply:

2.3.1. The edge of fire access roadways serving two and three-story buildings should be located no closer than 10 to 30 feet from the building. The edge of fire lanes serving structures four or more stories in height shall be located between 20 to 40 feet from the building. The setback is measured from the face of the building to the top edge of the curb face or rolled curb flow line nearest the building. The distance and the amount of fire lane serving the structure that is required to meet these criteria are a function of overall building height, construction, presence of openings, and other potential hazards and considerations.

2.3.1.1. Fire lanes serving buildings that are over 30' high as measured from grade to the roof parapet or eave shall be provided, at a minimum, along the longest façade of the building, or along at least two remote sides of the building, or in another manner approved by the fire code official that optimizes firefighter access to the roof.

2.3.1.2. For location of access roads serving high-rise structures, see Guideline H-01.

2.3.2. To ensure that vehicular traffic from dead-end fire lanes serving buildings greater than 30-feet in height, is always maintained, staging areas at least 25-feet wide, and 60-feet long with a 25-ft taper on each end (for 110-feet total length) shall be provided along the roadway to permit fire apparatus to pass ladder trucks that have the outriggers extended. Consideration should be given to the length of the roadway, roof and building design, obstructions to laddering, and other operational factors in determining the number, location, and configuration of such staging areas.

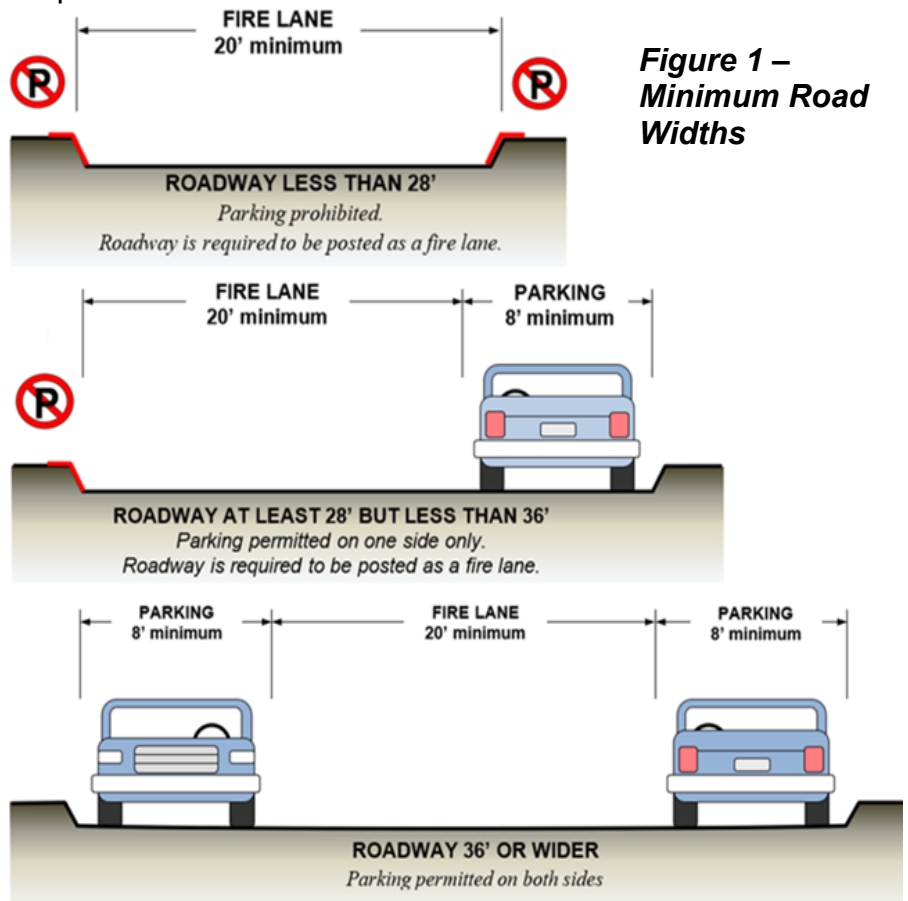
2.3.3. A fire lane may be an on-site private fire lane or a public road with a projected average daily trip (ADT) count below 30,000, or as approved by the Fire Code Official. Contact the city or County Traffic Engineer's office or Public Works Department for ADT information.

2.3.4. A fire lane on an adjacent property may only be considered as a fire lane for the project property if an emergency access easement has been granted by the adjacent property owner (“GRANTOR”) to the benefit of the city or county (“GRANTEE”) for the purpose of emergency access to the project property and recorded by the Orange County Clerk-Recorder Department. Evidence of the recorded easement may need to be provided to OCFA.

2.4. **Width** – The minimum width of a fire lane is 20 feet. If a center median is included, the required width shall be provided on both sides of the median.

2.5. **Parking Restrictions**

- No parking is permitted along fire lanes that are narrower than 28 feet in width (Figure 1). Width is measured from top face of curb to top face of curb for standard vertical curbs or flow line to flow line for rolled, ramped, or other curb types. Parking on one side is permitted on a fire lane that is at least 28-feet in width. Parking on two sides is permitted on a roadway 36-feet or more in width.



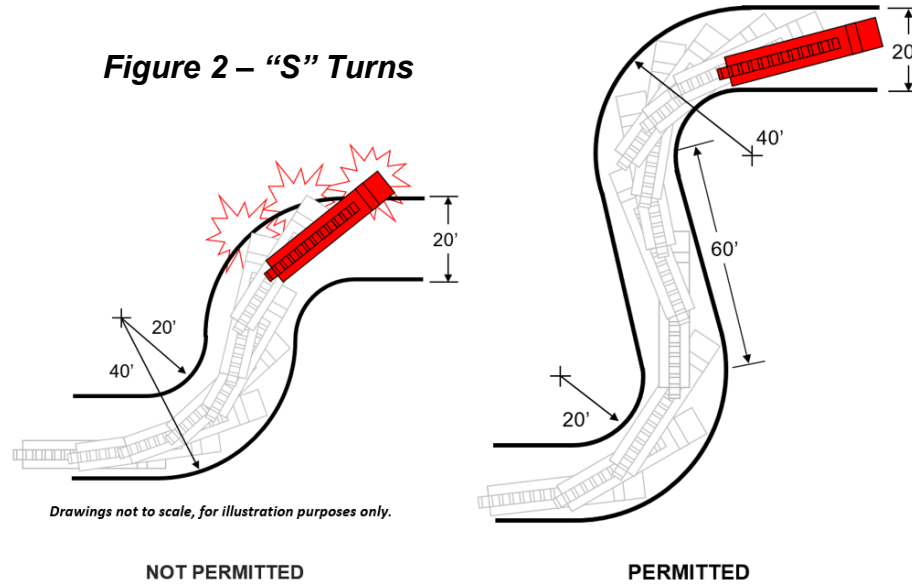
**Figure 1 – Minimum Road Widths**

2.6. **Vertical Clearance** -

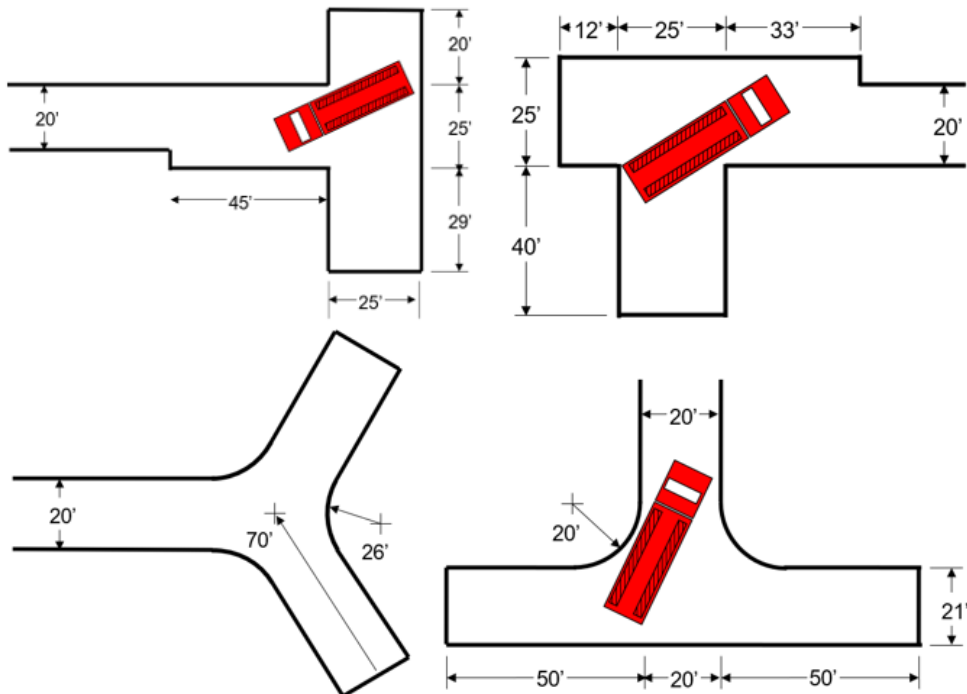
Fire lanes shall have an unobstructed vertical clearance of not less than 13-feet 6-inches. If trees are located adjacent to the fire lanes, place a note on the plans stating that all vegetation overhanging the fire lane shall be maintained to provide a clear height of 13-feet, 6-inches at all times (Appendix B, Figure B1).

2.7. **Grade** - The grade for fire lanes shall not exceed 10%. When all structures served by the fire lane are protected by automatic fire sprinkler systems, the grade may be increased to a maximum of 15% for approved sections of roadway where fire apparatus may drive but will not likely stopped during an emergency. The cross-slope of fire lanes shall not be greater than 2%.

- 2.8. **Turning Radii** - The inside turning radius for a fire lane shall be 20 feet. The outside turning radius for an fire lane shall be 40 feet or greater. A 60-foot straight section of roadway must be provided between a turn in one direction and another turn in the opposite direction (Figure 2). For additional requirements related to minimum turning radii, please refer to CCR Title 14.



- 2.9. **Dead-ends** - Dead-end roadways more than 150 feet shall be designed and constructed with approved hammerheads or turnarounds (Figure 3, Figure C1 in Appendix C). Turnarounds shall meet the turning radius requirements identified above. The minimum cul-de-sac radius is 40 feet with no parking allowed. The maximum length of a cul-de-sac or other dead-end road without mid-way turnarounds or other mitigating features is 800 feet.



- 2.10. **Bridges** - When a bridge is required as part of a fire lane, the driveable surface shall be a minimum of 20' in width and the bridge shall be designed and constructed at a minimum to AASHTO H-17 standards to accommodate a total weight of 94,000 pounds.
- 2.11. **Median breaks** - Where medians or raised islands are proposed that prevent emergency apparatus from crossing over into opposing traffic lanes, breaks or pass-throughs may be required. The location and design specifications for the pass-throughs shall be coordinated with the city/county public works or engineering department.
- 2.12. **Continuity of Fire Lanes** – Where roadways serving structures are not required fire lanes but may still appear to be usable by fire apparatus, they shall be designed to the applicable fire lane criteria. This shall include, but not be limited to, adequate turning radii and turnarounds necessary to prevent fire apparatus entrapment or undue delays.



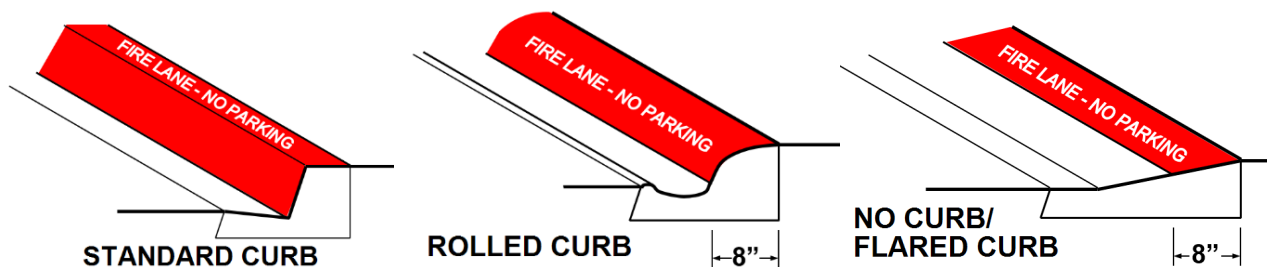
**SECTION 3: FIRE LANE IDENTIFICATION**

3. **Fire Lane Identification** - Fire Lane identification is required to maintain the required width of fire lanes for emergency vehicle use. Unlawful use of fire lanes will be enforced by the local law enforcement agency in accordance with the California Vehicle Code (CVC) on public roadways. Enforcement of fire lane no-parking restrictions on private roadways is the responsibility of the property owner, HOA, or their designated agent (Attachment 2).

3.1. **Sign and Curb Marking options** – Areas designated as a fire lane require an acceptable method of marking that shall be approved prior to installation. Select either option 3.1.1. OR option 3.1.2. below.

3.1.1. Specific areas designated by the OCFA as fire lanes must be marked with red curbs meeting the specifications below (Figure 4). In addition, where the number of entrances into the area marked with fire lanes is limited, all such vehicle entrances to the designated area shall be posted with approved fire lane entrance signs.

**Figure 4 – Fire Lane Identification, Red Curbs**



- Curbs shall be painted OSHA safety red.
- “FIRE LANE – NO PARKING” shall be painted on top of curb in 3” white lettering at a spacing of 30’ on center or portion thereof.

3.1.2. “Fire Lane – No Parking” signs (Figure 5) meeting the appropriate specifications shall be posted immediately adjacent to each designated fire lane and at intervals not to exceed 50 feet, unless otherwise approved by the fire code official. In areas where fire lane parking restrictions are enforced by the California Highway Patrol, “NO STOPPING - FIRE LANE” signs meeting Caltrans standards shall be used. In addition, where the number of entrances into the area marked with fire lanes is limited, all such vehicle entrances to the designated area shall be posted with approved fire lane entrance signs (Figure 6).

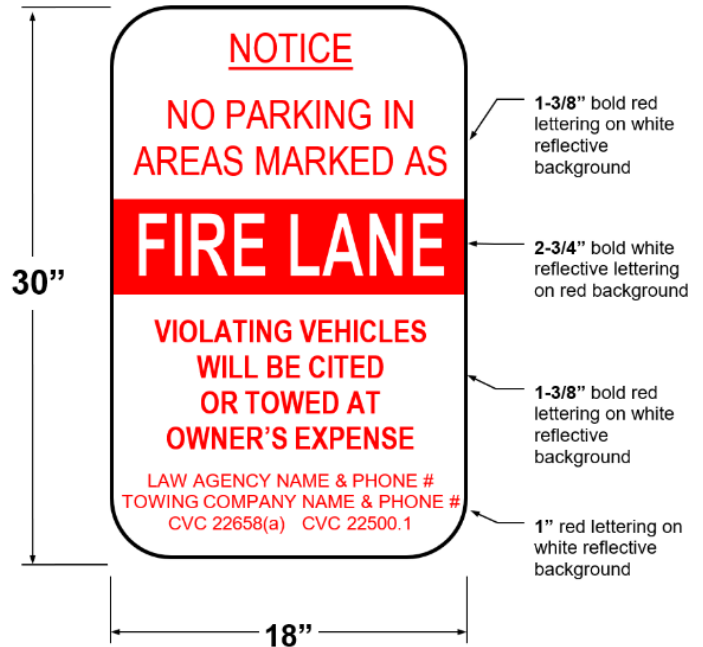
**Figure 5 – Fire Lane No Parking Signs**



3.2. **Fire Lane Entrance Signs** - Fire lane entrance signs must meet the following specifications:

- Fire lane entrance signs are to be used only at vehicle entry points to areas that contain “Fire Lane – No Parking” signs or red curbs.
- The sign shall be posted at all vehicle entrances to areas marked with either red curbs or fire lane “No Parking” signs. Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area.
- Signs shall be installed per OCFA mounting specifications for fire lane signs.

