FIRE PREVENTION DIVISION STANDARD

Subject:	Reference:	Approved by:
Fire Apparatus Access Requirements	CFC 2022, MOFD Ordinance 23-01	Fire Marshal Jeff Isaacs January 2023

SCOPE

This standard describes the local application of California Fire Code, Section 503 and Appendix D, as amended by Moraga-Orinda Fire District Ordinance 20-01.

GENERAL

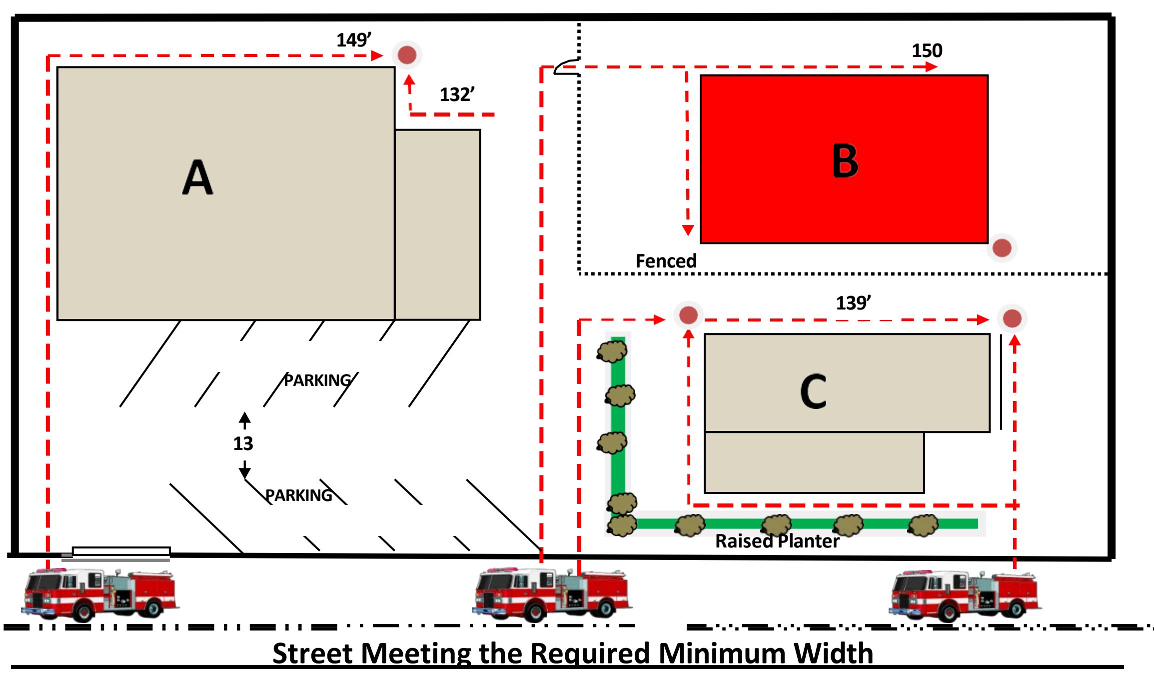
A fire apparatus access road is defined as a road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term that includes, but is not limited to a fire lane, public street, private street, driveway, parking lot lane and access roadway.

Fire apparatus access roads shall be provided in accordance with the California Fire Code Section 503 and Appendix D as further amended by local ordinance for every facility, building or portion of a building constructed or moved into within jurisdiction.

DISTANCE FROM A FIRE APPARATUS ACCESS ROAD

A fire apparatus access road shall extend within 150 feet of the most remote first floor exterior walls of any facility, building or portion of a building. The 150-foot distance shall be measured along an approved accessible path of travel around the exterior of the building or facility as determined by the Fire District. **See the examples below:**

Measuring the Distance to the Exterior Walls from a Fire Apparatus Access Road



***Examples*:**

Assume that the parking lot is not accessible to fire apparatus due to the turning radius and roadway widths more diminutive than the required minimums (red circle indicated the farthest distance to the exterior walls):

1. All portions of building "A" are within 150' of the fire apparatus access road as measured along the path of firefighter travel.
2. Building "B" is not accessible; the presence of a fenced enclosure forces firefighters to backtrack once they pass through the gate, increasing their travel distance beyond 150'.
    - On-site fire apparatus access roadways or a change in the location of the gate would be necessary to provide access to Building "B."
3. Building "C" is also within 150' of the fire apparatus access road despite the obstruction posed by the raised planter.