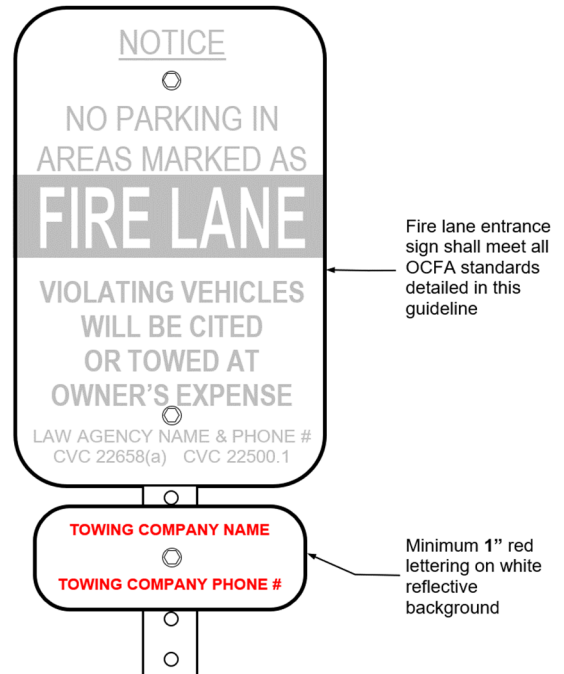
**Figure 6 – Fire Lane Entrance Signs**



3.3. **Towing Company Information** -

Towing company contact information is required for all properties with a standing written agreement for services with a towing company per the California Vehicle Code. To facilitate periodic changes in towing company contracts, the towing company contact information may be posted on a separate sign mounted directly below the fire lane entrance sign instead of on the entrance sign itself (Figure 7). The method of attachment to the post shall not obscure the wording on either sign.

**Figure 7 – Alternate Location of Towing Company Information**



3.4. **Alternative “Fire Lane – No Parking”** -

Alternative “Fire Lane – No Parking” signs may be allowed with approval from the fire code official. Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area. Signs shall be made of durable material and installed per OCFA mounting specifications for fire lane signs.

Note: All alternative signs must be approved through the OCFA and by the city/County engineer and/or policy agency, as applicable. In areas where fire lane parking restrictions are enforced by the California Highway Patrol, “NO STOPPING – FIRE LANE” signs meeting Caltrans standards shall be used.

- 3.4.1. “Fire Lane – No Parking Beyond This Point Except in Designated Stalls” sign may be approved for use in limited areas up to 100-feet in length, such as motor courts or dead-end roads, when permitted by the Fire Code Official. Where parking stalls are not present, sign may omit “except in designated stalls” and sign height may be reduced to 18”. The specifications for the rest of the sign shall match the standard fire lane no parking signs (Figure 8).

**Figure 8 – Specifications for Alternative Fire Lane No Parking Signs**

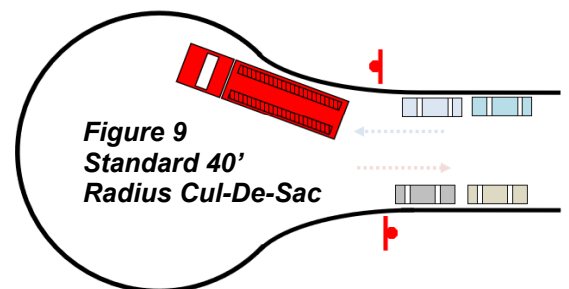
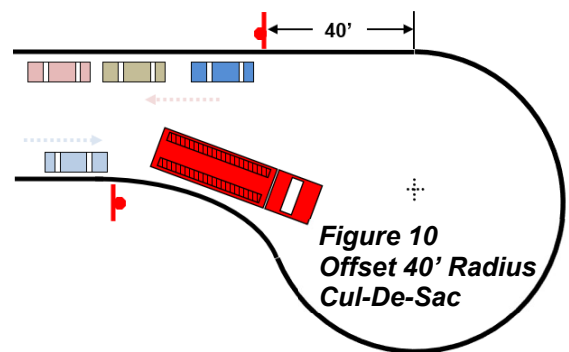


- 3.4.2. “Fire Lane – No Parking in Cul-De-Sac” signs may be approved for use on the right side of a roadway. Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area.

For a standard cul-de-sac, the “begin” and “end” signs shall be located at the point where the street begins to widen into the bulb (Figure 9).

A cul-de-sac with an offset radius shall have signs located at the point where the street begins to widen into the bulbs and at a point 40’ from where the cul-de-sac and street are tangent (Figure 10).

Additionally, a minimum 2” red lettering on white reflective background must be provided for the “BEGIN” sign at entry into cul-de-sac and “END” sign when leaving cul-de-sac.

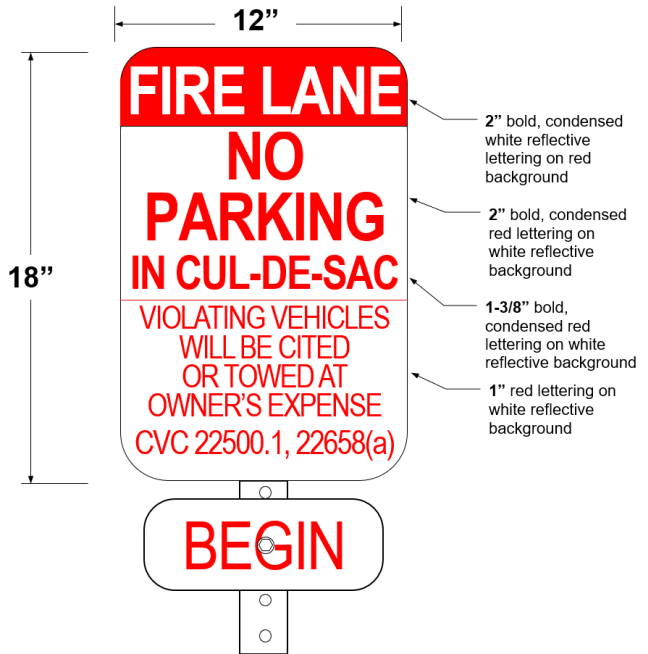


“BEGIN” or “END” sign may be omitted where cul-de-sac is the continuation of a no parking zone on streets less than 36’ wide (Figure 11).

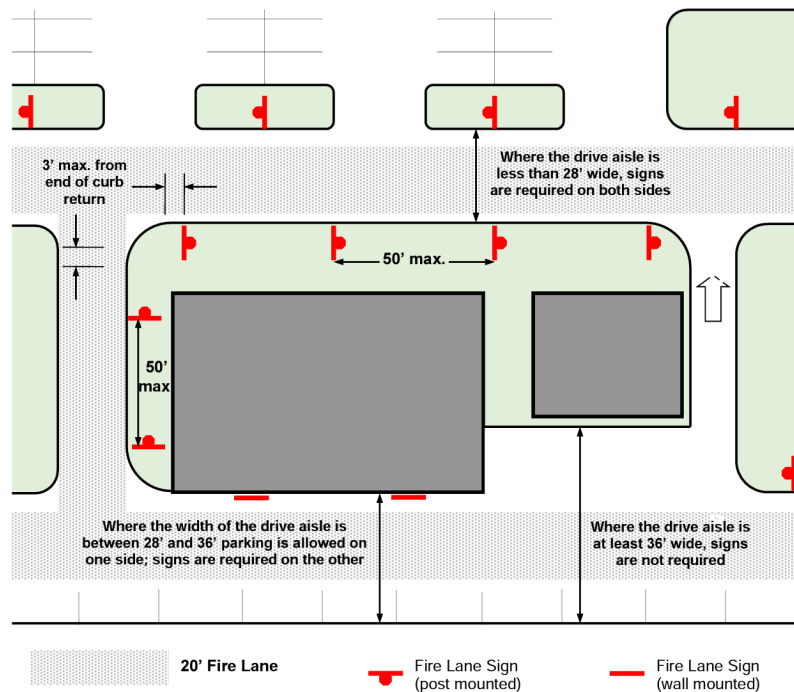
**3.5. Fire Lane No Parking Sign Locations** - Signs are required within 3’ at the end of the curb return at the beginning of each “block” along the fire lane and spaced a maximum of 50’ along the entire designated lane (Figure 12).

A sign shall be located within a reasonable distance of the end of each block as necessary to clearly identify the extend of the no parking zone. Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area. Signs shall be made of durable material and installed per OCFA mounting specifications. Where signposts are not practical, signs may be mounted on a wall or fence and are allowed to be oriented parallel to the length of the fire lane. OCFA inspectors will determine if additional signs or sign locations are required.

**Figure 11 – Specifications for Cul-de-Sac Fire Lane No Parking Signs**

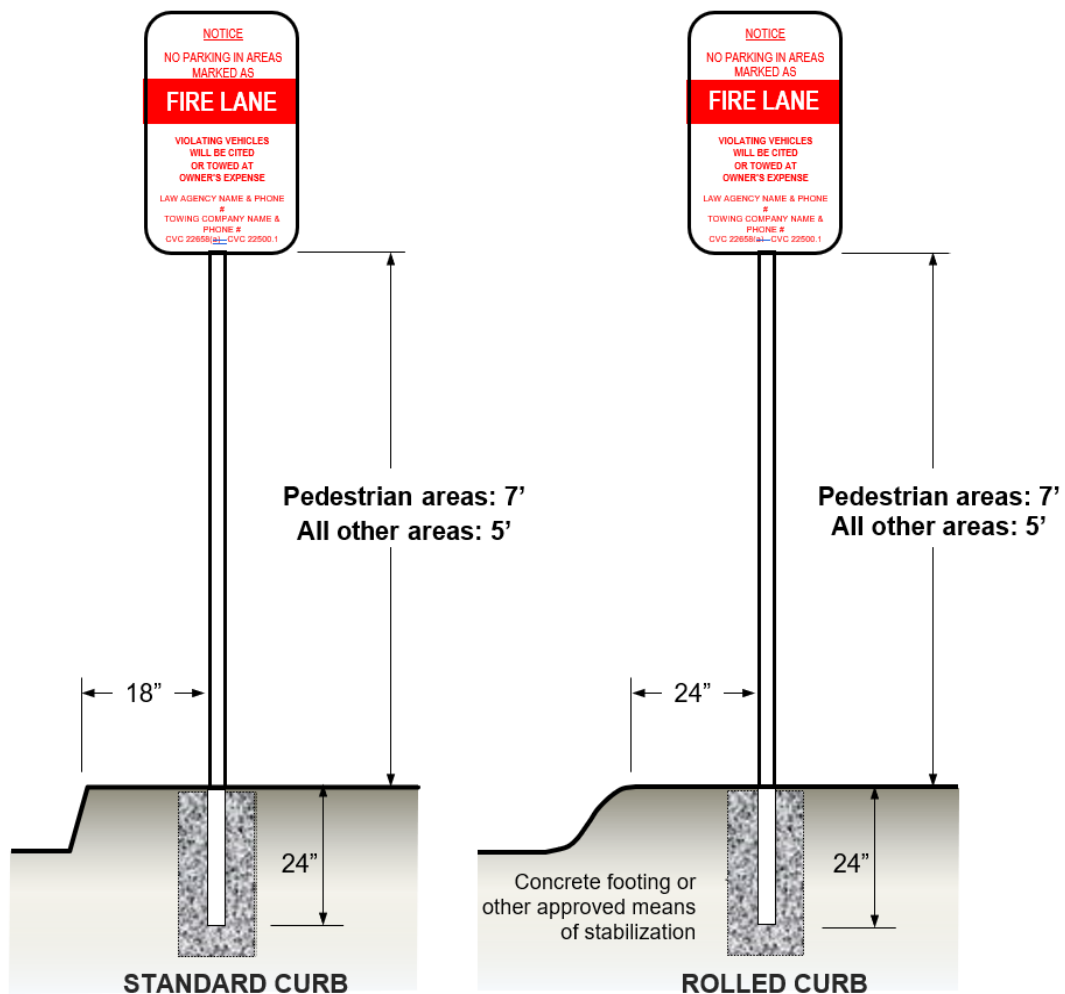


**Figure 12 – Fire Lane No Parking Sign Locations**



- 3.6. **Mounting Specifications for Fire Lane Entrance and No Parking Signs** - Signs shall be mounted facing the direction of vehicular travel. They may be mounted on existing posts or buildings where the centerline of the sign is no more than 24" from the edge of the roadway. The sign post depth of bury shall be a minimum of 24" and rebar, a concrete footing, or another method to prevent removal is recommended (Figure 13). Footings for signs located in the public right-of-way shall be per the local jurisdiction's requirements.

**Figure 13 – Mounting Specifications for Fire Lane Entrance and No Parking Signs**



## SECTION 4: PREMISES IDENTIFICATION

4. **Premises Identification** - Approved numbers or letters shall be placed on the front elevation of all new and existing buildings in such a position that is plainly visible and legible from the street or the road to which the property is addressed. Addresses shall not be located where there is potential of being obstructed by signs, awnings, vegetation, or other building/site elements. Where only a single building with a single street address is present (and no other structures are accessible from the fire lane serving that structure), an address monument at the vehicle entrance or other location clearly visible and legible from the public road may be provided in lieu of an address on the building.
  - 4.1. The numbers shall contrast with their background. In SRA and in LRA VHFHSZ, addresses for residential buildings shall be reflectorized per CCR Title 14.
  - 4.2. The address characters shall be a minimum of 4 inches in height for single-family residential structures/duplexes, or individual unit numbers in multi-family residential structures. The 4-inch numbers shall have a ½-inch stroke, or as required by local ordinance, whichever is more restrictive. Building setbacks, elevation, and landscaping can affect these minimum size requirements.
  - 4.3. The address characters shall be a minimum of 6 inches in height for commercial structures, or the primary building address or address range posted on multi-family residential structures. The 6-inch numbers shall have a one-inch stroke, or as required by local ordinance, whichever is more restrictive. Building setbacks, elevation, and landscaping can affect these minimum size requirements.
  - 4.4. Address numbers may be required to be internally or externally illuminated by the local jurisdiction's security code. While not required by the OCFA, illumination of addresses is recommended to facilitate rapid location of a site or building.
  - 4.5. Where it is unclear as to which street a building is addressed to (e.g., a building is accessed only from a street other than the one it is addressed to; multiple main entrances to the site, or building itself, front different streets), the name of the street shall also be identified as part of the posted address.
  - 4.6. **Multi-Unit Buildings** - Suite/apartment numbers shall be placed on or adjacent to the primary entrance for each suite/apartment and any other door providing access to fire department personnel during an emergency. Multiple residential and commercial units having entrance doors not visible from the street or road shall, in addition, have approved numbers grouped for all units within each structure and positioned to be plainly visible from the street or road.
  - 4.7. **Multi-Building Clusters** - Approved numbers or addresses shall be placed on the front elevation(s) of all buildings that form the cluster. If all building addresses are not clearly visible or legible from the public road serving the structures, an address monument shall also be provided at the entry point(s) to the site indicating the range of addresses accessible from that entrance.

## SECTION 5: HYDRANT AND WATER AVAILABILITY REQUIREMENTS

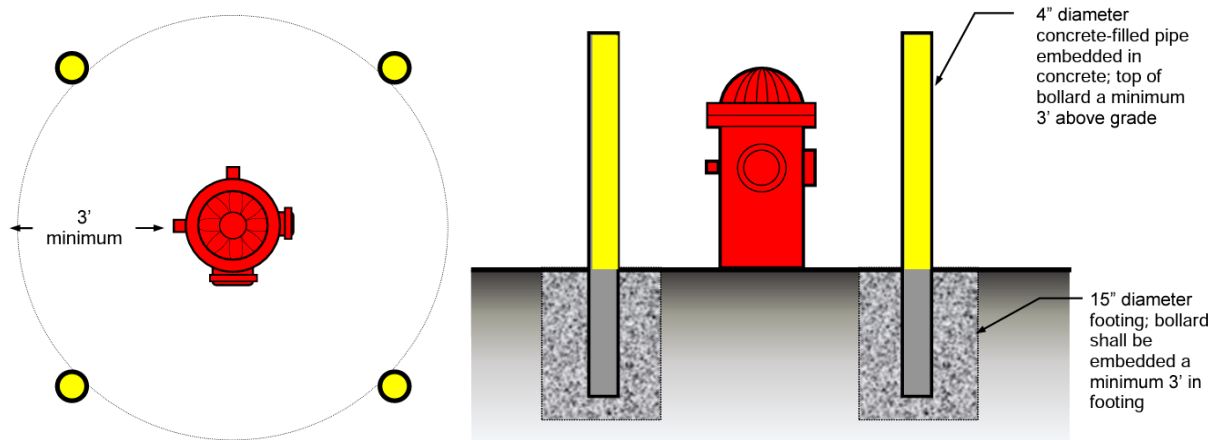
5. **Hydrant and Water Availability Requirements** - Applicants must provide documentation that hydrants are provided in the quantity and spacing described in the Hydrant Quantity and Spacing in OCFA Jurisdiction table (Attachment 3). They must also show that the hydrant is capable of delivering the amount of water required in the Minimum Required Fire Flow and Flow Duration for Buildings in OCFA Jurisdiction table (Attachment 4). The quantity and spacing of hydrants are governed by the fire flow required for the structure(s) served. The required fire flow is dependent upon the size of the structure, type of construction, and whether the building is equipped with fire sprinklers. This information must be shown clearly on the plans to assist in the determination of the fire flow requirement.
- 5.1. **Water Availability** – To facilitate the review process and avoid untimely delays in project approval, applicants are strongly encouraged to arrange a hydrant flow test with the local water department prior to submitting plans to the OCFA if the project includes a new structure or increase in the floor area of an existing structure. Water availability information may not be required to be submitted for every project, and plans may be submitted with a hydrant flow test pending, but the applicant should understand that project approval may be delayed if it is determined during review that this information is required. If the project requires evaluation of the available fire flow, it will not be approved without a completed OCFA Water Availability form or equivalent data sheets from a water district. Water availability information must not be older than six months.
- 5.1.1. Obtain a Water Availability form from OCFA Planning & Development Services Section.
- 5.1.2. Fill out the project and building information in the first section of the Water Availability form. Care should be taken when determining the applicable fire area for the project. As stated above, fire flow is dependent on several factors, so the largest building or group of structures is not necessarily the most demanding in terms of fire flow.
- 5.1.3. Determine the required fire flow from Minimum Required Fire Flow and Flow Duration for Buildings in OCFA Jurisdiction (Attachment 4), as applicable. A 50% reduction in fire flow (but not duration) may be taken when the fire-flow calculation area consists only of buildings equipped with an approved automatic fire sprinkler system. If you are unsure of how to calculate the fire flow requirement for your project, you may email or fax the form to the OCFA, and we will determine the fire flow for you.
- 5.1.4. Contact the local water company to request a hydrant flow test or fire flow modeling calculation and have a representative of the water company complete and sign the last section on the form. In some cases, the water company may allow or require a qualified third party to perform the flow test for you.
- In newly developed areas without water infrastructure, the water department may issue a “will-serve” letter indicating the expected fire flow and duration of water that will be delivered once the water system is installed and operational.

- If multiple hydrants are located within the maximum distance allowed in Hydrant Quantity and Spacing in OCFA Jurisdiction (Attachment 4). The amount of water available from each hydrant may be combined, provided that the hydrants are flowed simultaneously.
- 5.1.5. It is the applicant's responsibility to ensure that the following information is provided at a minimum on either the water company's test data sheet and/or the OCFA Water Availability form:
- Static pressure and residual pressure in PSI and observed flow in GPM; or
  - Calculated flow in GPM at 20 PSI
- 5.1.6. Scan or photocopy the completed form or data sheets onto your plans or include the original with your plan submittal.
- 5.1.7. Please ensure that the fire area, building size, construction type, and flow data are complete and accurate. Errors or omissions in this information may result in plans having to be resubmitted or fire flow testing to be redone.
- 5.2. **Fire-Flow Calculation Area** - The fire-flow calculation area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building, except as modified in the following two conditions:
- Portions of buildings which are separated by fire walls without openings, constructed in accordance with the California Building Code are allowed to be considered as separate fire-flow calculation areas.
  - The fire-flow calculation area of buildings constructed of Type IA and Type IB construction shall be the area of the three largest successive floors. *CFC Appendix B Section B104*
- 5.3. **Hydrant Location** - Hydrants shall be provided along the length of the fire access roadway in the quantities and up to the maximum distances prescribed in Hydrant Quantity and Spacing in OCFA Jurisdiction table (Attachment 3).
- 5.3.1. Hydrants must be located within three feet of the edge of a fire lane and cannot be located in areas where it may be visually or operationally obstructed (behind fences, walls, in bushes, behind parking spaces, etc.). Clearance shall be provided to a distance no less than three feet from the perimeter of the hydrant. Hydrants located in landscapes areas may require a 4'x4' concrete pad and the OCFA inspector will ensure that vegetation does not encroach on this clear space.
- 5.3.2. The hydrant outlets must face the fire lane. In areas where the outlets cannot face the fire lane (e.g., the hydrant is located on a landscape peninsula or island in a parking lot; the hydrant has three outlets, etc.), the 4" outlet(s) shall take precedence.
- 5.3.3. The hydrant shall be located at least 40-feet from the building it serves. Where it is impractical to locate the hydrant 40-feet from adjacent structures, additional hydrants may be provided, or the hydrant may be located closer if nearby walls do not contain openings and the hydrant is not in a location where it may be rendered inoperable due to damage from collapsed walls, debris, or excessive heat.



- 5.3.4. Hydrants shall be located so that a hose line running between the hydrant and the fire department connection(s) (FDCs) served by that hydrant does not cross driveways, obstruct roads or fire lanes, or otherwise interfere with emergency vehicle response and evacuation of a site.
- 5.3.5. Hydrants and fire department connections shall not be located behind parking stalls or in other locations where they are likely to be blocked by vehicles or other objects. Whenever possible, hydrants shall be placed at street and drive aisle intersections in preference to mid-block locations. Where on-street parking is allowed, hydrants should be placed in the shortest parkways between adjacent driveways, at corners and chokers where parking is not normally allowed, and in similar areas where impact to space available for parking and the potential for hydrants to be obstructed is minimized.
- 5.3.6. Hydrants and fire department connections should not be located where apparatus staged at these locations would then encroach on minimum fire apparatus turning radii unless alternative routes are available. Hydrants shall not be placed in the “bulb” end of a cul-de-sac where apparatus staged at the hydrant would prevent the cul-de-sac from being used as a turnaround.
- 5.4. **Protection of Hydrants** - Hydrants in locations that are exposed or susceptible to potential damage from vehicular collision need to be protected by curbs and/or bollards (Figure 14).

**Figure 14 - Protection of Hydrants**



*Protection of Hydrants, Detector Checks, Fire Department Connections, Post Indicator Valves, and other Similar Devices.*

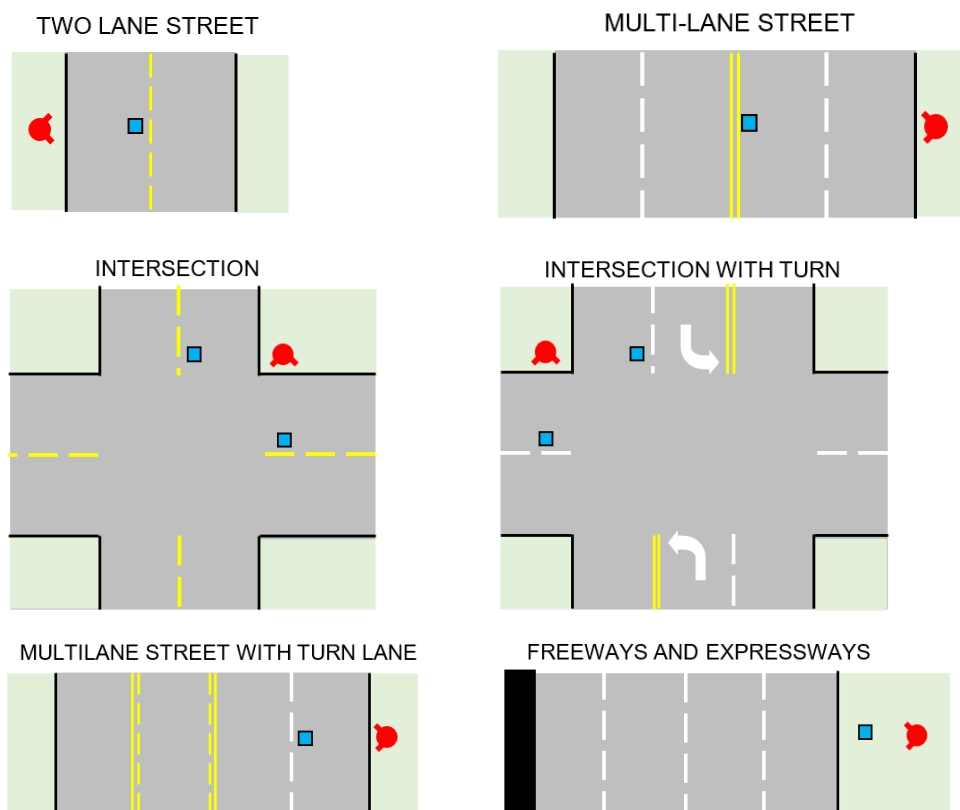
- 5.4.1. If vehicles can approach the hydrant from more than one direction, the hydrant shall be protected by four bollards of concrete-filled pipe four inches in diameter and mounted in concrete in a square around the hydrant. The bollards need to be spaced a minimum of three feet from the perimeter of the hydrant. The bollards must be placed so that their location does not impede access to or use of the hydrant. Two bollards may protect hydrants that can be approached from only one side.

- 5.4.2. Hydrants may not require protection by bollards if they are located such that the potential for collision is minimal or if they are sufficiently protected by a standard concrete curb of at least six inches in height.

## 5.5. Hydrant Markers and Color

- 5.5.1. Blue reflective pavement markers (“blue dots”) shall be used to identify fire hydrant locations (Figure 15). Blue reflective markers used for any other purpose should be removed. The developer may contact the local water company to arrange the installation of the blue dot/hydrant marker. If the water agency does not participate in the blue dot program, the developer is still responsible to install the dots in an approved manner.

**Figure 15 - “Blue Dot” Reflective Hydrant Marker Location**



- 5.5.2. Two-way streets and roads – Markers shall be placed six inches from the edge of the painted centerline or from the approximate center of streets without a painted centerline on the side nearest the hydrant.
- 5.5.3. Streets with left turn lanes at the intersection – Markers shall be placed six inches from the edge of the painted white line on the side nearest the hydrant.
- 5.5.4. Streets with continuous two-way left turn lanes – Markers shall be placed six inches from the edge of the painted yellow line on the side nearest the fire hydrant.
- 5.5.5. Hydrant Color – Private hydrants (hydrants separated from the city main by and located downstream from a backflow prevention device) shall be painted OSHA safety red.

## SECTION 6: ACCESS TO STRUCTURES

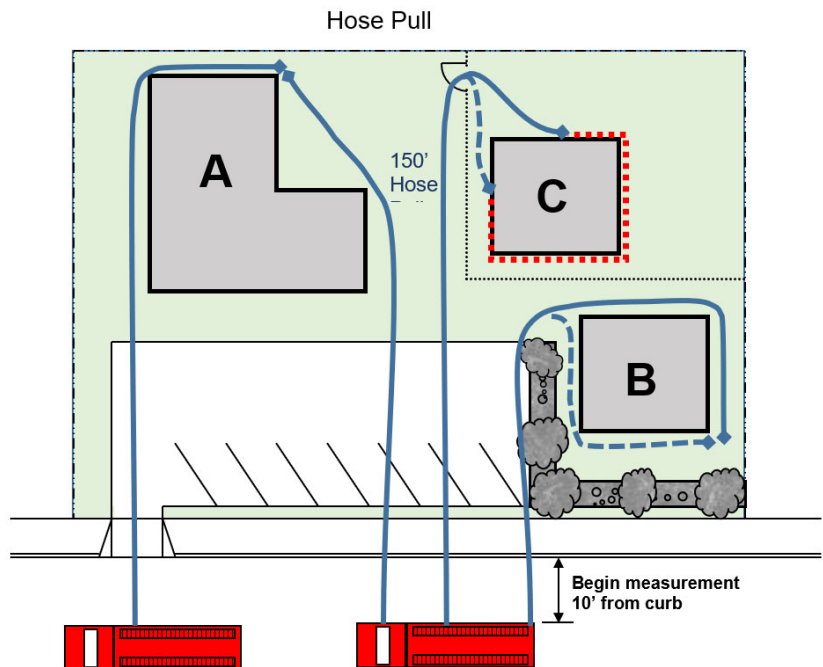
### 6. Access to Structures

- 6.1. Hose pull – The dimension of 150-feet in relation to fire department access is commonly referred to as “hose pull distance”. As the name implies, this is the maximum distance that Firefighters can effectively pull a fire hose or carry other equipment to combat a fire. The hose pull distance is set at 150 feet due to a variety of factor, including standard hose lengths, weight of equipment, hydraulic properties, and accepted operational procedures (Figure 16).