LOAD

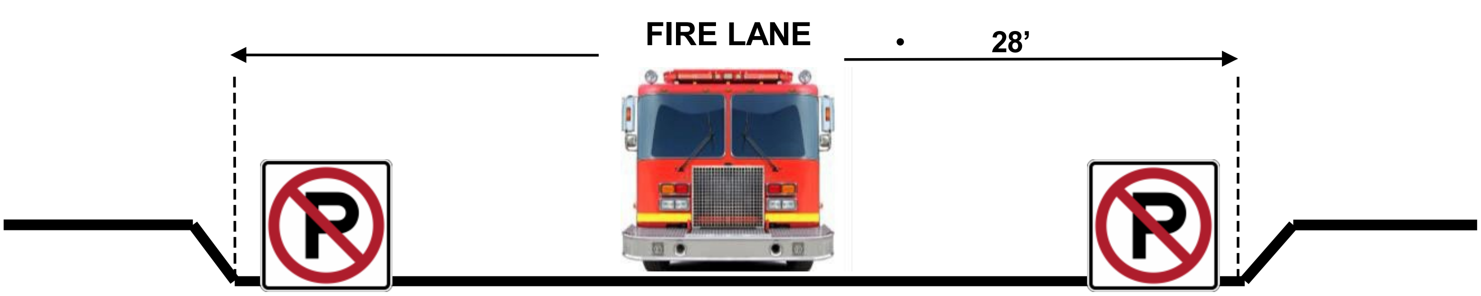
Fire apparatus access roads shall be designed and maintained to support a minimum load of 74,000 pounds (H-20-44 Cal-Trans design standard) and shall be provided with an all-weather driving surface (asphalt, concrete or similar approved surface roadway).

TIMING

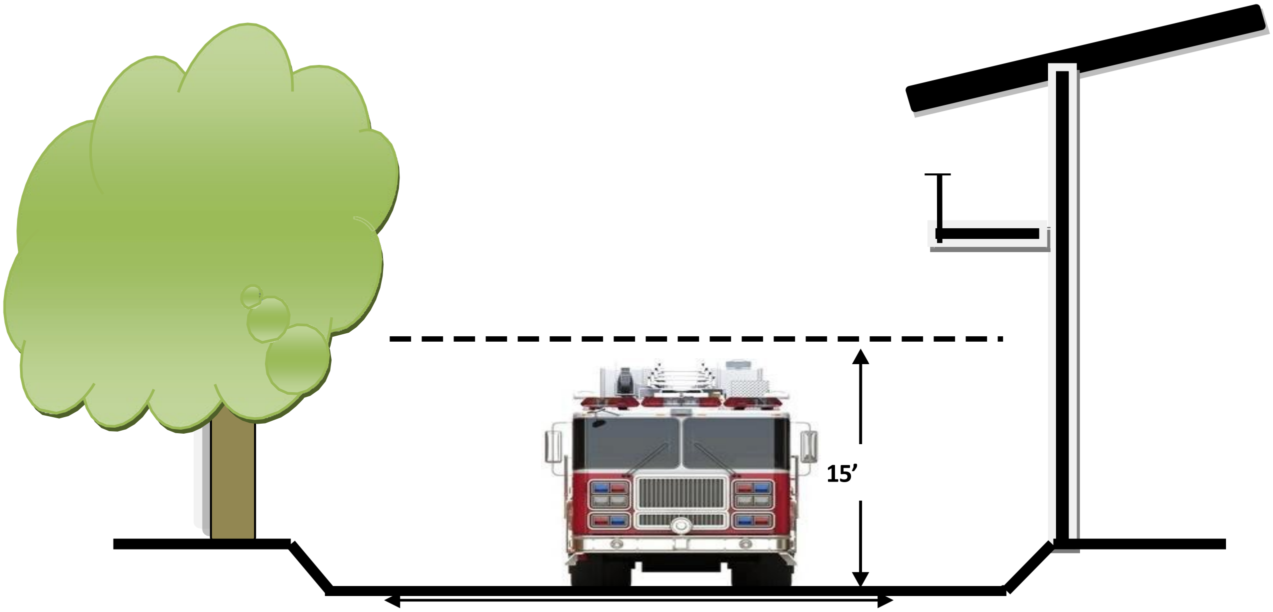
Fire apparatus access roads shall be installed and serviceable **prior to the start of any combustible construction on a project or combustible storage on a site**. A Fire District inspection and approval is required prior to the start of combustible construction or combustible storage on a site.