**Figure 16 – Hose Pull**

*For the hose pull example below, assume that the parking lot is not accessible to fire apparatus due to turning radii and fire lane widths less than the required minimums.*

- *Building A – All portions of the buildings are within 150 feet of the public road as measured along the path of firefighter travel. This building is in access.*
- *Building B – The building is in access despite the obstruction presented by the planter and hedges due to its proximity to the road.*
- *Building C – The building is out of access; the presence of a chain-link fence forces firefighters to backtrack once they pass through the gate, increasing their travel distance to the dashed part of the perimeter beyond 150'. On-site fire access roadways and/or a change in the location of the gate would be necessary to provide access to Building “C”.*



- 6.1.1. Hose pull is measured along a path that simulates the route a Firefighter may take to access all portions of the exterior of a structure from the nearest public road or fire lane. Under most circumstances, hose pull will not be a straight-line distance and should not be measured “as the crow flies”.
- 6.1.2. All obstructions, such as fences, planters, vegetation, and other structures must be considered when determining whether a building is accessible from a particular location on the fire lane. Topography may also affect the potential access route and any significant changes in elevation must be accounted for when measuring hose pull distances.

- 6.2. **Access walkways** – CFC 504.1 provides for the installation of approved access walkways from fire access roadways to exterior openings required by either the CBC or CFC. The OCFA may require the construction of such walkways depending upon particular site conditions or project parameters. These conditions include, but are not limited to, building use or occupancy, topography, vegetation, and surface conditions. Design professionals must carefully consider these issues when developing a project site. When required:
- 6.2.1. Access walkways must be provided to all required egress doors from a building, all firefighter access doorways in buildings with high-piled storage, and the area beneath each rescue window, at a minimum. Access walkways will typically be required around the entire perimeter of a structure to facilitate control of a fire through any other available openings.
  - 6.2.2. Access walkways must be a minimum of five feet in width.
  - 6.2.3. Access walkways shall consist of a surface that lends itself to safe use during building evacuation, firefighting, and rescue efforts.
  - 6.2.4. Where elevation change is present, indicate the grade as a percentage on the plans.
  - 6.2.5. The type of material provided for the access walkway and/or other specifications shall be indicated on the fire master plan and are subject to approval by the OCFA.
- 6.3. **Access to Interior Courtyards** - Firefighter access and water supply as described below shall be provided for interior courtyards of R-occupancy buildings and buildings of other occupancies where the main entry to a suite is accessed via the courtyard.
- 6.3.1. Number of Access Routes
    - A minimum of two means of access via “firefighter tunnels” shall be provided between each courtyard and the fire lane. A single tunnel may be allowed for smaller courtyards, as determined by the fire code official.
    - A tunnel interconnecting courtyards may suffice as a second means of access, provided that each courtyard so connected has at least one other tunnel leading directly to a fire lane.
  - 6.3.2. Design of Firefighter Tunnels
    - The outer entrance to the tunnel shall front on a fire lane.
    - Tunnels shall be a minimum 10 feet wide, and when possible, at least 10 feet tall (but no less than 8 feet).
    - Doorways and gate openings in the path of firefighter travel to, through, and from the tunnel shall provide a minimum 44-inch clear width.
    - Where the tunnel intersects with corridors or other interior spaces, doors shall be provided to separate the tunnel from those spaces in a manner that provides an uninterrupted path of travel through the tunnel, from one end to the other.
    - At least 1 tunnel shall provide a straight path of travel between the fire lane and the courtyard to ensure access by a firefighter’s 35’ ladder.

- Landscape and hardscape features such as trees, shrubs, light poles, raised planters, walls, fences, and gates near the openings to the tunnel shall not hinder or delay movement of firefighters carrying a ladder.
- Where there is an elevation change between the fire lane and courtyard, code-compliant ramps or stairs with a minimum clear width of 44" between handrails shall be provided. Only straight-run stairs shall be provided, no stair returns are allowed along the path of firefighter travel.

#### 6.3.3. Tunnel Construction

- Tunnels shall be separated from adjacent construction by minimum 2 hour fire barriers and 2 hour ceiling/floor assemblies.
- Interior door openings into the tunnel may be equipped with mag-holds, but other doorstops are not allowed.
- Wall and ceiling finishes within the tunnel shall be non-combustible. Where allowed by CBC/CFC Chapter 8, floors may be carpeted.

6.3.4. Use of Firefighter tunnels – Tunnels are permitted to be used for other purposes provided that the use does not obstruct the clear path required or otherwise interfere with use of the tunnel for emergency purposes. Combustible furnishings and fixtures within the tunnel shall be kept to a minimum, and such items shall be fixed in place. Where the tunnel is also an exit component of the egress system (e.g., exit enclosure, passageway, exit stair, horizontal exit) or functions as an egress court per CBC 1029.1, no other non-emergency use shall be allowed within the tunnel.

#### 6.3.5. Courtyard Standpipes

- At least one standpipe outlet shall be provided in the courtyard when hose-pull from fire apparatus in the fire lane to any portion of the inner façade within the courtyard exceeds 200'.
- If standpipes are required, outlet(s) shall be provided within the firefighter tunnel at the opening of the firefighter tunnel(s) into the courtyard and at other approved locations as required by the fire code official. The hose-pull to all portions of the courtyard shall be less than 150-feet as measured from the standpipe outlet.
- The system shall be designed to not send a waterflow signal.
- The standpipe may be wall mounted or standalone. If standalone, it shall be located no more than 18" from the edge of a primary walkway in the courtyard in a position where it is immediately visible and accessible to firefighters. Access to and use of standpipes shall not be hindered by planter walls, vegetation, or other features; 18" clearance shall be provided on all sides.

6.4. **Rescue Openings** - Group-R occupancies that are required by CBC 1031.1 to have rescue openings shall have a walkable path free of obstructions between the fire lane and each rescue opening.

- 6.4.1. An approved access walkway must be provided to enable firefighters to easily and safely reach a clear, flat space beneath each rescue opening. Obstructions including but not limited to shrubs, trees, trellises, carports, raised planters, walls, fences, pools, steeply sloped roofs, overhangs, vegetation, and similar building and site elements shall not impede the use of or access to the walkway or rescue opening.
- 6.4.2. Walkways may consist of hardscape, decomposed granite, grass, or other similar walkable material that does not inhibit access to or use of the area.
- 6.4.3. Trees that encroach on walkways shall provide a minimum 7-foot clearance underneath to allow unhindered passage by firefighters, however, trees and shrubs shall not encroach on areas outside the rescue opening.
- 6.5. **Laddering Pad and Setback at Rescue Openings of Group R-1, R-2, and R-2.1 Occupancies** - A clear, flat space for laddering rescue openings shall be provided beneath each rescue opening. The distance between the nearest edge of this laddering pad and the structure is based on standardized operational procedures and safe practice to achieve a proper laddering angle (next page, Figure 17). The plan provided must demonstrate that the vegetation (at fully-grown sizes), buildings, and site features will not obstruct the access walkways or laddering operations. It is incumbent upon the developer, architect, landscape architect, and facility maintenance personnel to collaborate on a design and plant palette that complies with these requirements through the *life of the building*.

6.5.1. Proper laddering angle calculation:  $d = (h/5) + 2$

Where **h** = The height of the window sill or balcony railing

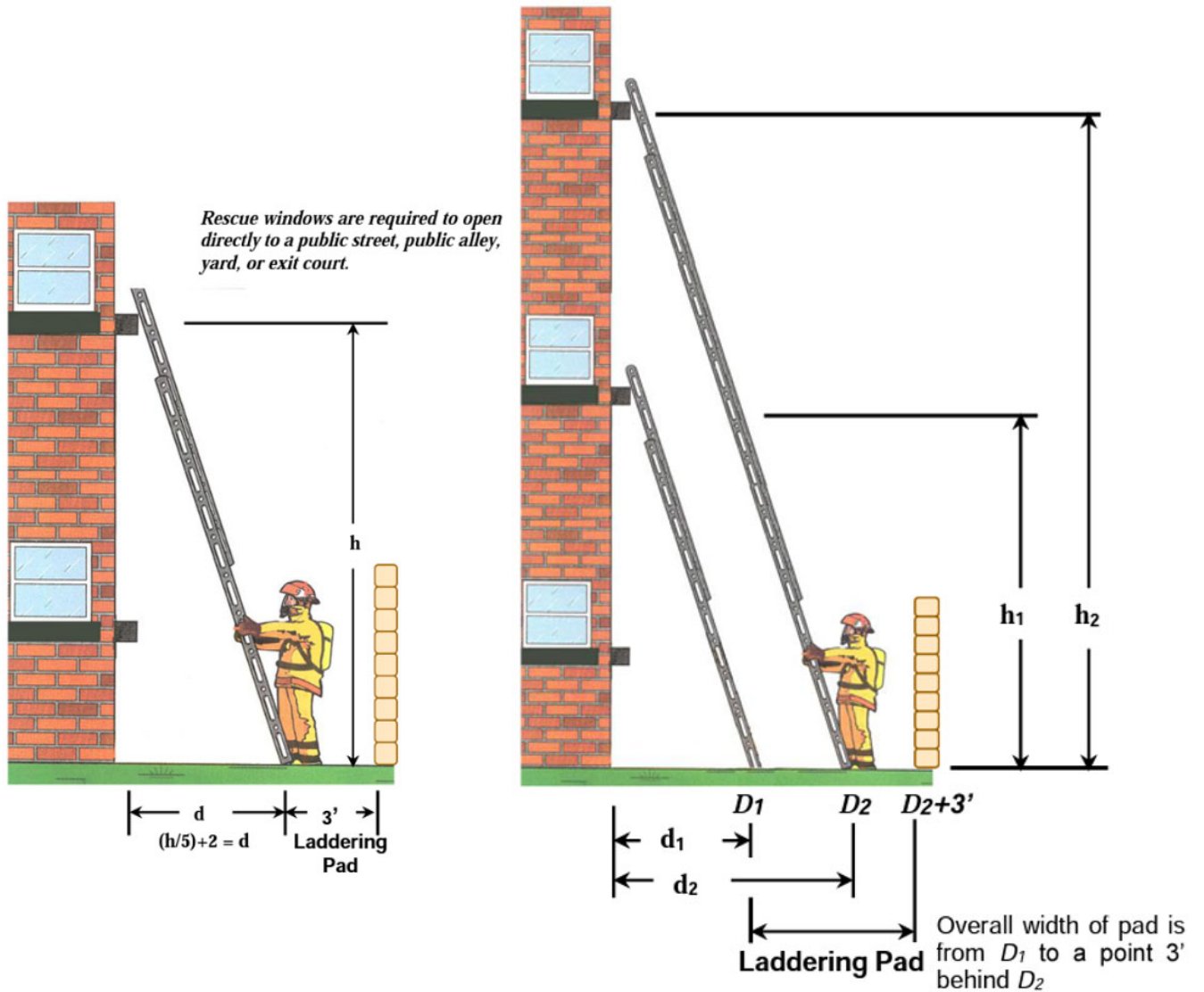
**d** = The distance in feet from the edge of the pad nearest the building to a point on the ground directly beneath the rescue window sill or balcony edge.

6.5.2. Dimensions for placement of ladders:

**Placement of Ladders**

Sill Height (h)	Distance (d)	Sill Height (h)	Distance (d)	Sill Height (h)	Distance (d)
35'	9'-0"	25'	7'-0"	15'	5'-0"
34'	8'-10"	24'	6'-10"	14'	4' to 5'
33'	8'-7"	23'	6'-7"	13'	4' to 5'
32'	8'-5"	22'	6'-5"	12'	3' to 5'
31'	8'-2"	21'	6'-2"	11'	3' to 4'
30'	8'-0"	20'	6'-0"	10'	2' to 4'
29'	7'-10"	19'	5'-10"	9'	2' to 4'
28'	7'-7"	18'	5'-7"	8'	2' to 3'
27'	7'-5"	17'	5'-5"	7'	1' to 3'
26'	7'-2"	16'	5'-2"	<7'	1' to 2'

**Figure 17 - Ladder Pad Setback at Rescue Openings**



# ATTACHMENTS

## **Attachment 1 - Fire Master Plan Submittal Checklist**

### **PROJECT INFORMATION**

- Scope of project is clearly defined on the plan?  Yes
- Conditional Use Permit conditions included with submittal?  Yes  N/A (CUP was not required by city/county)
- Tract/Tentative Tract/Parcel Map Number has been provided?  Yes
- Standard OCFA fire master plan notes are included?  Yes (Notes are tailored to this project, where applicable)
- Building area, construction, occupancy, sprinkler type noted on plan?  Yes
- Allowable area calculation provided on plan?  Yes  No (<6,000 sf unsprinklered; <18,000 w/ sprink.)
- Sheets not relevant to fire master plan removed from plan set?  Yes
- Access/hydrant phasing plan provided?  Yes  N/A (No phasing of access/hydrant installation)

### **WATER AND HYDRANTS**

- Water availability form completed and provided?  Yes  No (in progress)  No (no change in demand)
- All hydrants within 350' of the site are shown on plan?  Yes
- Are hydrants provided/spaced per Guideline B-01, Attachment 3?  Yes

### **ACCESS AND ROADWAYS**

- Extent of the access roadway is clearly shown on the plan?  Yes
- Turning radii and width (incl. road sections) shown on the plan?  Yes
- Exterior of all structures within 150' hose pull distance?  Yes  No (AM&M proposed)  No (sprinklered R-3)
- Engineer's certification provided for new paving?  Yes  N/A (No new paving)
- Walkable surface provided to required openings?  Yes
- Road and walkway grades >10% shown on plan?  Yes  N/A (Grade <10%)

### **FIRE LANE IDENTIFICATION**

- Red curbs are identified on plan with bold, dashed, or red lines?  Yes  N/A ("Fire Lane—No Parking" signs provided)
- Location of each "Fire Lane—No Parking" sign shown?  Yes  N/A (Red curbs provided)
- Fire lane entrance sign provided at each vehicle entrance?  Yes  N/A (All roads at least 36 feet wide)
- Drawings of red curbs/"No Parking"/entrance signs provided?  Yes  N/A (All roads at least 36 feet wide)

### **GATES AND OBSTRUCTIONS**

- Are all gates, fences, and planters shown?  Yes
- Are vehicle gates identified as manual or electric?  Yes  N/A (No gates proposed)
- Gate operator specs showing emergency operation provided?  Yes  N/A (No electric gates proposed)
- Manual vehicle gates have "No Parking" sign noted?  Yes  N/A (No manual gates proposed)
- Knox boxes/locks/switches are noted on plans?  Yes  N/A (No gates proposed)
- OCFA gate notes/specifications included on plan?  Yes  N/A (No gates proposed)

### **OTHER REQUIREMENTS**

- AM&M request letter scanned onto plan?  Yes  N/A (No alternate methods proposed)
- Premises ID/address monument location shown on plan?  Yes  N/A (Single family homes)
- Trash enclosures are located at least 5' from buildings?  Yes  No (Enclosures are existing or sprinklered)
- Two entry points provided for 150 or more residences?  Yes  N/A (Non-residential project)
- Buildings >75' to highest occupiable floor called out?  Yes  N/A (No high-rise structures)
- Parking enforcement letter provided?  Yes  N/A (Public streets only)
- Project located in methane zone(s) (portions of Yorba Linda, Buena Park, Seal Beach, San Clemente, and Unincorporated Orange County)?  Yes  No

**NOTE:** This is only a listing of basic fire master plan submittal requirements. Other information or requirements may be necessary, depending on conditions specific to each project.



## ***Attachment 2 – CVC, Fire Lane Parking Violations***

The California Fire Code (CFC) and California Vehicle Code (CVC) specify rules of the road for stopping, standing, and parking in fire lanes or near fire hydrants.

- A. Section 22500.1 states that no person shall stop, park, or leave standing any vehicle whether attended or unattended, in any location designated as a fire lane by the Fire Authority except when necessary to avoid conflict with other traffic or in compliance with the direction of a peace officer or official traffic control device. Vehicles illegally parked in a fire lane may be towed per CVC 22953(b).
- B. There shall be no parking of any vehicles other than fire department vehicles within 15 feet of either side of a fire hydrant in accordance with CVC 22514(c). Such vehicles may be towed per CVC 22651(e).
- C. CVC 22658(a) permits the owner or person in lawful possession of any private property, subsequent to notifying local law enforcement, to cause the removal of a vehicle parked on such property to the nearest public garage, if a sign is displayed in plain view at all entrances to the property specifying:
  - 1. The ordinance prohibiting public parking, a notation indicating that vehicles will be removed at the owner's expense, and the telephone number of the local traffic law enforcement agency, or;
  - 2. The lot or parcel upon which the vehicle is parked has a single-family dwelling.
- D. CFC 503.4 states that the required width of a fire apparatus access road shall not be obstructed in any manner, including parking of vehicles. Minimum required widths and clearances shall be maintained at all times.
- E. CFC 507.5.4 states that vehicles and other obstructions shall not be placed or kept near fire hydrants, fire department inlet connections or fire-protection system control valves in a manner that would prevent such equipment or fire hydrants from being immediately discernible. The fire department shall not be deterred or hindered from gaining immediate access to fire-protection equipment or hydrants.

**Attachment 3 – Hydrant Quantity and Spacing in OCFA Jurisdiction**

**SINGLE FAMILY RESIDENCES/DUPLEXES/TOWNHOUSES with SPRINKLERS**

Flow Requirement	Minimum Number of Hydrants	Maximum Distance to a Hydrant		Maximum Distance between Hydrants <sup>1</sup>		Average Distance between Hydrants <sup>1</sup>	
		Thru road	Dead-end	Thru road	Dead-end	Thru road	Dead-end
500 - 1750	1	300	250	600	500	600	500
1751+	Use the table below						

**ALL OTHER STRUCTURES**

Flow Requirement	Minimum Number of Hydrants	Maximum Distance to a Hydrant		Maximum Distance between Hydrants <sup>1,2</sup>		Average Distance between Hydrants <sup>1,2</sup>	
		Thru road	Dead-end	Thru road	Dead-end	Thru road	Dead-end
1000 - 1750	1	250	200	500	400	500	400
1751 - 2250	2	225	175	450	350	450	350
2251 - 2500	3	225	175	450	350	450	350
2501 - 3000	3	225	175	450	350	400	300
3001 - 4000	4	210	160	420	320	350	250
4001 - 5000	5	180	130	360	260	300	200
5001 - 5500	6	180	130	360	260	300	200
5501 - 6000	6	150	100	300	200	250	150
6001 - 7000	7	150	100	300	200	250	150
7001+	1 per 1000 gpm or fraction thereof	120	70	240	140	200	100

All distances are in feet.

<sup>1</sup> Where streets are provided with median dividers which cannot be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis.

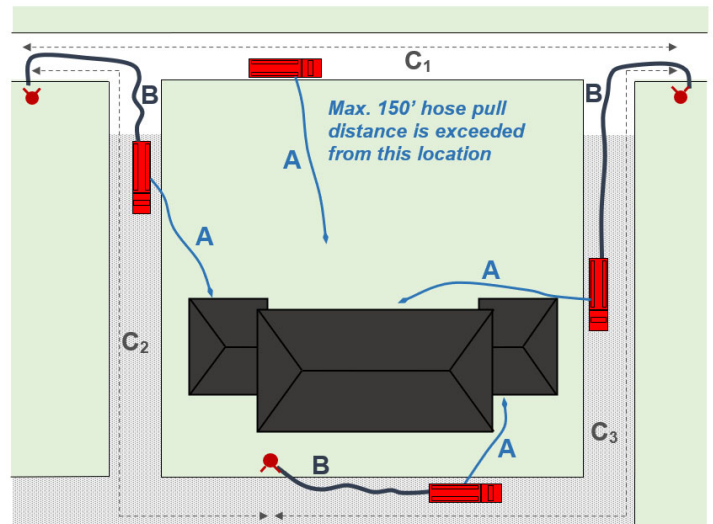
<sup>2</sup> Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

**A: HOSE PULL** – In the diagram, firefighters would be able to reach the entire perimeter of the building by pulling no more than 150’ of hose from one or more fire engines staged in the shaded portion of the fire lane; the unshaded roadway has a hose pull distance greater than 150’ and would be considered “out of access” relative to this building.

**B: HOSE LAY** – No point along the portion of the fire lane serving the structure (the shaded road) may be farther from a hydrant than the distance specified in the table above. The hydrant may be located along portions of the fire lane that exceed the hose pull distance (unshaded roadway) provided that it is:

1. On the same property,
2. On an adjacent property where an emergency access easement has been obtained, or
3. On a public road leading to the fire lane serving the property.

**C: HYDRANT SPACING** – Hydrants located on portions of the fire lane that do not serve the building (unshaded road) do not need to be evaluated for spacing relative to each other, only with respect to hydrants that do serve the structure. Example: C1 may exceed hydrant spacing requires. However, C2 and C3 cannot. “Average spacing” from the table above shall be maintained to prevent multiple hydrants from being concentrated in only one portion of the fire lane.



**Attachment 4 – Minimum Required Fire Flow and Flow Duration**

FIRE FLOW CALCULATION AREA (square feet)					DETACHED SINGLE-FAMILY RESIDENCE/DUPLEX		OTHER BUILDINGS			
					FIRE FLOW (gallons per minute at 20 psi residual)		DURATION (hours)	FIRE FLOW (gallons per minute at 20 psi residual)		DURATION (hours)
Type IA/IB	Type IIA/IIIA	Type IV/VA	Type IIB/IIIB	Type VB	NS	S		NS	S	
0-22700	0-12700	0-8200	0-5900	0-3600	1000	500	1	1500	1500	2
22701-30200	12701-17000	8201-10900	5901-7900	3601-4800	1750	875	NS: 2 S: 1	1750	1500	
30201-38700	17001-21800	10901-12900	7901-9800	4801-6200	2000	1000		2000	1500	
38701-48300	21801-24200	12901-17400	9801-12600	6201-7700	2250	1125		2250	1500	
48301-59000	24201-33200	17401-21300	12601-15400	7701-9400	2500	1250		2500	1500	
59001-70900	33201-39700	21301-25500	15401-18400	9401-11300	2750	1375	NS: 3 S: 1	2750	1500	3
70901-83700	39701-47100	25501-30100	18401-21800	11301-13400	3000	1500		3000	1500	
83701-97700	47101-54900	30101-35200	21801-25900	13401-15600	3250	1625		3250	1625	
97701-112700	54901-63400	35201-40600	25901-29300	15601-18000	3500	1750	NS: 4 S: 1	3500	1750	4
112701-128700	63401-72400	40601-46400	29301-33500	18001-20600	3750	1875		3750	1875	
128701-145900	72401-82100	46401-52500	33501-37900	20601-23300	4000	2000		4000	2000	
145901-164200	82101-92400	52501-59100	37901-42700	23301-26300	4250	2125		4250	2125	
164201-183400	92401-103100	59101-66000	42701-47700	26301-29300	4500	2250		4500	2250	
183401-203700	103101-114600	66001-73300	47701-53000	29301-32600	4750	2375		4750	2375	
203701-225200	114601-126700	73301-81100	53001-58600	32601-36000	5000	2500		5000	2500	
225201-247700	126701-139400	81101-89200	58601-65400	36001-39600	5250	2625		5250	2625	
247701-271200	139401-152600	89201-97700	65401-70600	39601-43400	5500	2750		5500	2750	
271201-295900	152601-166500	97701-106500	70601-77000	43401-47400	5750	2875		5750	2875	
295901+	166501+	106501-115800	77001-83700	47401-51500	6000	3000		6000	3000	
		115801-125500	83701-90600	51501-55700	6250	3125		6250	3125	
		125501-135500	90601-97900	55701-60200	6500	3250		6500	3250	
		135501-145800	97901-106800	60201-64800	6750	3375	6750	3375		
		145801-156700	106801-113200	64801-69600	7000	3500	7000	3500		
		156701-167900	113201-121300	69601-74600	7250	3625	7250	3625		
		167901-179400	121301-129600	74601-79800	7500	3750	7500	3750		
		179401-191400	129601-138300	79801-85100	7750	3875	7750	3875		
		191401+	138301+	85101+	8000	4000	8000	4000		

**NS:** The building is not protected throughout with an approved fire sprinkler system

**S:** The building is protected throughout with an approved fire sprinkler system.

**Construction Types:** Types of construction are based on the California Building Code

## **Attachment 5 – Definitions**

**Access Walkways** - An approved walking surface leading from fire access roadways to exterior doors, the area beneath rescue windows, and other required openings in structures.

**Bollards** - Permanent or removable poles that are placed across a roadway for the purpose of restricting vehicular access or to protect a piece of equipment from potential vehicular damage.

**Breakaway Lock** - A lock that features a scored shackle that will break when struck by a hammer or other substantial object.

**Fire Lane** – A road or other passageway developed to allow the passage of fire apparatus which may or may not be intended for vehicular traffic other than fire apparatus.

**Fire Lane Identification** - Signs or curb markings that allow fire apparatus access roads to be readily recognized so that they will always remain unobstructed and available for emergency use.

**Gate** – A movable barrier, usually on hinges or wheels, located at an opening in a fence, wall, or other enclosure, that can be opened to allow the passage of pedestrians or vehicles, and closed to restrict passage.

**Hose Pull** - The distance between the fire engine and a building, represented by the amount of fire hose that firefighters must pull from the engine to reach the structure and conduct fire suppression operations. Hose pull is measured along the firefighter's path of travel from the fire lane to the building, accounting for any obstructions along that path.

**Hose Lay** - The distance between the fire engine and a hydrant, represented by the amount of hose laid out from the engine to supply water from the hydrant to the engine. Hose lay is measured along the engine's path of travel on a fire lane.

**Hydrant Spacing** – The distance between two hydrants that could supply water to fire apparatus engaged in firefighting operations. Hydrant spacing is measured along the fire lane.

**Local Responsibility Area (LRA)** - Land where a city/county has primary financial responsibility for the prevention and suppression of wildland fires. LRA land is generally located within city boundaries. *(Refer to CCR Title 14)*

**Premises Identification** – A method of recognizing and visual means (e.g., address numbers) used to readily identify a property or facility street address. It may also be used to distinguish separate buildings within a single facility or property.

**Rescue Openings** – An operable window, door, or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

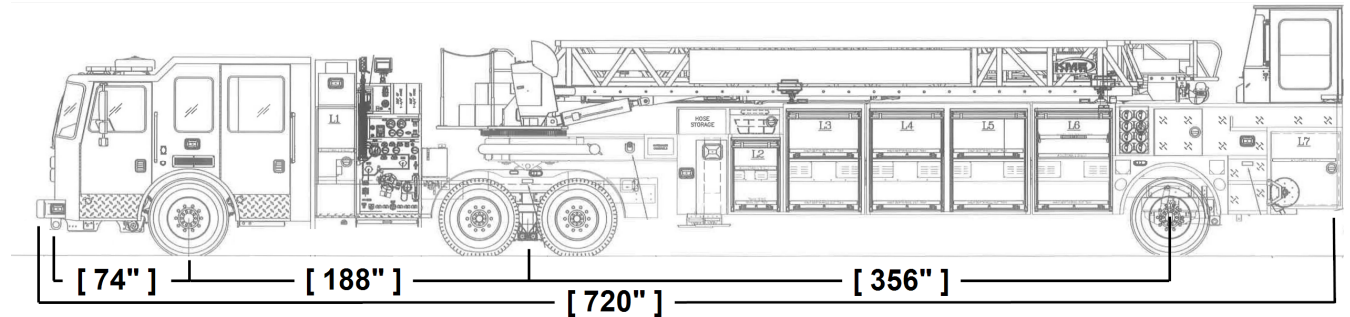
**State Responsibility Area (SRA)** - Land where the State of California has primary financial responsibility for the prevention and suppression of wildland fires. All SRA land is located within County unincorporated areas; SRA does not include lands within city boundaries or in federal ownership. *(Refer to CCR Title 14)*

**Very High Fire Hazard Severity Zone (VHFHSZ)** - A designated area in which the type and condition of vegetation, topography, fire history, and other relevant factors increase the possibility of uncontrollable wildland fire. Structures within a VHFHSZ require special construction features to protect against wildfire hazards; please consult with the local building department. *(Refer to CCR Title 14)*

**Wildfire Risk Area** - Land that is covered with vegetation, which is so situated or is of such an inaccessible location that a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire, or such areas designated by the fire code official.

### **Attachment 6 - Apparatus Data for Swept Path Analysis**

Use the following inputs for analyzing the swept path of a “typical” OCFA fire truck. To improve maneuverability for *all* OCFA apparatus, increase the speed of apparatus navigation through tight turns, and reduce the potential for property damage and resulting delays to emergency response, projections such as light poles, sign posts, mailboxes, planter walls, and vegetation shall not be placed near the edge of the fire lane where they can obstruct or be struck by portions of the vehicle that may overhang the curb.



<b>Weight</b>	<b>94,000 lbs</b>
<b>Width (Cab)</b>	<b>8.50 feet</b>
<b>Width (Outrigger)</b>	<b>15.00 feet</b>
<b>Height Clearance</b>	<b>13.50 feet</b>

## APPENDIX A - ACCESS DURING CONSTRUCTION

### HOW TO USE THIS APPENDIX

This appendix contains information related to access during construction. In addition to the generic information listed in Guideline B-01, the information in this appendix must be provided with your plan for projects where access or water supply may impact emergency response during construction. **Note: This information may not stand alone and must be used in conjunction Guideline B-01.**

**A1. Access During Construction** - Access and water supply during construction shall comply with CFC Chapter 33 and the provisions listed in this section. Construction activities at job sites that do not comply with these requirements may be suspended at the discretion of the fire code official until a reasonable level of compliance is achieved.