SPECIFICATIONS AND LIMITATIONS – See MOFD Fire Code Appendix D.

- Fire apparatus access roads, turnarounds, turnouts and outsets shall not be obstructed in any manner, including the parking of motor vehicles. These areas are designated as fire lanes and shall be posted with signs or red curbs with white letters indicating "**No Stopping Fire Lane – CVC 22500.1**."
- Fire apparatus access roads shall have an unobstructed minimum width of not less than 28 feet and an unobstructed vertical clearance of not less than 15 feet. Exception – A driveway with a minimum width of 18 feet is acceptable for access to no more than two dwelling units. Parking is **not** permitted on the roadway.



Roadways shall be a minimum of 28 feet if no on-street parking.
Exception: The roadway width for aerial apparatus is 36 feet.



Minimum roadway width

Obstructions cannot encroach upon the 15 feet high fire access roadway envelope.

Fire apparatus access roads **150 feet or more in length** shall be provided with a turnaround provision at its terminus or as approved by the Fire District. Standard fire apparatus turnarounds shall be designed as shown in Figure A below. Exception - Turnarounds for fire apparatus access roads serving 1 or 2 dwelling units shall comply with Figures A through C below.

LENGTH (feet)	MINIMUM WIDTH (feet)	TURNAROUNDS REQUIRED
0-150	**28**	None required
151 - 750	**28**	100-foot Hammerhead, 90-foot-diameter cul-de-sac, or 50-foot “Y” configuration in accordance with figure D103.1
Over 750	Special approval required- See the note below.	

Note: Any fire apparatus access roadway or driveway that is approved to be more than 750 feet in length and less than 28 feet wide shall have outsets or turnouts every 300 feet along the length of the road or driveway, or at locations approved by the fire code official. Each outset or turnout shall be of the following dimensions: an 8-foot-wide turnout that extends at least 40 feet in length.