*At no time shall construction projects impair/obstruct existing fire lanes or access to the operation of an existing fire hydrant(s) serving other structures.*

The developer shall provide alternative access routes, fire lanes, and other mitigation features when existing roadways or hydrants may need to be moved or altered during construction to ensure adequate fire and life-safety protection. Such alternatives and features shall be submitted to the OCFA for review and approval prior to alteration of existing conditions.

**A1.1. Lumber Drop Inspection** - An inspection shall be scheduled with an OCFA inspector to verify that access roadways, fire lanes, and operable hydrants have been provided for buildings under construction and prior to bringing combustible building materials on site.

A1.1.1. The street address of the site shall be posted at each entrance. Projects on streets without names or street signs posted at the time of construction shall include the project name, tract number, or lot number for identification.

A1.1.2. Gates through construction fencing shall be equipped with a Knox padlock or breakaway lock/chain.

A1.1.3. When required by the OCFA inspector, fire lanes shall be posted with "Fire Lane – No Parking" signs or 'No Parking Areas' will be identified to maintain obstruction free areas during construction.

A1.1.4. Provisions shall be made to ensure that hydrants are not blocked by vehicles or obstructed by construction material or debris. A three-foot clear space shall be provided around the perimeter of the hydrant and no parking or similar obstructions shall be allowed along the adjacent road within 15 feet of the hydrant. Inoperable hydrants shall be bagged.

**A1.2. Temporary Fire Access Roads** - Temporary access roads (construction roads that do not match the final location and configuration of permanent roads as approved on a Fire Master Plan) and temporary hydrants may be permitted for single family residential model construction or a single detached custom home less than 5500 square feet in area with the conditions listed below. They may be allowed on a case-

by-case basis for other structures with additional requirements, as determined by the fire code official.

- A1.2.1. Plans for temporary access shall be submitted to the OCFA Planning and Development Services Section. Plans will show proposed temporary roadway locations, location of models, space dedicated to storage of construction materials, and parking for work crews and construction vehicles. The plans shall clearly state that they have been submitted for temporary access and hydrants.
- A1.2.2. Plans shall be stamped and signed by a licensed civil engineer stating that the temporary access road can support 94,000 pounds of vehicle weight in all-weather conditions. Plans will also provide manufacturer's documentation that demonstrates suitability of the material, specifically as a road stabilizer.
- A1.2.3. Parking plans will include details on how the construction site will enforce fire lanes and no parking zones.
- A1.2.4. Aboveground invasion lines are acceptable for water supply.
- Drawings show detail how the line will be secured in place (e.g., size, depth, and interval of rebar tie-downs) and protected from vehicular damage (e.g., K-rails or bollards).
  - An invasion line may be run underground if the depth of bury can support the 94,000-pound weight of a fire apparatus.
  - The temporary water line must provide the required fire flow; calculations may be required.
  - The pipe shall be listed for fire service.
  - Fire hydrants shall consist of a minimum 6" barrel with one 2-1/2" outlet and a 4" outlet. Note this on the plan.
- A1.2.5. All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers, etc.).
- A1.2.6. The approved plan for temporary access and water supply shall be available at the construction site prior to bringing combustible building materials on-site.
- A1.2.7. An inspection by OCFA personnel is required to verify adherence to the approved plan prior to bringing combustible materials on-site.
- A1.3. **Phased Access** - Incremental installation of permanent access roadways as shown on a fire master plan may be permissible for commercial and residential developments. If phased installation is anticipated, the site superintendent or designee shall review the installation process with an OCFA inspector during the lumber drop inspection or pre-construction meeting. Depending on the complexity of the installation, size of the project, and other project-specific factors, the inspector may allow phased installation to proceed immediately or may first require that all or some of the following items are satisfied:
- The extent of building construction.
  - Location of operable hydrants serving all buildings under construction.

- The location of construction fencing, barriers, and vehicle access gates.
  - The location of all temporary or permanent “fire lane—no parking” signs.
  - Equipment/materiel staging locations.
  - Worker parking areas.
- A1.3.1. Phasing plans shall be stamped and signed by a licensed civil engineer stating that the access road can support 94,000 pounds of vehicle weight in all-weather conditions. The final road section less the final lift of asphalt topping may be acceptable if certified by the engineer.
- A1.3.2. The phasing plan shall identify any anticipated areas where fire department access roadways may be temporarily inaccessible due to trenching, slurry coating, striping, or other construction activities after they have been installed and inspected. The plan shall indicate the anticipated period of impairment and include provisions for providing plating over trenches and alternative access routes, notification to the fire department, and/or other forms of mitigation when such roadways are impaired.
- A1.3.3. Provide a parking plan for the construction site detailing how the fire lane no parking regulations will be enforced. Include a clause stating that “the job-site superintendent is responsible for informing the work crews of parking requirements and that the entire job-site is subject to shut down by the OCFA inspector if parking is in violation of fire lane posting.”
- A1.3.4. The approved phasing plan shall be available at the construction site prior to bringing combustible building materials on-site. A lumber drop inspection by an OCFA inspector will be required prior to the commencement of each phase; additional inspection fees will be due for each phase.
- A1.3.5. All other access and water requirements shall apply (e.g., width, approach clearance, premises identification, locks, gates, barriers, etc.).



## APPENDIX B – GATES AND BARRIERS

### HOW TO USE THIS APPENDIX

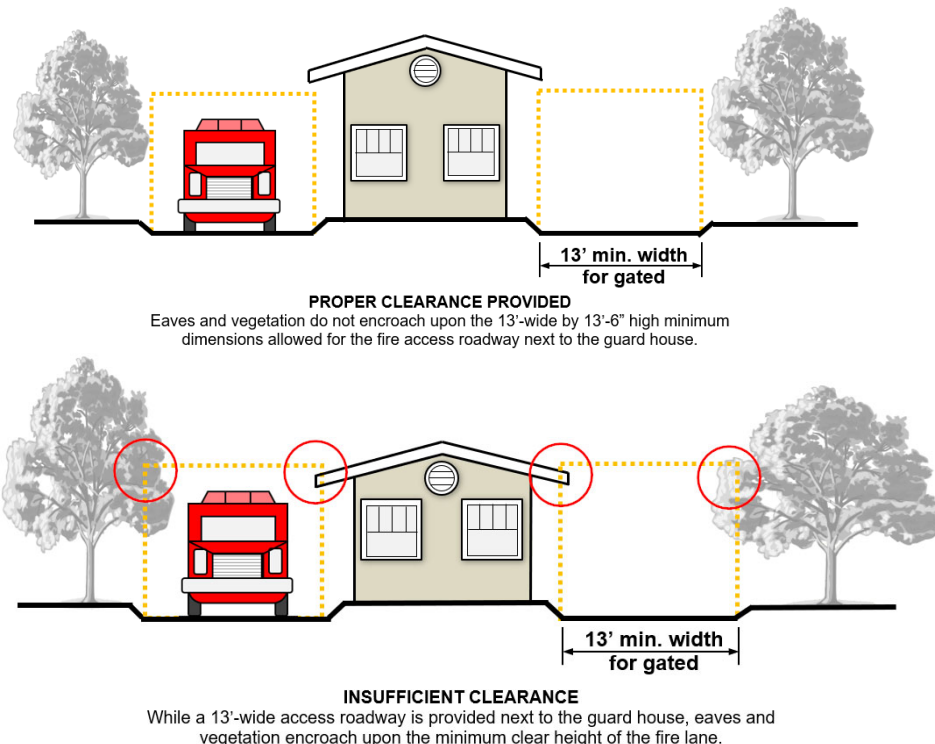
This appendix contains information related to gates and barriers shown on the Fire Master Plan. In addition to the generic information listed in Guideline B-01, the information in this appendix must be provided with your plan if your plan incorporates gates and barriers. **Note: This information may not stand alone and must be used in conjunction Guideline B-01.**

**B1. Obstructions to Emergency Vehicle Access** - Existing or proposed gates and barriers crossing fire lanes must be shown on the plans. Information such as the location, type of gate (e.g., swinging, sliding), dimensions, and method of operation (manual, electric) must also be provided. Note or identify the following on the fire master plan:

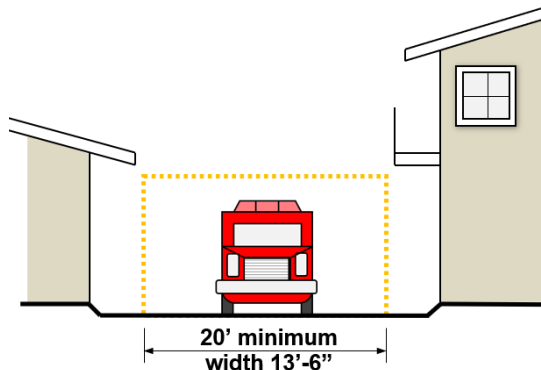
**B1.1. Clear Width** – Gated openings for vehicle egress and ingress of vehicles shall have at least 13-feet of clear width when serving a single 13-foot-wide fire lane designed for traffic travelling in one direction and 20-feet clear for a 20-foot-wide fire lane serving traffic travelling in two directions. The vertical clearance shall not be less than 13-feet 6-inches, including landscaping and/or foliage (Figure B1 and next page, Figure B2). In SRA and LRA VHFHSZ, gate openings shall be at least two feet wider than the roadway and a minimum of 14' wide in accordance with CCR Title 14.

**FIGURE B1- Fire Apparatus Access Roadway Clearance for Typical Gated Community Guard House**

*Fire lane width reductions detailed below are applicable only to the area immediately adjacent to the guard house or gate. Roads leading up to and beyond the guard house or gate shall meet standard fire lane width requirements prescribed in Section 2.5 of this guideline.*

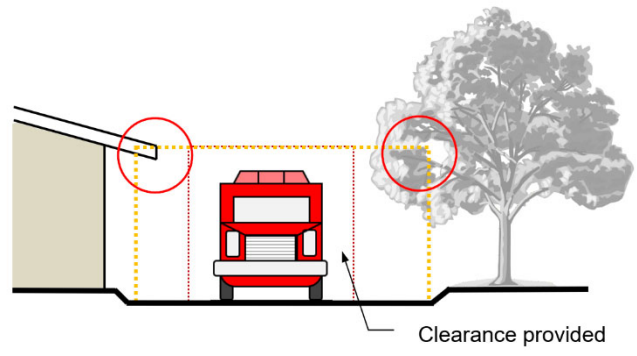


**Figure B2– Fire Apparatus Access Roadway Clearance**



**PROPER CLEARANCE PROVIDED**

Eaves, balconies, and other obstructions do not encroach upon the 20' wide by 13'-6" high fire access roadway envelope. As projections over the fire lane can interfere with firefighting and rescue operations, such obstructions shall be limited.



**INSUFFICIENT CLEARANCE**

A 20'-wide roadway has been provided, but eaves and vegetation effectively reduce the clear dimensions below required minimums.

**B1.2. Turning Radii** – The inside turning radius shall be at least 20-feet with an outside radius of 40-feet or greater for both the exterior and the interior approach to the gate.

**B1.3. Setbacks from the Street** – Gates and barriers shall be located a minimum of 60-feet from any street with average daily trip (ADT) greater than 30,000 (Figure B3). A private driveway serving only one single-family residence is exempt from this requirement. In SRA and in LRA VHFHSZ, all setbacks shall be a minimum of 30 feet per CCR Title 14.

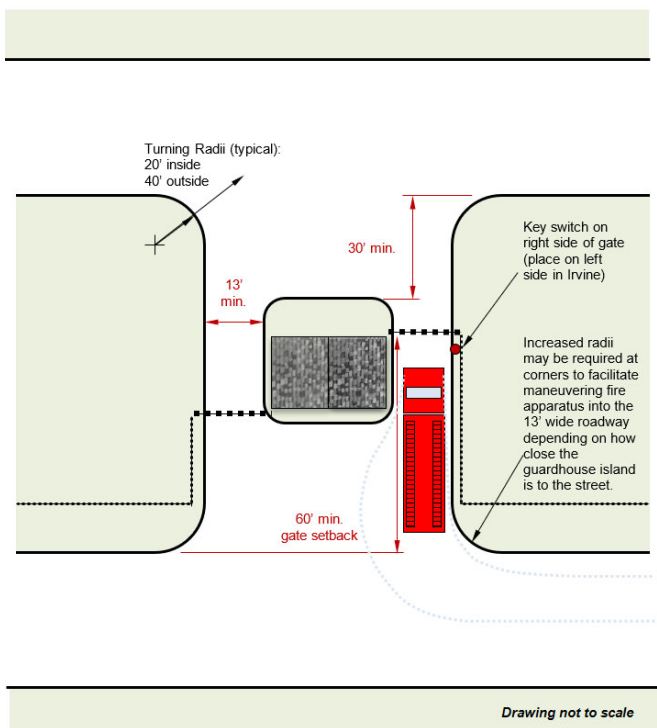
**B1.4. Setbacks from First Interior Turn** – A 30-foot minimum setback is required from a gate to the first turn.

**B1.5. Manually Operated Gate Design** – Typical gate designs may include sliding gates, swinging gates, or a chain traversing the opening.

**B1.5.1.** Permanent or removable bollards are not permitted to be placed across fire lanes.

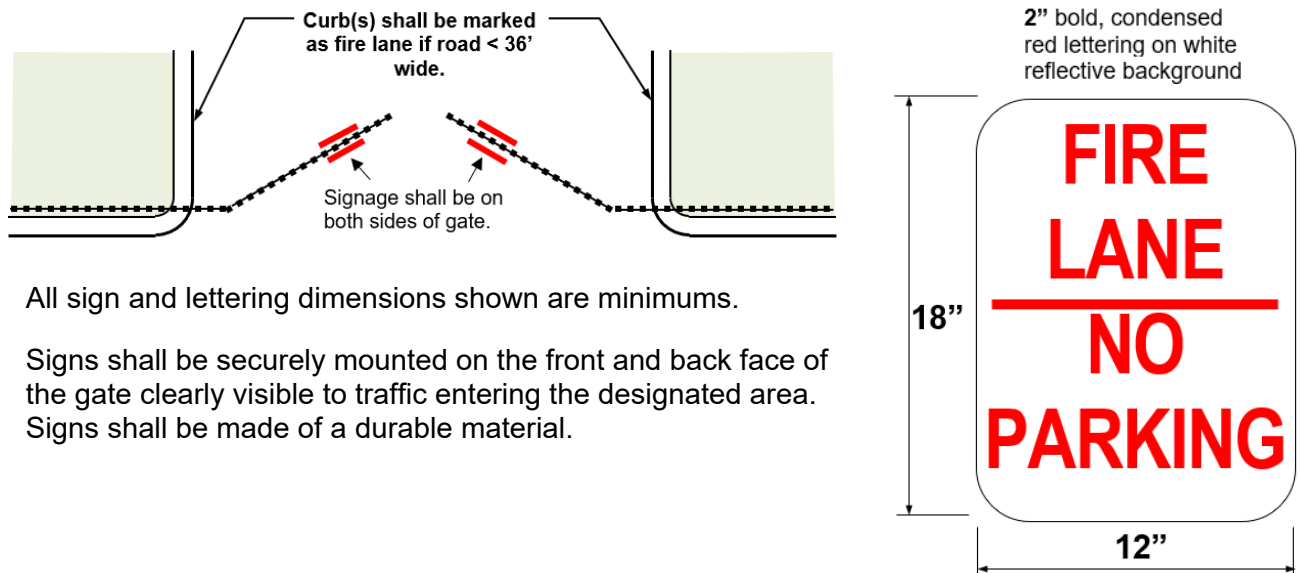
**B1.5.2.** Permanent signage constructed of 18-gauge steel or equivalent shall be attached on each face of the gate that reads “NO PARKING – FIRE LANE” or similar (next page, Figure B4).