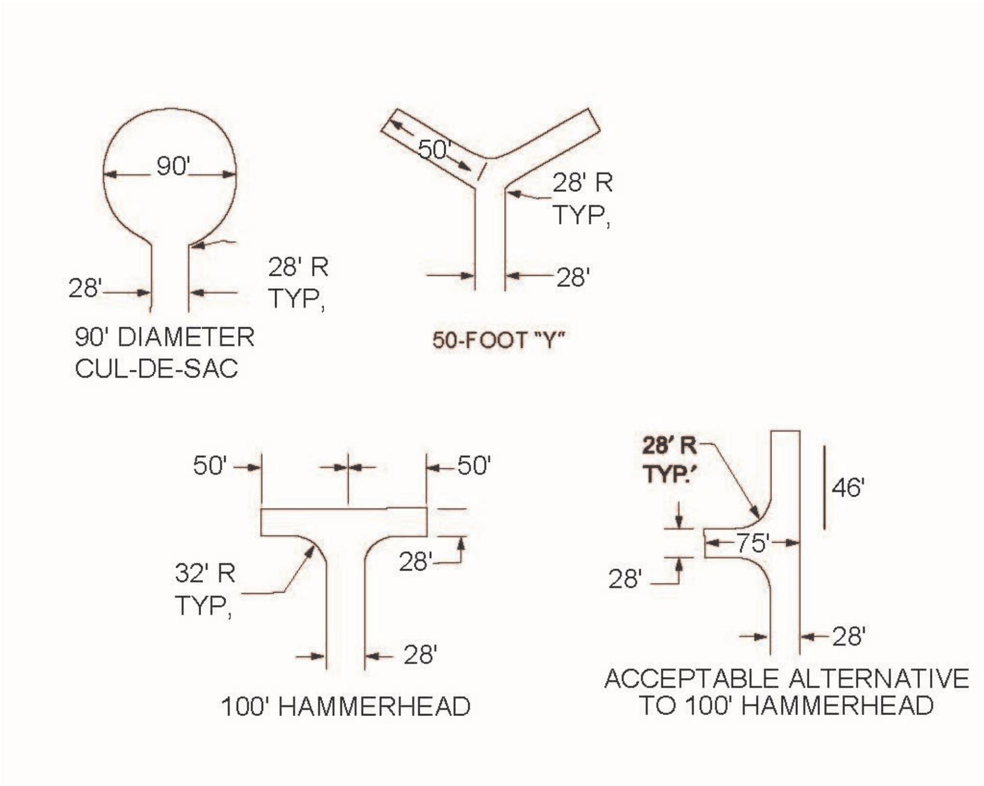
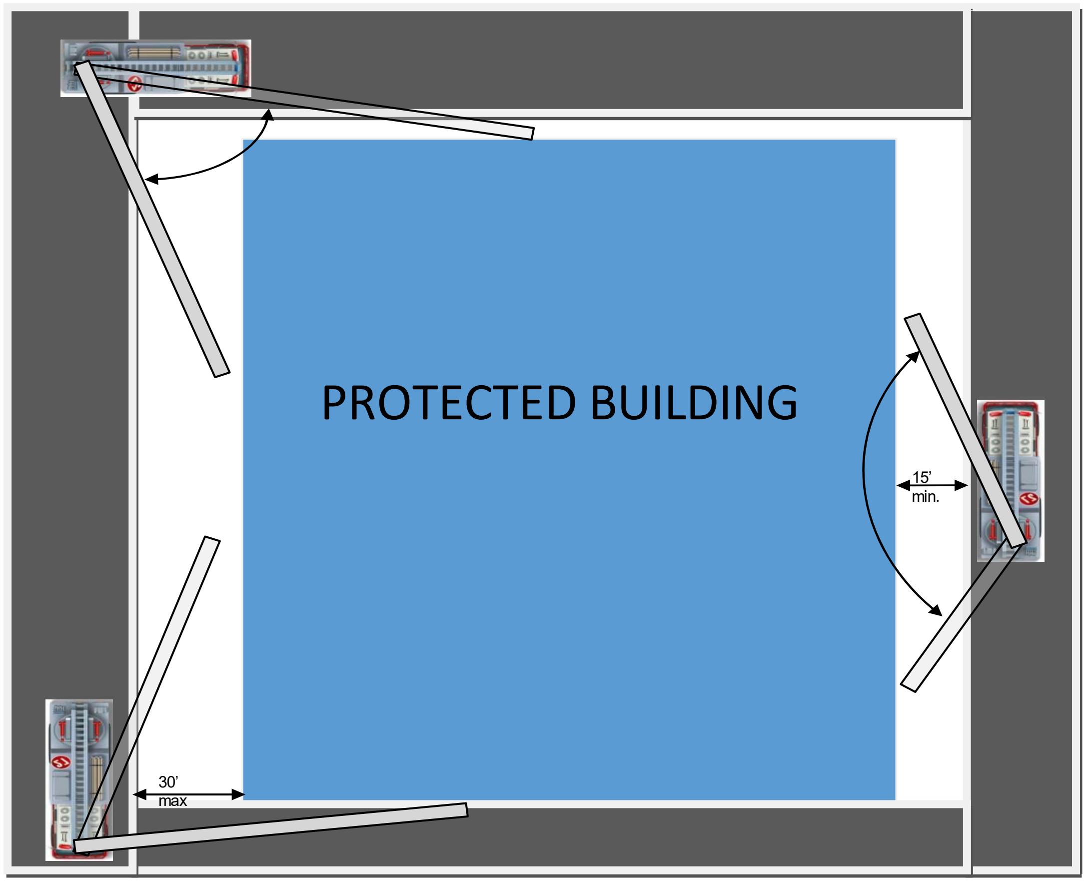


Figure A

- Fire apparatus access roads shall have a minimum turning radius of 28 feet inside and 48 foot outside diameter.
- The grade of fire apparatus access roads with an **asphalt surface** shall not exceed **15 percent**. The maximum slope for a **porous paving** system (plastic, and interlocking concrete and brick) is **3 percent**. The maximum slope of a **gravel or decomposed granite** surface is **10 percent**. For porous paving and gravel roads an engineer must certify the design will support 74,000-pound fire apparatus in all weather conditions. After the installation the engineer must certify the materials were inspected and in accordance with the plans.
- Fire apparatus access roads with a slope between **15 and 20 percent** shall be **grooved concrete**. The design for grooved concrete shall be ½ inch wide by ½ inch deep and 1 ½ inches on center with a 30 – 45 degree angle across the width of the roadway surface.
- Fire apparatus access roads with a slope exceeding **20 percent** are **not allowed**.
- Cross slopes on fire apparatus access roads shall not exceed 8 percent.
- The angle of approach and departure for fire apparatus access roads shall not exceed 10 percent at 10 feet of the grade break.
- **Aerial** Fire Apparatus Access- Fire apparatus roadways serving **buildings over 30 feet in height** (the height is defined in the California Fire Code Appendix D105), shall have a minimum unobstructed width of **36 feet.** The aerial fire apparatus access road shall be positioned parallel to **at least <u>one entire side</u> of the building**. The location of the aerial fire apparatus access road shall be approved for the Fire District.



- The inside curb for the aerial fire apparatus access road shall be a minimum of 15 feet and a maximum of 30 feet from the building.
- There shall be no parking or obstructions such as parking, trees and power lines between the aerial fire apparatus access road and the building.

ACCESS

Fire District key boxes and key switches by Knox shall be provided in accordance with the MOFD Fire Code Section 506.1.3. The box locations shall be approved by the Fire District, typically at gates and main entry doors).

BRIDGES

- Bridges shall be constructed and maintained in accordance with AASHTO HB-17.
- The maximum vehicle load limits shall be clearly posted at both bridge entrances. Signs posted for maximum load capacity shall be a minimum of 16 inches high by 18 inches wide and made of a durable material approved by the District. Lettering to be black, a minimum of 6 inches in height with a ¾ inch stroke on a white background. Reflective materials are recommended.

NUMBER OF FIRE APPARATUS ACCESS ROADS

The minimum number of fire apparatus access roads serving a residential development (single family and multiple family) shall be based upon the number of dwelling units served and shall be as follows:

✓ 1-20 units, one public or private access road.
✓ 21-50 units, two public or private fire apparatus access road as approved by the fire

code official.

- ✓ 51-100 units, three or more public or private fire apparatus access road as approved by the fire code official.
- ✓ 101+ units, a minimum of 3 public or private access roads and one fire apparatus access road as approved by the fire code official.

GATES

The design for all gates across a fire apparatus access road shall be approved by the Fire District. Plans and specifications shall be submitted to the District for review and approval prior to construction.

Gate specifications are as follows:

- ✓ Width to be a minimum of 12 feet clear and unobstructed or as required by the fire code official.
- ✓ There shall be a minimum of 15 feet of vertical clearance.
- ✓ Location of the gate shall have a minimum setback of 40 feet from the intersection to the driveway, which is deemed to be a fire access road and the roadway.

***Exception*:** Gates at the end of a roadway or on roads with light traffic may have a lesser setback.

All locking devices shall provide for Fire District emergency access by means of a Knox gate key switch, Knox box or the established Fire District master key system.

All electronic gates crossing Fire District access ways shall comply with ASTM F2200. The electric gate operators shall comply with UL 325.

TEMPORARY FIRE APPARATUS ACCESS ROADS

The installation and use of a temporary fire apparatus access road in lieu of a permanent fire apparatus access road, when approved by the District, is limited to April 15th through October 15th.