**Figure B3 – Minimum Gate Setbacks**



*Drawing not to scale*

**Figure B4– Fire Lane No Parking Signs for Manually Operated Gates and Barriers**



All sign and lettering dimensions shown are minimums.

Signs shall be securely mounted on the front and back face of the gate clearly visible to traffic entering the designated area. Signs shall be made of a durable material.

B1.5.4. Where the gate will be used for purposes other than emergency vehicle access, installation of a Knox box containing a key to operate an owner-supplied padlock is recommended. If the gate can be reached by emergency personnel from both sides (such as for a secondary emergency access roadway serving a residential tract), the lock shall also be capable of being accessed from both sides. Knox boxes shall be provided as necessary to ensure that the lock can be accessed and opened from any direction of approach available to emergency personnel.

**B1.6. Electrically Operated Gates and Barriers CFC 503.6**

B1.6.1. In the event of loss of normal power to the gate operating mechanism, it shall be automatically transferred to a fail-safe mode allowing the gate to be pushed open by a single Firefighter *without any other actions, knowledge, or manipulation of the operating mechanism being necessary and without the use of battery back-up power, except as noted below.* The manufacturer’s specification sheet demonstrating compliance with this method of operation during power loss shall be provided or scanned directly onto the plan. Should the gate be too large or heavy for a single firefighter to open manually, a secondary source of reliable power by means of emergency generator or a capacitor with enough reserve to automatically, immediately, and completely open the gate upon loss of primary power shall be provided for fail-open operation. A capacitor, *but not a battery*, may also be used for fail-open operation where the gate operating mechanism does not have a fail-safe mode.

B1.6.1.1. A battery may only be used in place of fail-safe manual operation when the gate operator has a fail-open mode that will automatically, immediately, and completely open the gate and keep it open upon reaching a low power threshold, regardless of the presence of normal power.

B1.6.2. For electrically operated gates, the type of remote gate opening device that will be installed shall be noted on the plan. The remote opening device is required in

addition to the Knox key switch. A gate serving an individual single-family residence or duplex is exempt from this requirement. Please see below for the currently approved gate opening systems:

- 3M Opticom
- Click2Enter (system shall be configured in single-pulse mode with 1.5 second transmission window)
- Fire Strobe Access Products, Inc.
- Tomar

B1.6.3. Upon activation of the key switch, the gate shall open and remain open until returned to normal operation by means of the key switch. Where a gate consists of two leaves, the key switch shall open both simultaneously if operation of a single leaf of the ingress side does not provide for the width, turning radii, or setbacks necessary for fire apparatus to navigate the vehicle entry point.

B1.6.4. The key switch shall be labeled with a permanent red sign with not less than 1/2" contrasting letters reading "FIRE DEPT" or with a "Knox" decal.

B1.6.5. Place the OCFA notes for electric gates on the plan verbatim (Appendix B, Attachment 1).

B1.7. **Gate Locks** – Gate locks shall be reviewed and approved prior to their installation on any new and/or existing gate. Authorization for Knox products is processed through the Knox Box company website at [www.knoxbox.com](http://www.knoxbox.com). Knox key switches and key boxes serving only vehicle gates and not buildings shall be sub-mastered for use by both the fire and sheriff/police department. Call the OCFA Planning and Development Services Section at 714-573-6100 for any questions regarding the need for key boxes or switches.

B2. **Path of travel obstructions** – Fences, planters, and vegetation may not interfere with access and egress routes.

B2.1. **Key boxes and key switches** – Knox devices shall be provided where necessary to ensure that immediate access for firefighting, rescue, and other emergency purposes is possible. The location, at a minimum, for the Knox device(s) shall be provided for the following locations:

- Gates along the paths of firefighter travel from the fire lane to all points along the perimeter of the structure.
- Gates to pool enclosures.
- Building gates or doors leading to interior courtyards containing rescue windows.
- Building gates or doors leading to exterior hallways or balconies providing access to residential units or tenant suites.
- Gates in exterior enclosures containing hazardous or combustible material storage.
- Buildings using hazardous materials or processes where such warrants immediate access.

- Exterior doors to rooms containing main alarm panels or annunciators.
- Doors and gates providing access to parking structures.
- Within the fire command center in high-rises and other large buildings.
- Main entry to buildings equipped throughout with an alarm system and not staffed 24/7.
- Facilities where a high-volume of after-hours calls is expected or experienced.
- Doors and gates to other areas identified by the fire department.

Breakaway Lock – When approved by the OCFA, a breakaway lock or a Knox padlock may be used in lieu of a key box for exterior hazardous or combustible material storage areas. Manually operated vehicle or pedestrian access gates that are not commonly used or not required to be openable from the egress side may also be provided with a breakaway padlock.

- B2.2. **Knox Device Location** - Knox boxes or switches shall be located adjacent to and clearly visible from the gate or door served. Gates in walls and fences up to six feet in height shall be securely mounted at a height of four to five feet above grade; on buildings they shall be mounted six feet above grade and in a location that is easily accessible to firefighters. Where the potential for vandalism or tampering is significant, key boxes that are not submastered may be mounted higher with OCFA approval. Boxes and switches are not required to be electronically monitored; if they are, they shall not initiate an alarm signal that requires a response by the fire department.
- B2.3. **Key box Contents** - The key used to unlock the gate or door shall be kept in the key box. When the key unlocks more than the individual adjacent gate or door, a label or tag shall be attached to the key identifying the gates or doors it operates. Where multiple gates or doors are served by a single box, two or more copies of the key(s) are recommended so that a copy will be available to each engine company responding to the site.
- B2.4. **Electric Locks** – Electromagnetically or electromechanically locked pedestrian gates and doors shall be equipped either with a Knox box containing a key to open the lock or, if the door lock cannot be operated with a key from the exterior, a Knox key switch shall be provided adjacent to the door. Where key switches are provided, the door or gate lock shall remain disengaged until the key switch is returned to the “normal” closed or locked position.
- B2.5. **Manual Vehicle Gates** – Manually operated gates shall have breakaway padlocks, Knox padlocks, or weather-resistant Knox key boxes. The key box shall be placed four to five feet above the roadway surface at the right side of the access gate in a conspicuous location that is readily visible and accessible. In Irvine, the key boxes shall be located on the left side. The key box must be clearly labelled “FIRE DEPT”.
- B2.6. **Electric Vehicle Gates** – The gate control for electronic gates shall be operable by a Knox emergency override key switch (with dust cover), readily visible and unobstructed from the fire lane leading to the gate, and clearly labelled “FIRE DEPT”. The key switch shall be placed between 42” and 48” above the roadway surface at the right side of the access gate within two feet of the roadway edge. In Irvine, the key switches shall be located on the left side of the access gate.

- B2.7. Master and Submaster Keying** – Knox devices that provide access only to the perimeter of buildings and exterior common areas shall be submastered for dual use by the fire and police departments. Where access to interior common areas of buildings is mandated by the local security or municipal code, Knox devices shall also be submastered. Knox boxes containing keys to access any interior private spaces, such as the interior of single tenant buildings or individual suites in a multi-tenant building, shall be mastered for use by the fire department only.

Where additional devices beyond those required by the fire department are called for in the local municipal or security code, they shall also be accessible for use by the fire department to facilitate emergency response.

- B2.8. Ordering Knox Devices** – Knox products are ordered through the Knox Box company website at [www.knoxbox.com](http://www.knoxbox.com) . If you have questions, please contact OCFA Community Risk Reduction by email at [knoxboxprogram@ocfa.org](mailto:knoxboxprogram@ocfa.org) or by phone at 714-573-6100.

**APPENDIX B, ATTACHMENT 1 - OCFA Notes for Electric Vehicle Gates**

**All of the notes listed below shall be placed on the plan verbatim, under the heading “OCFA Notes for Electric Vehicle Gates.” Indicate the type of remote gate operator under Note #1.**

- 1) A remote opening device is required. The remote gate opening device that will be installed is (check one):
  - 3M Opticom
  - Click2Enter\* (single-pulse mode with 1.5 second transmission window)
  - Fire Strobe Access Products, Inc.
  - Tomar
- 2) In the event of loss of normal power to the gate operating mechanism, it shall be automatically transferred to a fail-safe mode allowing the gate to be pushed open by a single firefighter *without any other actions, knowledge, or manipulation of the operating mechanism being necessary.*
  - a) A battery may only be used in place of fail-safe manual operation when the gate operator has a fail-open mode that will automatically, immediately, and completely open the gate and keep it open upon reaching a low power threshold, regardless of the presence of normal power.
  - b) Should the gate be too large or heavy for a single firefighter to open manually, a secondary source of reliable power by means of an emergency generator or a capacitor with enough reserve to automatically, immediately, and completely open the gate upon loss of primary power shall be provided for fail-open operation.
- 3) In addition to the remote operator, the gate control shall be operable by a Knox emergency override key switch equipped with a dust cover. Upon activation of the key switch, the gate shall open and remain open until returned to normal operation by means of the key switch. Where a gate consists of two leaves, the key switch shall open both simultaneously if operation of a single leaf on the ingress side does not provide for the width, turning radii, or setbacks necessary for fire apparatus to navigate the vehicle entry point.
- 4) The key switch shall be placed between 42” and 48” above the roadway surface at the right side of the access gate within two feet of the edge of the roadway. In Irvine, the switch shall be on the left side in accordance with Irvine’s Uniform Security Ordinance.
- 5) The key switch shall be readily visible and unobstructed from the fire lane leading to the gate.
- 6) The key switch shall be labeled with a permanent red sign with not less than ½” contrasting letters reading “FIRE DEPT” or with a “Knox” decal.

## APPENDIX C - RESIDENTIAL AND TRACT DEVELOPMENTS

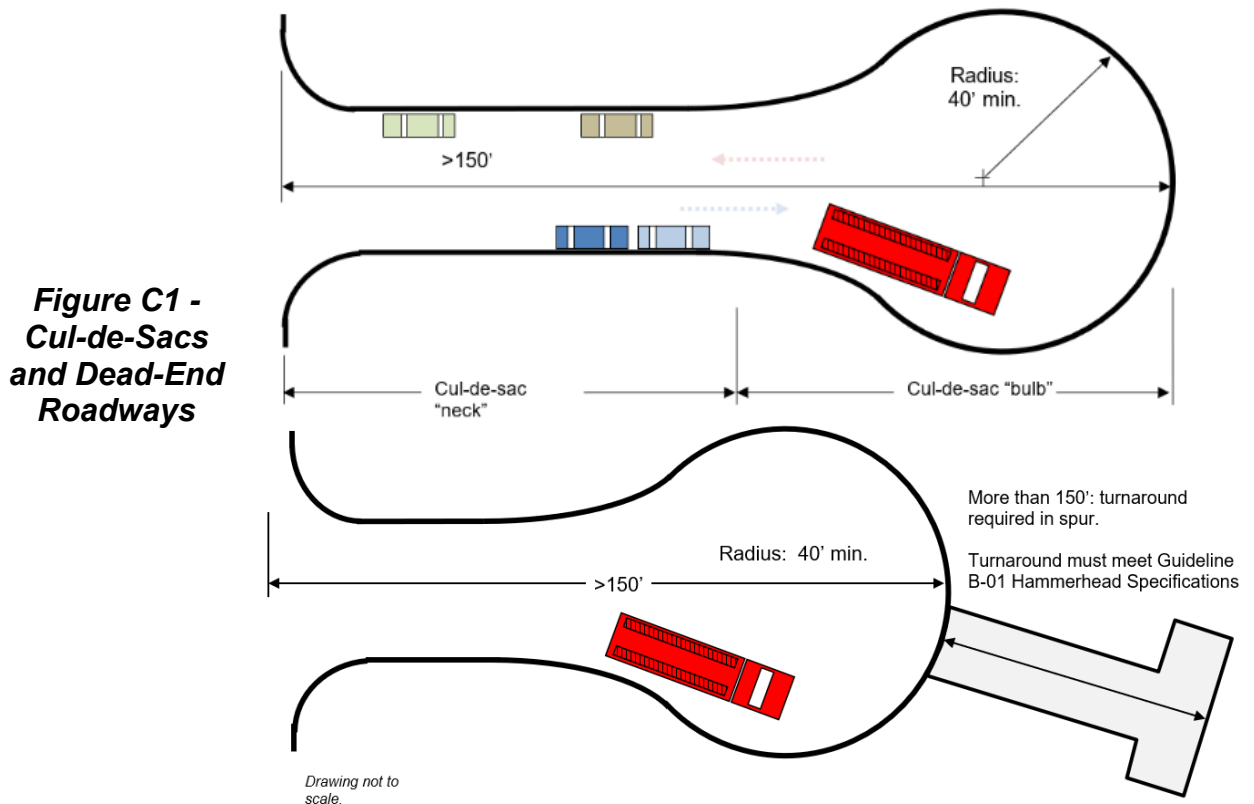
### HOW TO USE THIS APPENDIX

This appendix contains information related to fire master plans for residential tract developments. These requirements may also be applied to individual single-family homes or duplexes (Appendix C, Attachment 1) or to multi-family housing projects as approved by the fire code official. In addition to the generic information listed in Guideline B-01, the information in this section of the appendix must be provided with your plan if your plan incorporates residential developments. **Note: This information may not stand alone and must be used in conjunction Guideline B-01.**

**C3. Residential Tract Developments** - The following requirements apply to all new residential tract developments with single-family homes or duplexes.

C3.1. Cul-de-sacs – Cul-de-sacs shall comply with the following requirements:

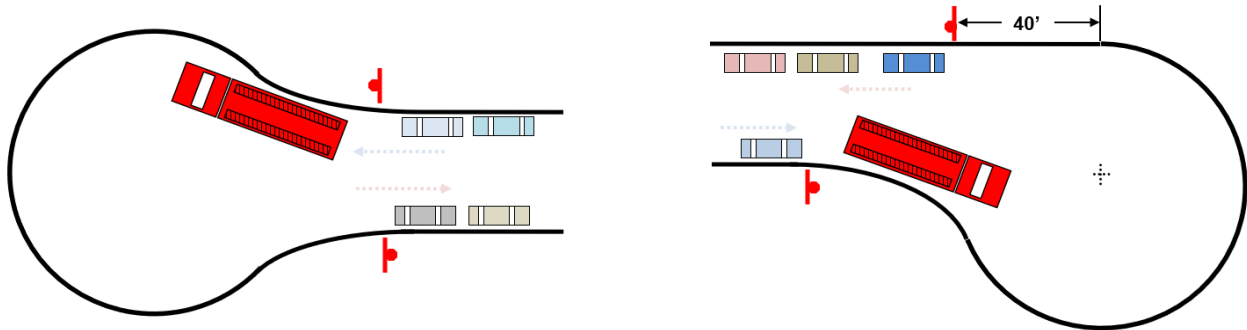
C3.1.1. Any street that is a required fire lane and greater than 150 feet in length shall be provided with a 40-foot minimum outside turning radius or other approved turnaround within 150' of the end of the fire lane (Figure C1). Where a spur road or private driveway that is a required fire lane is accessed via the cul-de-sac road, the driveway or spur shall be no more than 150-feet in length unless an approved turnaround has been provided within the 150-feet at the end of the spur or driveway.





- C3.1.2. The cul-de-sac shall be identified as a fire lane with red curbs or include “Fire Lane – No Parking” signs (Figure C2) unless the radius, with parking, is a minimum of 48 feet.

**Figure C2 – Fire Lane No Parking Sign Locations for Cul-de-sacs/Bulbs**



**Standard 40' radius cul-de-sac:**

“no-parking in cul-de-sac begin” and “end” signs shall be located at the point where the street begins to widen into the bulb.

**Offset 40' radius cul-de-sac:**

“no-parking in cul-de-sac begin” and “end” signs shall be located at the point where the street begins to widen into the bulb and at a point 40' from where the cul-de-sac and street are tangent.

- C3.1.3. Cul-de-sacs longer than 150-feet that are required to be designated as fire lanes may contain a center island provided the following requirements are met:

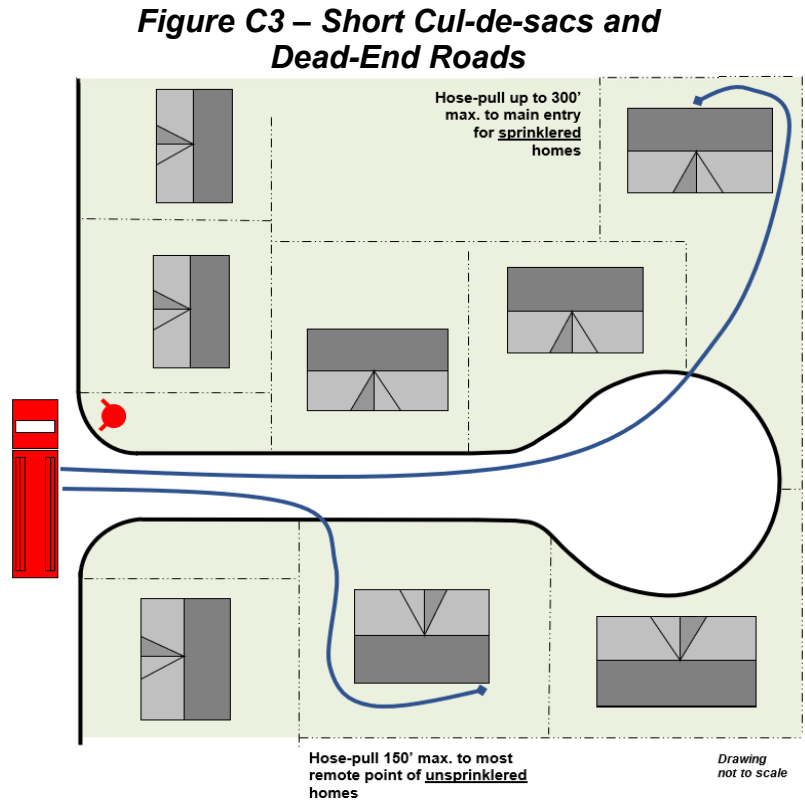
- A minimum 20-foot-wide drive lane with a minimum 40-foot outside turning radius is provided around the island.
- Island landscaping will not intrude into the drive lane.
- The island is designated a no parking area with red curbs or fire lane signs.

- C3.2. When there are not more than two Group R3 and two Group U occupancies on a single-family residential lot, the fire lane serving a detached single-family home or duplex, or related accessory structure (pool house, casita, garage, workshop, barn, etc.) is protected through by an approved NFPA 13-D, 13-R, or 13 fire sprinkler system, shall extend to within 300-feet of all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building.

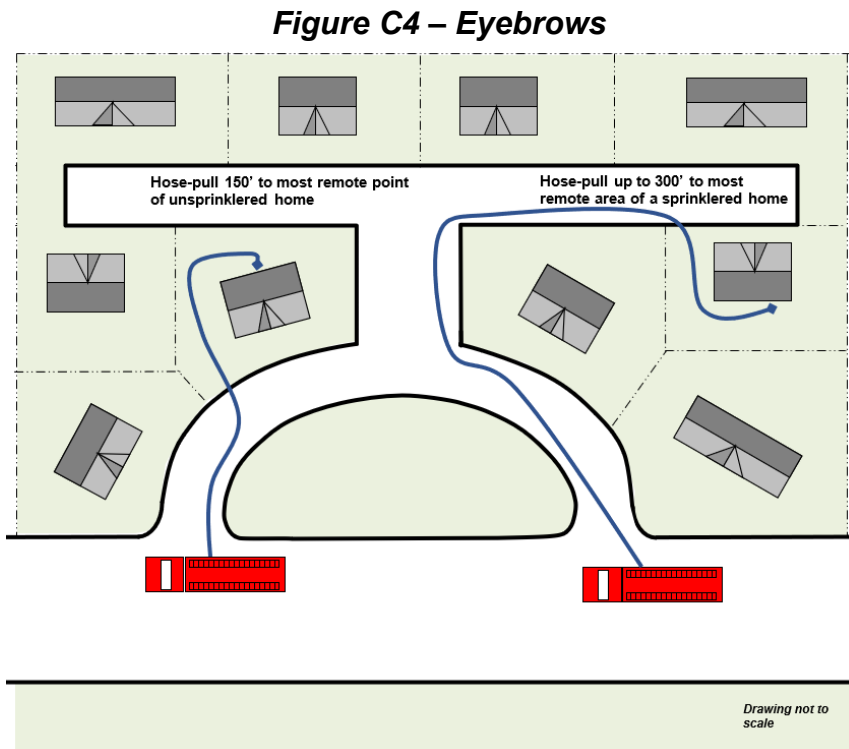
- C3.3. In residential tracts with private roads, parking enforcement plans shall include:

- Detailed information specifically identifying who will be responsible for enforcing the plan.
- Powers granted to the entity including vehicle towing information for parking violations (needs to include similar language provided in CVC).
- The aforementioned information needs to be integrated into the fire master plan. Evidence that the enforcement plan is permanently incorporated into the Conditions, Covenants, and Restrictions (CCRs) and/or recorded against the deed shall be provided prior to OCFA approval of the final map or print of linen. Once approved, these provisions cannot be amended without written approval by the OCFA. See Appendix C, Attachment 2 for a sample enforcement letter.

C3.4. **Short Cul-de-sacs and Dead-End Roads** - If hose-pull distance can be satisfied without fire apparatus entering the cul-de-sac or dead-end road, and the road is not otherwise required to be a fire lane as determined by the fire code official, the street is not required to have a bulb or hammerhead with minimum OCFA turning radii or meet other standard fire lane requirements. (Figure C3)



C3.5. **Eyebrows** - If the eyebrow does not meet OCFA's minimum turning radius and width requirements, fire department access will be measured from the nearest available fire lane around the island and any other obstructions. If hose-pull to the most remote area of a sprinklered home exceeds 300' (or 150' to the most remote point around the perimeter for unsprinklered homes), the eyebrow shall be designed as a fire lane or other mitigating features shall be provided. (Figure C4)

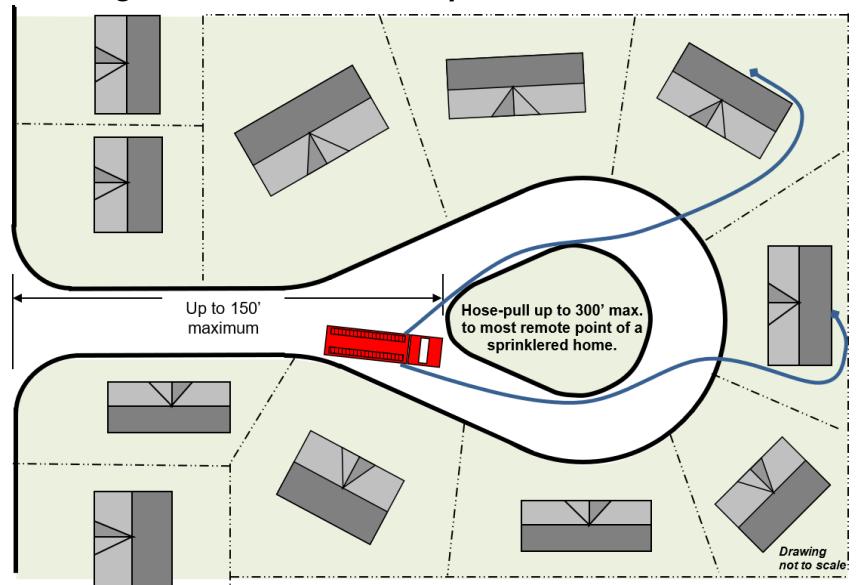


C3.6. **Cul-de-Sacs up to 150' with Islands** - Cul-de-sacs up to 150-feet in length containing an island (Figure C5) will have access to the homes measured along an approved route around the island and any other obstructions in the path of travel from the point of where the island begins to impede fire apparatus.

C3.6.1. If all homes are in access from the area preceding the island, the portion of the bulb beyond the island is not required to comply with OCFA fire lane requirements.

C3.6.2. If the hose-pull to the most remote point of a sprinklered home exceeds 300' (or 150' to the most remote point around the perimeter for unsprinklered homes), the portion of the bulb beyond the island shall be designed as a fire lane or other mitigating features shall be provided.

**Figure C5 – Cul-de-sacs up to 150' with Islands**



**APPENDIX C, ATTACHMENT 1 – Residential Site Plan Checklist**



**ORANGE COUNTY FIRE AUTHORITY**

**Plan Checklist for SINGLE FAMILY RESIDENCE (Fee Code PR 160)**

For ADU or SB9 Projects, refer to OCFA information bulletin 01-21

**INSTRUCTIONS: Return this completed form with the plans to be submitted.** This worksheet is provided for your convenience and is a listing of the required information and content needed for residential site plan review. Providing the items listed is not a guarantee of plan approval. *Please note that additional information or requirements may apply depending on the project and that some of the items listed will not be applicable to every project.* If you need help completing this form or have questions regarding requirements for review, please contact the OCFA [Techline@ocfa.org](mailto:Techline@ocfa.org) or visit us at 1 Fire Authority Road, Irvine, CA for assistance. You can verify where to submit plans based upon the submittal routing form or by calling the plans counter (714) 573-6100.

**Address** (Street Number/Name, City): \_\_\_\_\_

**Project Service Request #:** \_\_\_\_\_

1.  Complete OCFA Residential Cover sheet with Submittal scaled plan sheets showing the vicinity map, site plan, building footprint, stories, property lines and elevations of the project. Show any fences, walls, or gates.
2.  Provide the project scope on the plans. Include the building summary, building occupancy, construction type and square footage (existing & proposed) of the residence, garage and any other accessory structures. Note if fire sprinklers are existing or not. *Complete fillable area on OCFA Residential coversheet*
3.  If an automatic fire sprinkler system is required, note on the plan that “a fire sprinkler plan shall be installed per NFPA 13D 2022”. Separate plan review and approval of a **fire sprinkler plan** by the OCFA is required prior to installation. *Complete fillable area on OCFA Residential coversheet*
4.  Provide a project directory with the property owner information, project address and city. Include the tract map number or parcel map number for the property. *Complete fillable area on OCFA Residential coversheet*
5.  Show the location and distance of any proposed or existing fire hydrant(s) within 300 feet of property lines.
6.  Indicate all surrounding property uses. If the project adjoins an open space, fuel modification area or a wild-land interface, a **fuel modification plan** may be required separately for a *new* structure. See *Guideline C-05*
7.  Indicate if the project is located near an oil well, oilfield or landfill. A **methane plan** for soil gas mitigation may be required separately. <https://www.conservation.ca.gov/calgem/Pages/WellFinder.aspx>
8.  If applicable complete, signed “**Water Availability**” form and place onto plan. To obtain the form, see [www.ocfa.org](http://www.ocfa.org) under the Planning and Development homepage. *Complete fillable area on OCFA Residential coversheet.* For additional information, see OCFA Plan Submittal Criteria Form – Residential Projects Question #5 and Guideline B-01, Appendix D, Table 2.
9.  Specify the width of street or road to which the property is addressed.
10.  Please state on the plans if the project resides within a **Very High Fire Severity Zone (VHFSZ) or State Responsibility Area (SRA)**. If unsure, see [ocfa.org](http://ocfa.org) to obtain information. Indicate with a note if the design requires CBC Chapter 7A/Residential Code R337. *Complete fillable area on OCFA Residential coversheet*

Print name: \_\_\_\_\_

Signature: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Date: \_\_\_\_\_

Serving the Cities of Aliso Viejo • Buena Park • Cypress • Dana Point • Garden Grove • Irvine • Laguna Hills • Laguna Niguel • Laguna Woods  
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**RESIDENTIAL SPRINKLERS AND SMOKE DETECTORS SAVE LIVES**

**APPENDIX C, ATTACHMENT 2 - Sample Parking Enforcement Letter**

Date

Planning and Development Services Section  
Orange County Fire Authority  
1 Fire Authority Road  
Irvine, CA. 92602

Re: *(Project Name, Location, and Service Request Number)*  
Parking Enforcement Plan

The fire lane parking enforcement plan for the above referenced project is stated as follows:

All fire lanes within *(list development address or tract information)* shall be maintained and in no event shall parking be permitted along any portion of a street or drive that required fire lanes or any area designated as a fire lane for turn-around purposes either during construction or after occupancy.

***(Association name)* shall adopt reasonable rules and regulations regarding the parking of vehicles along the streets, roads and or drives within the project that are not in conflict with applicable law.**

In furtherance thereof, *(Association name)*, through its officers, committees and agents, will establish the "parking" and "no parking" areas within the property in accordance with Section 22658 of the California Vehicle Code and OCFA Guideline B-01. The law shall be enforced through such rules and regulations by all lawful means, including, written warnings, citing, levying fines and towing vehicles in violation.

*(Association name)* will contract with a certified patrol and towing company to remove vehicles that violate no parking restrictions. First time violators will receive a written warning and with subsequent violations, the vehicle shall be subject to towing. The vehicle owner shall be responsible for all costs incurred in remedying such violation, including without limitation towing cost, citations, and legal fees.

Company Name

Authorized Agent Signature

Cc: