



Development Standard #1

FIRE APPARATUS ACCESS

The information contained in this standard is provided solely for the convenience of the developers, architects, and contractors in complying with the Carpinteria-Summerland Fire Protection District (CSFPD) requirements. It should be used as a schematic reference only. The CSFPD reserves the right to make changes and improvements to this standard as and when required by law, or otherwise, at any time.

Please note that the CSFPD assumes no liability for any damages incurred directly or indirectly as a result of any errors, omissions, or discrepancies between this standard and any applicable law. It is the sole responsibility of the person or persons conducting any work pursuant to this standard to ensure their work complies with any and all applicable codes, ordinances, and regulations.

SECTION 1.1 ADMINISTRATION

1.1.1 Scope. This standard shall apply to private roads and driveways that are used to provide access to dwellings and structures for emergency response. A private road or driveway is a roadway system that is not part of the official County or City maintained road system, where the County or City has no maintenance responsibilities, although the private roadways may be located in either a publicly or privately owned easement.

1.1.2 Purpose. The purpose of this standard shall be to provide clarification of requirements and establish and assign an acceptable level of quality and minimum level of mandatory controls to provide and maintain required fire department access to premises in the areas of the Carpinteria-Summerland Fire Protection District (CSFPD).

This standard provides a method of providing for and maintaining adequate and unobstructed emergency access for fire department apparatus and personnel to buildings, structures, hazardous occupancies, or other premises, as may be required by the fire code official, the Current California Fire Code (CFC) and the current CSFPD Ordinance.

1.1.3 General.

1.1.3.1 Multi-family development projects may have additional access requirements beyond what is included in this standard and Appendix D of the CFC.

1.1.3.2 In general, these standards will be applied as conditions of approval when land is developed or divided.

1.1.3.3 Exemptions or alternatives may also be granted by the Fire Chief or their designee based upon consideration of feasibility or environmental considerations only if said alternative provides for the Same Practical Effect (see definition below).

1.1.3.4 Individual review of each proposed road section may disclose that a higher standard of design is warranted by potential future or additional use of the road section or by the existence of special circumstances.

1.1.3.5 All roadways shall require civil engineering to meet or exceed Santa Barbara County Public Works (SBCPW) design standards.

Note: Driveways may be required to obtain civil engineering design and installation certification.

1.1.4 Fees. A plan check fee is required for the installation of or modification to a fire access road as required by the current CSFPD fee schedule.

SECTION 1.2 DEFINITIONS

1.2.1 Access Control Device. A device such as a traffic spikes, designed to damage an automobile tire when the tire crosses over the device. These devices are commonly used to prevent wrong-way entry into a controlled area.

1.2.2 Accessory Building. Any building used as an accessory to residential (excluding ADUs), commercial, recreational, industrial, or educational purposes that requires a building permit.

1.2.3 All Weather Access. The minimum standard structural section for an all-weather roadway is Class II Aggregate Base (95% relative compaction; Cal-Trans specifications) over compacted sub-grade soil (95% relative compaction), with adequate drainage control.

1.2.4 Barrier. A barrier may be defined as a concrete k-rail, bollards, construction fence or other structure or device intended to redirect traffic flow or obstruct the intended flow of traffic.

1.2.5 Building. Any structure used or intended for supporting or sheltering any use of an occupancy. For the purposes of this standard, "building" includes mobile homes and manufactured homes.

1.2.6 Dead-end Road. A road that has only one point of vehicular ingress/egress, including cul-de-sacs and looped roads.

1.2.7 Defensible Space. The area within the perimeter of a parcel, development, neighborhood or community where basic wildland fire protection practices and measures are implemented, providing the key point of defense against encroaching wildfires or escaping structure fires. The perimeter as used in this regulation is the area encompassing the parcel or parcels proposed for construction and/or development, excluding the physical structure itself. The area is characterized by the establishment and maintenance of fuel modification zones, emergency vehicle access and emergency water supplies.

1.2.8 Driveway. A private right-of-way that provides the principal means of vehicular access from a public right-of-way that serves no more than two residential parcels.

1.2.9 Dwelling Unit. Any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and/or sanitation for not more than one family. This shall include guest houses and can include cabanas for this requirement.

1.2.10 Fire Access Point or Road. An access point (gate or entry way) or road that does not serve buildings or regulated structures and is being provided for emergency vehicles only, such as access into wildland areas. This type of access typically is not intended for public use. Wildland access roads typically do not require improvement beyond width and grading.

- 1.2.11 Fire Apparatus Access Road.** A roadway that provides fire apparatus access to a facility, building or portion thereof. All fire department apparatus access shall comply with Appendix D of the CFC.
- 1.2.12 Exemption/Variance.** The modification of a specific item or circumstance from a requirement of this standard or adopted codes with acceptable mitigation provided.
- 1.2.13 Hammerhead/T.** A turnaround within a driveway that provides a "T" shaped, three-point turnaround space for emergency equipment, being no narrower than the driveway it serves.
- 1.2.13.1** Hammerhead turnarounds are only available for use on driveways. Roads shall require the installation of bulb turnarounds.
- 1.2.14 One-way Road.** A minimum of one traffic lane width designed for traffic flow in one direction only and shall be a minimum of twelve (12) feet in width. Turnouts and turnarounds are required at specific distances listed below.
- 1.2.15 Road, Street, Lane, Alley, Public or Private.** A private or public road (not a driveway) used routinely for access into and out of an area for the public and for emergency equipment, inclusive of roadway structures, that provides access to:
- 1.2.15.1** More than two residential parcels
- 1.2.15.2** Any industrial or commercial occupancy
- 1.2.15.3** All roadways shall require civil engineering design and installation certification.
- 1.2.16 Roadway.** Any surface designed, improved, or ordinarily used for vehicular travel. This includes Roads, Streets, Lanes, Alleys and all Commercial/Industrial access etc. whether public or private. A 75,000 LB weight limit is required for all roadways.
- 1.2.16.1** All roadways within the urban limit line shall be paved as per SBCPW design standards.
- 1.2.17 Roadway and Driveway Structures.** Bridges, culverts, cattle guards and other appurtenant structures which supplement the roadway or driveway bed and shoulders. All roadway and driveway structures shall meet the same width and weight requirement as a roadway for 75,000 LBS. (CA Code of Regulations)
- 1.2.18 Same Practical Effect.** As used in this standard, means an exception or alternative with the capability of applying accepted fire suppression strategies and tactics, and provisions for fire fighter safety, including:
- 1.2.18.1** Access for emergency fire equipment
- 1.2.18.2** Safe civilian evacuation
- 1.2.18.3** Signage that avoids delays in emergency equipment response
- 1.2.18.4** Additional available and accessible water to effectively attack fires, HazMat incidents or defend a structure from wildfire
- 1.2.18.5** Increased fuel modification sufficient for civilian and fire fighter safety.
- 1.2.19 Speed Bump.** A roadway speed control measure that is typically from three to six inches in height, less than 2 feet in width and may be as long as 12 feet. These bumps are commonly used in parking lots in order to reduce traffic speeds to less than 5 MPH at the bump, and provide a jarring effect to the vehicle when crossed.
- 1.2.19.1** At no time shall speed bumps be allowed to be installed on roadways.
- 1.2.19.2** All speed control devices shall require approval from the fire code official.
- 1.2.20 Speed Hump.** A roadway speed control measure that is typically a maximum of two and five eighth inches in height, a width of approximately three feet, and a length of twelve feet. These Humps are commonly used along roadways to reduce traffic speeds to less

than 15 MPH at the hump and provide a gentle rolling effect to the vehicle when crossed.

1.2.20.1 At no time shall speed control devices be installed on roadways considered as primary attack routes for emergency equipment, as determined by the fire code official.

1.2.21 Traffic Lane. The portion of a roadway that provides a single lane of vehicle travel and is a minimum of 10' wide not including striping, parking or shoulders.

1.2.22 Turnaround. A roadway shall require the installation of bulb-turnarounds and driveways may install a hammerhead "T" if it can be proven to remain open and unobstructed. Turnarounds unobstructed by parking, which allows for a safe opposite change of direction for large vehicle and emergency equipment shall be required at the terminus of all roadways and or as determined by the fire code official.

1.2.22.1 On all one-way access roads and driveways turnarounds are required to be installed at a maximum of 1,320' intervals.

1.2.22.2 On all access ways that trigger Appendix "D" of the CFC those increased values shall be used.

1.2.23 Turnouts. A widening in a driveway or roadway to allow vehicles to pass and shall not be less than 24' wide, 30' long and include 25' tapers. See Appendix D below.

1.2.24 Urban Limit Line. A boundary, sometimes parcel specific, located to mark the outer limit beyond which urban development will not be allowed. It has the aim of discouraging urban sprawl by containing urban development during a specified period, and its location may be modified over time.

1.2.25 Wildfire. As defined in Public Resources Code Section (PRC) 4103 and 4104.

SECTION 1.3 GENERAL REQUIREMENTS FOR DRIVEWAYS

1.3.1 Driveway Widths. All driveways shall be constructed to provide a minimum of one (1) twelve-foot (12') traffic lane with sixteen feet (16') unobstructed horizontal clearance. A driveway serving two structures shall be sixteen (16') feet in width. A driveway serving three or more structures shall be twenty feet (20') in width. See Definition 1.2.7 and Appendix A-1 below.

1.3.2 Vertical Clearance. All driveways shall be constructed to provide a minimum of 13'6" unobstructed vertical clearance for the entire horizontal clearance requirement in 1.3.1 (This includes: clearance from structures, geologic overhangs, boulders, trees, vegetation etc.).

1.3.3 Driveway Turnouts. Driveway Turnouts shall be required as follows:

1.3.3.1 Driveway sections in excess of 350 ft shall have a turnouts every 350 ft. Line of sight issues may indicate shorter intervals. See definition 1.2.22.

1.3.4 Driveway Turnarounds. A turnaround shall be provided to all building sites on driveways over 150 feet in length, and shall be constructed of hard surface.

1.3.4.1 Turnarounds shall not exceed 5% in slope.

1.3.4.2 Turnarounds shall be easily identifiable and shall not be obscured by design standards or choice of materials. "Grass-Crete" or "Turf Block" is not an acceptable method of paving.

1.3.4.3 Generally turnarounds shall be made of the same material as the access but can receive approval for a change in material choice.

1.3.4.4 No parking shall be allowed inside a turnaround and the required access plan shall prove adequate onsite parking outside of the required turnaround.

- 1.3.4.5 Driveways shall require civil engineering design and certification of installation as deemed necessary.
- 1.3.4.6 Driveway turnarounds may be of the hammerhead style and shall be a minimum of 92' wide by 52' deep. See Appendix C-2.
- 1.3.5 **Driveway Slope.** Slope grade materials shall be coarse in nature and interlocking. "Grass-Crete" or "Turf Block" is not an acceptable method of paving.
 - 1.3.5.1 Slopes 0-10% in grade may be of all-weather construction and surfacing. Interlocking pavers are not allowed above 5% in grade.
 - 1.3.5.2 Slopes 10.1-15% shall require asphalt or concrete (A/C) paving or equivalent at a minimum.
 - 1.3.5.3 Slopes 15.1-20% shall require structural engineered concrete.
 - 1.3.5.4 Driveway grades shall not exceed 20%.
- 1.3.6 **Driveway Structural Weight Requirements.**
 - 1.3.6.1 Driveway access beds and shoulders shall support a minimum of 40,000 LBS.
 - 1.3.6.2 All driveway structures, bridges, cattle guards, culverts etc., shall be rated for 75,000 LBS and shall require civil engineering certification. (CA Code of Regulations)
- 1.3.7 **Driveway Turning Radius Requirements.**
 - 1.3.7.1 The inside radius of driveways shall be a minimum of 24'. On all driveway radius over 90 degrees an additional 4' of width shall be added throughout the curve not to exceed 20' in width. See Appendix B below.
 - 1.3.7.2 Switch backs within the driveway shall not exceed 5% inside slope.
- 1.3.8 **Driveway Access angle of approach and departure.** Access angle of approach or departure shall not exceed 12 degrees combined.

SECTION 1.4 ROADS, STREETS, LANES and ALLEYS PUBLIC or PRIVATE

- 1.4.1 **Road, Street, Lane and Alley, Public or Private Width.** All roads shall be constructed to provide a minimum of two (2) ten foot (10') traffic lanes, not including the 2' shoulders, striping or parking and two feet (2') unobstructed horizontal clearance (structural clearance from embankments, boulders, roadway structures, etc.) on either side of the access. These traffic lanes shall provide for two-way traffic flow to support emergency vehicle and civilian egress, unless other provisions are provided for in this standard, or additional requirements are mandated by CSFPD. See Appendix A-2 below.
 - 1.4.1.1 A "No Parking Plan" shall be required for all access roads below 36' in width.

SECTION 1.5 GENERAL REQUIREMENTS FOR ROADWAYS

- 1.5.1 **Design.** All roadways shall require civil engineering design and certification of installation.
- 1.5.2 **Surface Type.** The minimum standard structural section for an all-weather roadway is Class II Aggregate Base (95% relative compaction; Cal-Trans specifications) over compacted sub-grade soil (95% relative compaction), with adequate drainage control.
- 1.5.3 **Construction.** Fire Department access ways shall be provided and maintained for every facility, building hereafter constructed or moved into or within the CSFPD jurisdiction in accordance with the CFC and as provided herein.
 - 1.5.3.1 Adhere to all SBCPW or City of Carpinteria requirements.
 - 1.5.3.2 The minimum standard structural section of roadways shall be designed and constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 LBS.

- 1.5.3.3 A minimum easement shall be provided sufficient to provide appropriate shoulders and utilities.
- 1.5.3.4 Two foot (2') minimum shoulders on both sides of the roadway shall be required unless waived by the Fire Chief or designee.
- 1.5.3.5 The standard structural section per SBCPW or City of Carpinteria may be modified by engineering design or certifications and shall require approval of the modification.

1.5.4 Surface Standards. All roadways within the urban limit line shall be completed with a "Hard Surface" similar to A/C paving, concrete or a minimum of double chip seal.

1.5.4.1 Paving is defined as:

1.5.4.1.1 Asphaltic concrete pavement

1.5.4.1.2 Poured concrete

1.5.4.1.3 Double chip seal, allowable for grades up to 10%

1.5.4.1.4 Interlocking pavers over approved compacted sub-grade on less than 5% grades

1.5.4.1.4.1: "Grass-Crete" or "Turf Block" is not an acceptable method of paving.

1.5.4.2 An approved all-weather surface is allowed where grades do not exceed 10% on all driveways and on private roadways outside the urban limit line. Detailed maintenance documents and agreements shall be required or paving can be required. The load capabilities shall be maintained for both driveways and roadways.

1.5.4.3 Paving as defined in Section 1.5.4.1 is required on driveway grades 10.1-15% in grade.

1.5.4.4 Structural engineered concrete is required for access grades 15.1% - 20% in grade.

1.5.5 Roadway Grades.

1.5.5.1 Maximum allowed grade shall not exceed 15% unless approved by the Fire Chief or designee.

1.5.5.2 Gradients up to 20% may be allowed only with extenuating circumstances. Any gradient approved 15% or greater in slope shall consist of structural engineered concrete and can require runaway vehicle mitigation measures.

1.5.6 Roadway Radius Excluding Turnarounds.

1.5.6.1 No roadway shall have a horizontal inside radius curvature of less than 50 feet and additional surface width of 4 feet shall be added to curves of 50-100 foot radius; 2 feet to those from 100-200 foot radius.

1.5.6.2 The length of vertical curves in roadways, exclusive of gutters, ditches, and drainage structures designed to hold or divert water, shall be not less than 100 feet.

1.5.7 Roadway Turnarounds. Turnarounds, when required on roads shall be bulb style design. The minimum turning radius for a turnaround shall be forty (40) feet, not including parking, and shall not exceed 5% in slope. See Appendix C-1 below.

1.5.8 Roadway Turnouts. When required, the turnout area shall be a minimum of twenty-four feet (24') wide and thirty feet (30') long with a minimum twenty-five foot (25') taper on each end. See Appendix D below.

- 1.5.9 Access Angle.** Angles of approach and departure shall be less than 12 degrees combined for driveway encroachments, drainage crossings, etc.
- 1.5.10 Fire Lanes.** Fire apparatus access roads designated as fire lanes shall be posted with fire lane signage and markings in accordance with this standard, Caltrans Traffic Manual and the CVC. See Section 1.11 of this standard and Appendix I and J below.
- 1.5.10.1** Signs shall be installed along the entire length of the fire lane.
- 1.5.10.2** Red curbing with white 4" stenciling "Fire Lane – No Parking – Tow Away" may be required for all commercial/industrial projects and residential complexes.
- 1.5.10.3** Red curbing shall be required for 15', 7'6" in each direction from the centerline, of all fire hydrants and fire department connections (FDCs).
- 1.5.11 Building Access.** The furthest projection of the exterior wall of a building shall be accessible from within 150 ft. of an approved public or private road or private driveway for where the fire apparatus shall position as measured by an unobstructed route around the exterior of the building. The fire code official is authorized to increase the distance.
- 1.5.12 Temporary Access.** All weather access and or paving shall be provided prior to introducing combustible materials or starting vertical construction. A fire engine or fire truck shall be able to access the building site during construction and temporary access roadways shall comply with the following:
- 1.5.12.1 Utilities.** All utilities within the required width of fire apparatus access roads shall be installed prior to introducing combustible materials, excluding form work or slabs, to a site or commencing vertical construction.
- 1.5.12.2 Driveways During Construction.** Prior to and throughout vertical construction, driveways, inclusive of turnarounds, required for fire apparatus access shall be of all-weather construction, have base material capable of supporting a 20-ton vehicle, during all weather conditions, installed and compacted to 95% relative compaction at a minimum of the required width with 2 feet clearance on each side of the access way.
- 1.5.12.3 Roadways During Construction.** All required roadways shall be installed prior to vertical construction, shall be of suitable all-weather construction, shall support a 75,000 LBS vehicle and have sufficient drainage related to a significant storm event.
- 1.5.12.3.1** All required access ways shall be addressed properly after every rain event.
- 1.5.12.3.2** All access ways, driveways and roadways, 10% or above shall require the approved paved surface installed prior to vertical construction.
- 1.5.13 Vegetation Clearance.**
- 1.5.13.1** Vertical vegetation clearance of 13.5 ft. shall be maintained at all times.
- 1.5.13.2** Minimum horizontal vegetation clearance/management of 10 ft. on each side of the roadway/driveway shall be maintained as required by the current CSFPD ordinance and Defensible Space Standard.
- 1.5.13.3** Additional clearance may be required in high fire hazard areas.

SECTION 1.6 ROADWAY STRUCTURES (BRIDGES, CULVERTS, CATTLE GUARDS, ETC.)

- 1.6.1 General.** All driveway, road, street and private lane structures shall be constructed to carry at least the required load and provide the minimum vertical clearance as specified.
- 1.6.2 Signage.** Appropriate signing, including but not limited to weight or vertical clearance limitations, one-way road or single lane conditions, shall reflect the capability of each roadway or driveway structure.
- 1.6.3 Bridges.** Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with the American Association of State and Highway Transportation Officials Standard Specifications for Highway Bridges, current addition (known as AASHTO HB-17), hereby incorporated by reference, shall have a minimum HS-20 rated capacity, and shall be certified by a registered structural engineer. A copy of such certification shall be on file with the Fire Department and updated every 10 years or when required.
- 1.6.3.1** Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus weighing 75,000 LBS.
- 1.6.3.2** Vehicle load limits shall be posted at both entrances to bridges.
- 1.6.3.3** Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, barriers, or signs, or both, as approved by CSFPD, shall be installed and maintained.
- 1.6.3.4** If authorized by CSFPD, an existing bridge with current civil engineering certification with only one traffic lane shall provide for unobstructed visibility from one end to the other and turnouts at both ends.
- 1.6.3.5** Minimum clear width of all bridges shall be the same as required of the driveway/roadway served unless waived by the Fire Chief or designee. See Appendix E below.

SECTION 1.7 ONE-WAY ROADS

- 1.7.1 General.** If approved, all one-way roads shall be constructed to provide a minimum, not including shoulders, of one twelve (12) foot traffic lane.
- 1.7.1.1** All one-way roads shall connect to a two-lane roadway at both ends.
- 1.7.1.2** One-way roads shall not exceed 2,640 feet in length. A turnout shall be placed and constructed at no more than every 500' along the one-way road.
- 1.7.1.3** Bulb turnarounds shall be provided along the roadway not to exceed 1,320'.

SECTION 1.8 DEAD-END ROADS

- 1.8.1 General.** The maximum length of a dead-end road, including all dead-end roads accessed from the dead-end road, shall not exceed the following cumulative lengths, regardless of the numbers of parcels served:
- 1.8.1.1** parcels zoned for less than one acre – 800 feet
- 1.8.1.2** parcels zoned for 1 acre to 4.99 acres – 1320 feet
- 1.8.1.3** parcels zoned for 5 acres to 19.99 acres – 2640 feet
- 1.8.1.4** parcels zoned for 20 acres or larger – 5280 feet

NOTE: All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end-road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply.

1.8.2 Where parcels are zoned 5 acres or larger, bulb turnarounds shall be provided at a maximum of 1320 foot intervals or as determined by the fire code official.

1.8.3 Each dead-end road shall have a bulb turnaround constructed at its terminus.

SECTION 1.9 ACCESS GATES FOR DRIVEWAYS AND PRIVATE ROADS

1.9.1 General. All gates shall be a minimum of 2' wider than the access way when measured in the open position.

1.9.1.1 Plan Submittal. Digital plans are required that include scaled site and elevation plans of the entry area and:

1.9.1.1.1 Identification of gates and setbacks, "Knox" switches and boxes, automatic exit loops and "nearby" fire hydrants, fire department connections and fire sprinkler valves. Gate operations shall not impede on the use of firefighting appliances.

1.9.1.1.2 Gate construction details, opening style (swing, slide, lift) and identification of the type of material used (Wrought iron, chain link, wood, etc.)

1.9.1.1.3 Details of locking devices, electric operators and battery back-up.

1.9.1.1.4 Exiting spikes or similar devices require a submittal with details and must be approved by CSFPD.

1.9.1.1.5 Provide Emergency Release Information should power fail.

Note: All gates shall be manually operable by a single person regardless of construction type or opening method.

1.9.1.2 Gate Installation Setbacks.

1.9.1.2.1 Driveway gates on required apparatus access shall be setback from the roadway a minimum of 30'.

1.9.1.2.2 Roadway gates shall be setback from the adjoining roadway a minimum of 40'.

1.9.1.2.3 Roadway gates shall provide for large vehicle turnaround when entry is denied.

1.9.1.3 Knox Key Gate Entry System. A Fire Department "Knox System" enables emergency responders to access locked gates during emergencies and shall be required on all vehicle access gates whether public or private.

Note: For applications and details regarding the Knox Rapid Entry System as utilized by CSFPD please contact: fireprevention@csfd.net

1.9.1.4 No Parking. Parking shall not obstruct any of the requirements of Section 1.9. No parking signs shall be required as determined by the fire code official.



1.9.1.5 Easements. All gate components must be in recorded easements, including location of any gate in the open position.

Exception: Gates serving a Single Family Dwelling on private property where no easements are required.

1.9.1.6 Alternative Methods. The Fire Chief or designee is authorized to approve alternate materials or methods provided that the Chief finds that the proposed design, use or operation satisfactorily complies with the intent of the CFC.

1.9.2 Driveway Gates

1.9.2.1 Gate Width

1.9.2.1.1 A gated entrance for a driveway with one twelve-foot (12') traffic lane shall have a minimum width of fourteen feet (14') unobstructed horizontal clearance when the gate is open and an unobstructed vertical clearance of thirteen feet six inches (13'6"). See Appendix G below.

1.9.2.1.2 At all times the gate shall be a minimum of two feet (2') wider than the installed access width.

1.9.2.2 Gates may be of the lift, swing, or sliding type and shall not obstruct the access way in any manner including vertical clearance.

1.9.2.3 Electric gates shall be equipped with a Knox electric switch (with dust cover) in an approved location and an automatic egress loop.

1.9.2.4 Manual vehicle access gates shall be equipped with a Knox padlock within the locking system.

1.9.2.5 Electric locking device must operate in a "fail safe" mode so that the gate(s) unlock and can be operated manually by one person when electrical service is interrupted if battery backup is not provided.

1.9.2.6 Gates for private driveways shall be setback to provide a minimum of 30 feet from the intersecting road. See Appendix G below.

1.9.2.7 All vehicle access gates shall be constructed to allow for manual operation by one person.

1.9.3 Roadway Gates for Gated Communities.

1.9.3.1 The minimum clear open gate width shall be at least two-feet wider than the width of the traffic lane(s). See Appendix G below.

1.9.3.2 When there is one road for ingress and one for egress, each gate shall have a minimum clear open width of fourteen (14) feet. See Appendix H below.

1.9.3.2.1: Depending upon number of homes served, increased widths may be required, Appendix D of the CFC.

1.9.3.3 Gates shall be electrically operated, have battery backup and may be of the swing, lift or sliding type. Manual gates are not allowed for roadways or gated communities.

1.9.3.4 Each gate shall be provided with a Knox electric key switch (with dust cover) on the ingress side, in an approved location, for emergency personnel use.

1.9.3.5 An automatic exit loop shall be required for the egress side of the gate.

1.9.3.6 No other locks or latches shall be installed on gates.

- 1.9.3.7 Gate placement and operation shall not encroach into the required 40-foot setback, any turning radius or interfere with the use of fire protection equipment; i.e. fire hydrants, fire department connections, fire sprinkler valves, etc.
- 1.9.3.8 Roadway entry gates shall be setback to provide a minimum of 40 feet of storage for entering vehicles to stack without interfering with through traffic from the intersecting road. See Appendix H below.
- 1.9.3.9 Entry design for roadways shall provide for turning around large vehicles when entry is denied and can be required for driveways when the adjoining roadway warrants.
- 1.9.3.10 All gate components shall be properly listed, be maintained in an operative condition at all times, and shall be immediately replaced, repaired or the gate completely removed when defective.
- 1.9.3.11 A semi-annual test of the battery back-up system shall be performed and a record kept on file with the property owner or designated party.
- 1.9.4 **Gates for Fire Access Points or Roads, non-structure related.**
 - 1.9.4.1 Minimum clear open gate width shall be 14 feet due to heavy equipment.
 - 1.9.4.2 Gates may be of the swing, sliding or lift style.
 - 1.9.4.3 Electric gates shall be equipped with a Knox electric switch (with dust cover). A Knox switch shall be installed on both sides of the gate in an approved location.
 - 1.9.4.4 Electric gates must operate in a “fail safe” mode so that the gates unlock and can be operated manually when electrical service is interrupted.
 - 1.9.4.5 Manual gates shall include a Knox padlock (weather proofed) in the locking system.
 - 1.9.4.6 Gates shall be constructed to allow manual operation by one person.

SECTION 1.10 LIMITING ACCESS and SPEED CONTROL DEVICES

1.10.1 Speed Bumps

- 1.10.1.1 Speed bumps shall not be installed on private roadways. (CFC)
- 1.10.1.2 Speed bumps shall not be installed on private driveways. (CFC)
 - 1.10.1.2.1 **Exceptions.** The Fire Chief or designee may approve the use of speed bumps in some cases. The property owner or agent shall deliver to CSFPD, a formal letter outlining the conditions requiring the installation of speed bumps rather than speed humps and conditions set forth in 1.10.2.1 must be met.
 - 1.10.1.2.2 Speed bumps shall not be installed without written approval from the Fire Chief or designee.

1.10.2 Speed Humps

- 1.10.2.1 **Alternate Methods.** CSFPD does not recommend the use of Speed humps, however, speed humps may be allowed when all of the traffic mitigation measures listed below have proven to be ineffective.
 - 1.10.2.1.1 Traffic engineering improvements
 - 1.10.2.1.2 Increased and/or improved regulatory, warning, and/or guide signs
 - 1.10.2.1.3 Increased law enforcement measures
- 1.10.2.2 **Installation of Speed Humps.** The installation of speed humps shall not be allowed until the provisions listed in CSFPD Standard #1 have been met. Documentation proving the ineffectiveness of the **ALTERNATE METHODS**

(above) shall be submitted to the Fire District for review and approval before installation of the speed humps. Speed Humps shall not be installed without written approval from the Fire Chief or designee.

- 1.10.2.3 Speed Hump Specifications (IF INSTALLATION IS APPROVED):** If the review listed in **1.10.2.2** finds in favor of the applicant, engineered plans for the installation of the speed humps shall be submitted to the Fire District for review and approval. The plans submitted shall reflect but not limited to the following:
- 1.10.2.3.1** Minimum speed hump spacing shall be 300 feet
 - 1.10.2.3.2** Speed humps shall be placed near a street light for increased visibility when street lights are installed.
 - 1.10.2.3.3** Speed humps shall not be installed on roadways or driveways where the grade is greater than 5 percent.
 - 1.10.2.3.4** Speed humps shall not be installed within 100 feet of any intersection.
 - 1.10.2.3.5** Speed humps shall not be installed within 25 feet of a fire hydrant.
 - 1.10.2.3.6** Speed humps shall not be installed in an area in front of any building where emergency operations for ladder trucks may be effected.
 - 1.10.2.3.7** Speed humps shall be clearly marked with highly visible pavement marking, striping and signage per public works standards.
 - 1.10.2.3.8** Speed humps shall not be installed within 100 feet of a blind curve or summit of a blind hill.
 - 1.10.2.3.9** Speed humps shall not be located on a main thoroughfare that emergency equipment uses as a primary attack route, as determined by the fire code official.
 - 1.10.2.3.10** Speed Humps shall not exceed a height of (2-5/8") two and five-eighths inches and shall not be less than three feet in width.
- 1.10.2.4 Plans.** All plans shall be submitted to the CSFPD for review and approval. Email: fireprevention@csfd.net for information.

1.10.3 Access Control Devices

- 1.10.3.1 Traffic Spikes.** Traffic spikes shall not be installed on private roadways or driveways without written approval of the Fire Chief or designee.
- 1.10.3.1.1** If traffic spikes are approved by the CSFPD, the device shall be fitted with a system that lowers and latches down the spikes for emergency access.
- 1.10.3.2 Barriers.** Permanent barriers intending to remove access on a private roadway or driveway, shall not be allowed.
- 1.10.3.3 Temporary Construction Fencing.** Temporary fencing is allowed during construction, if the gate has an approved Knox locking device installed and the width of the gate opening is two feet wider than the approved roadway or driveway. The number of gates required for temporary construction fencing will vary, according to the scope of the project.
- 1.10.3.3.1:** A Knox padlock is required on all temporary construction gates across roadways.
- 1.10.3.4 Bollards.** Removable bollards are not allowed without fire department approval. A complete detailed plan set including service plan for monthly

maintenance, operation and servicing shall be submitted for consideration prior to approval.

SECTION 1.11 FIRE LANES

1.11.1 General Fire apparatus access roads and fire protection equipment shall comply with this section. Fire apparatus access roads designated as fire lanes shall be posted with fire lane markings and signs in accordance with this Standard, Caltrans Traffic Manual and CVC Sections 22500.1 and 22658(a).

1.11.2 Fire Lane Identification. Fire lanes shall be posted with Fire Lane Signs and Curb Side Marking for Fire Lanes. Fire lane plans shall be approved by CSFPD prior to building permit issuance.

1.11.2.1 Fire Lane Sign. Fire Lane Signs shall meet the following: (See Appendix I below)

1.11.2.1.1 Fire Lane sign shall be placed along the length of the fire lane, every 150 feet or portion thereof. Each section and/or direction shall have at least one sign.

1.11.2.1.2 The sign shall be of a durable material, securely mounted, facing the direction of travel and clearly visible to oncoming traffic entering the designated area.

1.11.2.1.3 The words "FIRE LANE" shall be white reflective lettering on a red background and no smaller than 4 inches lettering in height.

1.11.2.1.4 All other lettering shall be black on a white reflective background, no smaller than 2 inches in height.

1.11.2.1.5 The words "SHERIFF" and the name of each towing company under written authorization agreement from the property owner to tow shall be placed on a sign on the property boundary at the entrance(s). The respective telephone number for each shall be listed below their name. The applicable California Vehicle Code sections shall be listed. Lettering shall be red on a white reflective background and be no smaller than 1 inch in height.

1.11.2.2 Curb Side Markings. Curb Side Marking for Fire Lanes shall meet the following: (See Appendix J)

1.11.2.2.1 All curbing which outlines the fire lanes shall be painted red.

1.11.2.2.2 White lettering reading "NO PARKING – FIRE LANE – TOW AWAY" shall be a minimum of 4 inches tall.

1.11.2.2.3 White lettering indicated above in 1.11.3.2.2 shall be placed every 50 feet or portion thereof.

1.11.2.2.4 The lettering shall be placed on top of the curb and at least once on each section and/or direction.

1.11.3 Enforcement. When properly posted, violating vehicles may be removed (towed) in accordance with CVC Section 22658, including any required notifications.

1.11.4 Posting of Roads. When required, roads shall be posted in accordance with Section 1.11.3 above and as follows:

1.11.4.1 Roads less than 28 feet in clear width from curb face to curb face shall be posted no parking on both sides of the access.

1.11.4.2 Roads 28 feet and less than 36 feet in clear width from curb face to curb face shall be posted no parking on one-side of the access.

1.11.4.3 Aerial apparatus access roads less than 34 feet in clear width from curb face to curb face shall be posted no parking on both-sides of the access.

1.11.4.4 Aerial apparatus access roads less than 42 feet in clear width from curb face to curb face shall be posted no parking on one-side of the access. CFC Appendix D

1.11.4.4.1 At no time shall the required aerial apparatus access be encroached upon by parking and additional restrictions can be implemented.

1.11.4.5 Turnarounds as specified in Section 1.5.7 of this standard shall be properly posted when no parking is allowed.

1.11.5 Posting for Fire Protection Equipment. When required, fire protection equipment shall be posted "No Parking" in accordance with Section 1.11.3 above and as follows:

1.11.5.1 Fire hydrants located along roads shall be posted for a distance of 7.5 feet in each direction from the center of the hydrant.

1.11.5.2 Fire department connections (FDCs) along roads shall be posted for a distance of 7.5 feet in each direction from the center of the FDC.

1.11.6 Plan Review and Approval of Fire Lanes. A fire lane location plan check is required for all projects where new buildings, additions to buildings or remodeling of buildings are proposed and the project is not exempt from providing fire department access. Plans in accordance with 1.11.8 below shall be submitted to CSFPD and shall require approval prior to building permit issuance.

1.11.7 Fire Lane Plans. Fire lane plans are required to be submitted as part of the overall access plan at time of initial Fire Protection Certificate (FPC) application. Plans shall indicate the following:

1.11.7.1 Location of all buildings and structures inclusive of overhangs

1.11.7.2 Location of all fire apparatus access roads serving the site

1.11.7.3 Location of any gates or barriers

1.11.7.4 Location of sidewalks and parking rows

1.11.7.5 Location of fire hydrants

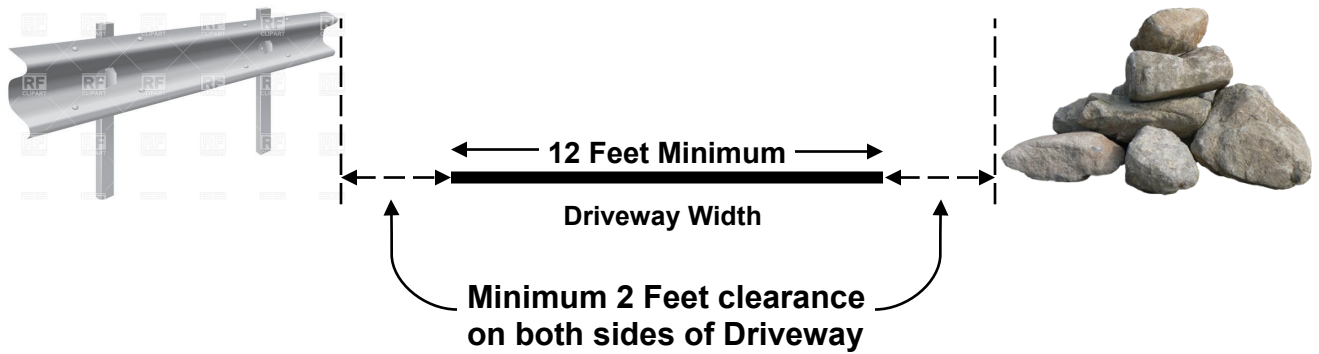
1.11.7.6 Location of FDC's

1.11.7.7 Locations of any existing fire lanes and sign locations

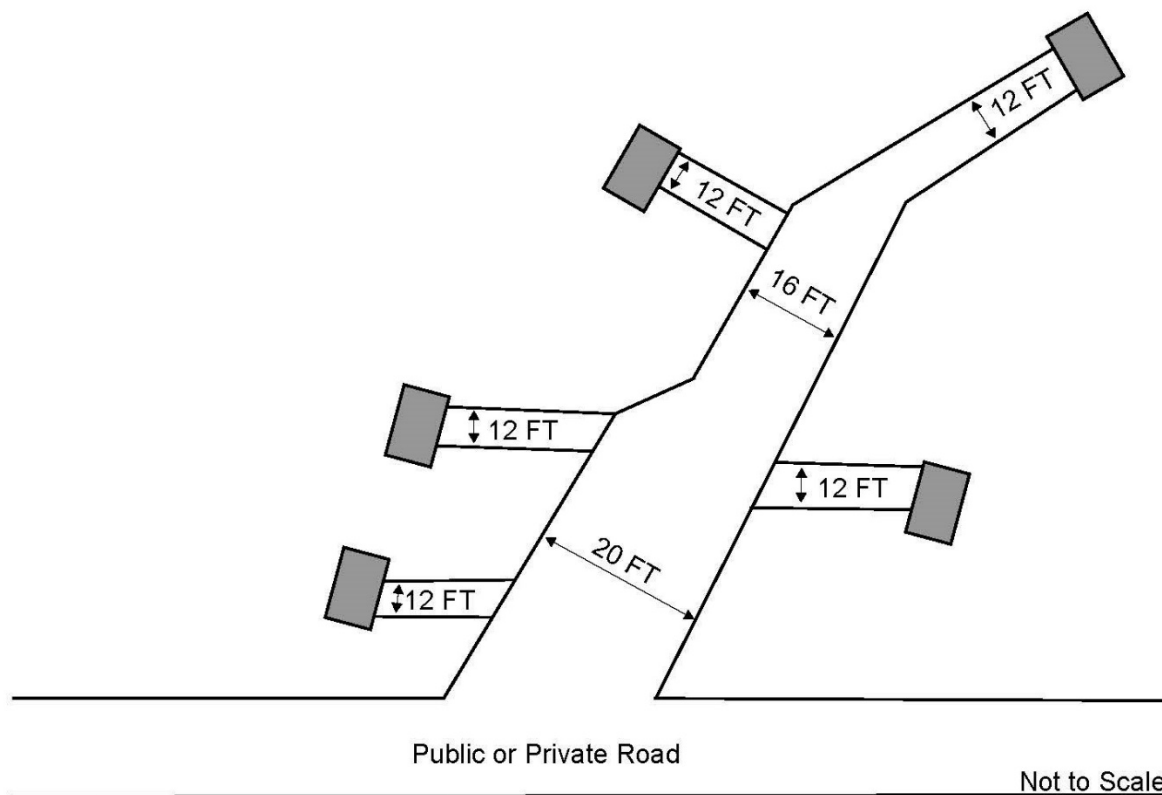
1.11.7.8 Clear designation where private roads connect with public roads

APPENDIX A-1

MINIMUM DRIVEWAY WIDTH

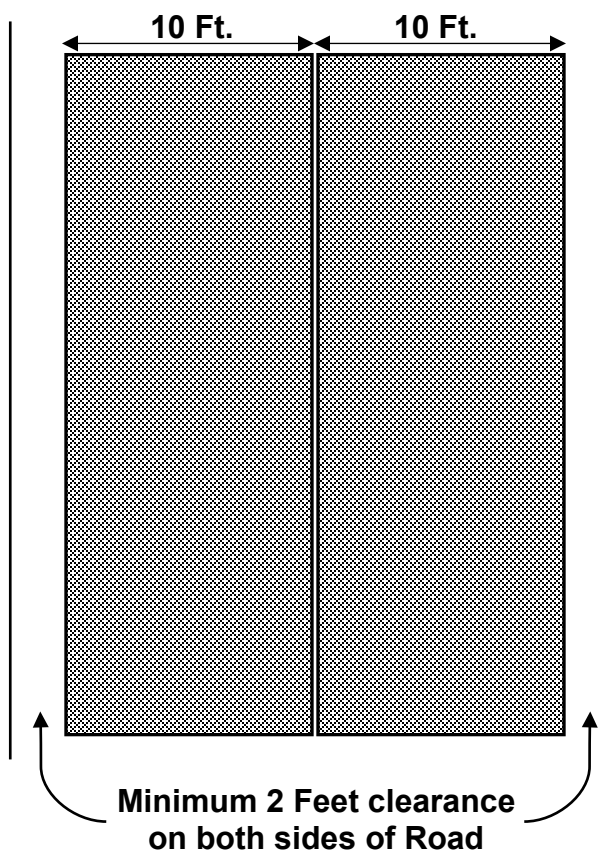


Driveway Width Based on Number of Structures



APPENDIX A-2

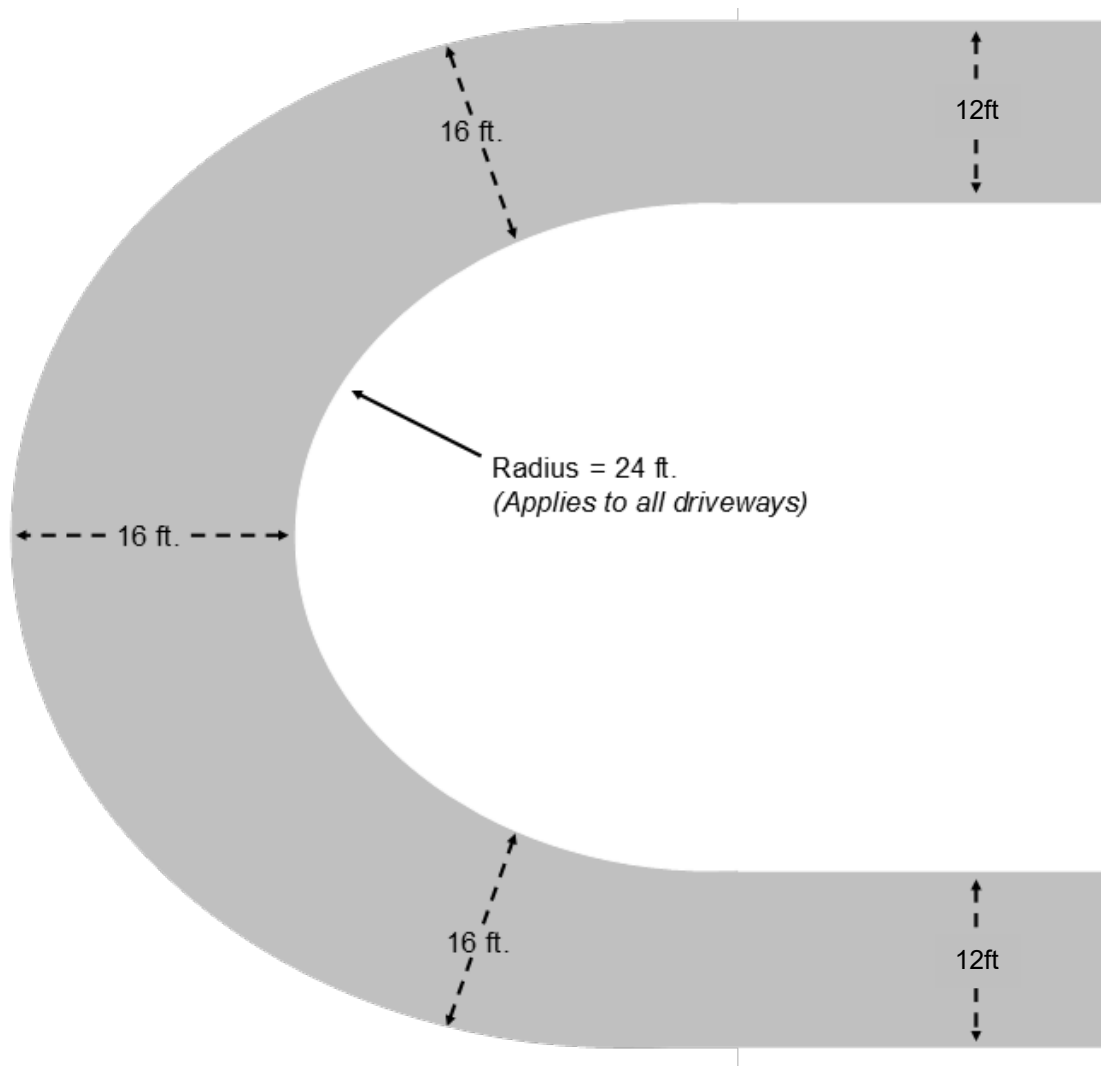
MINIMUM ROAD WIDTH



APPENDIX B

DRIVEWAY RADIUS

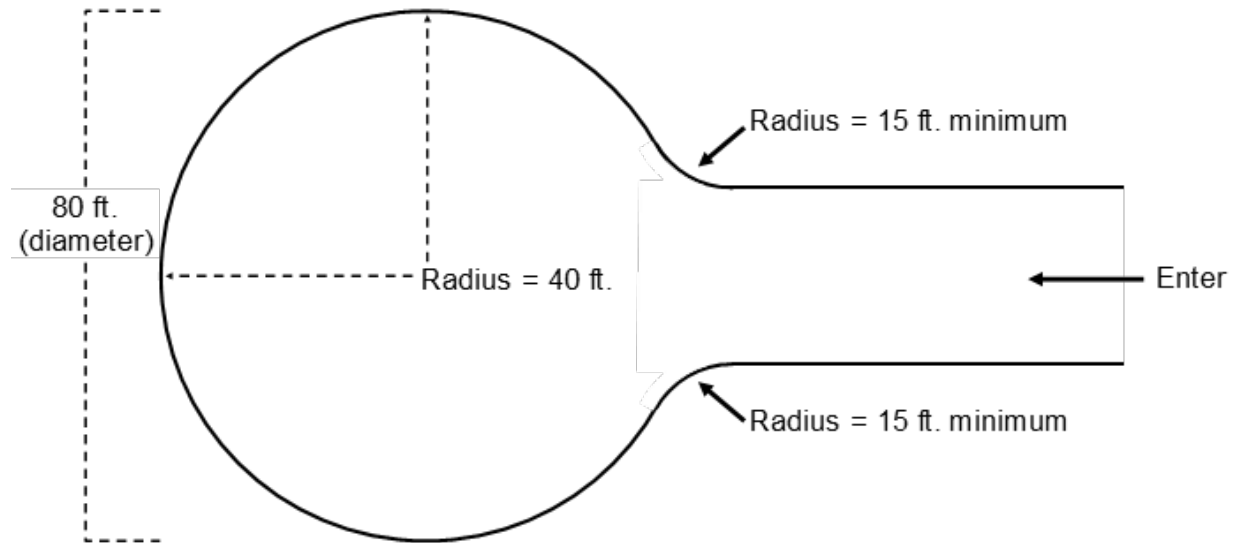
Minimum Dimensions for 12-Foot Driveway Example



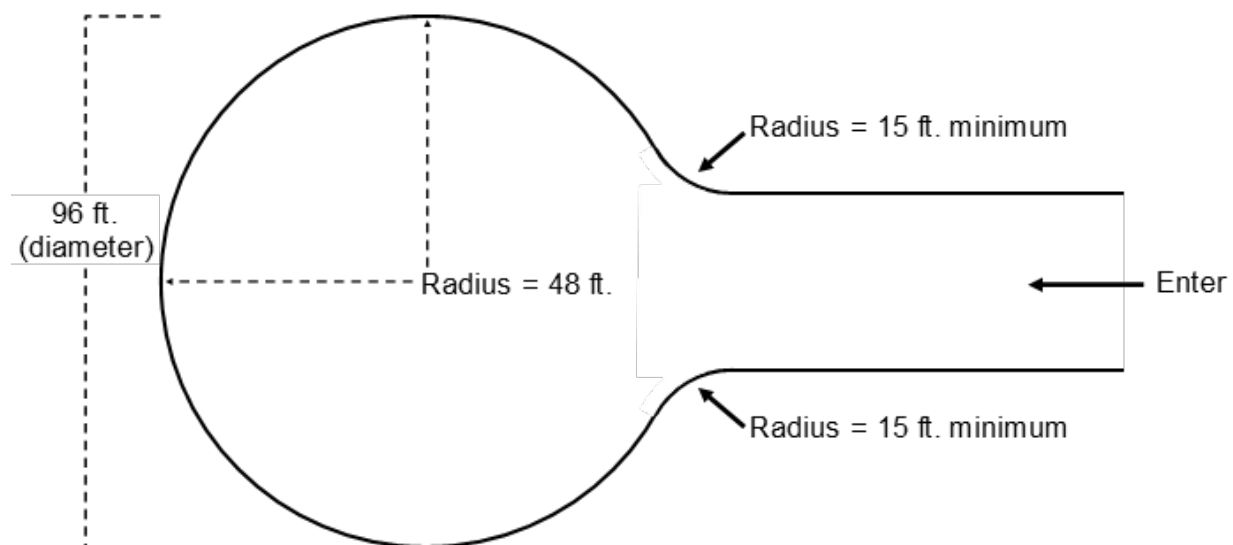
APPENDIX C-1

TURNAROUNDS

Bulb Turnaround with No Parking Allowed (Red curbs and signage will be required):

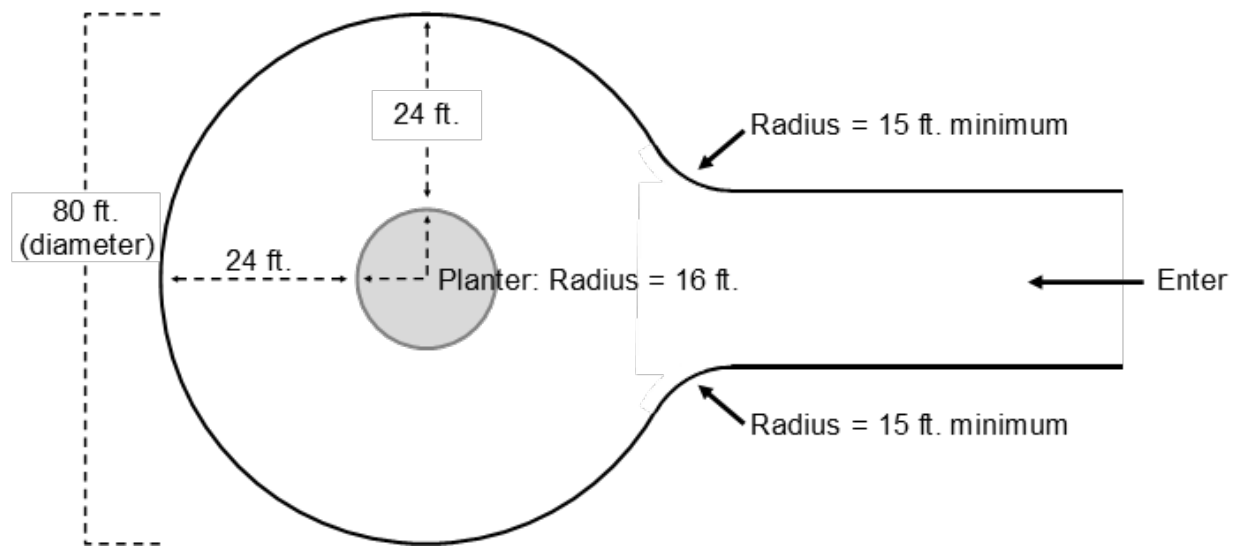


Bulb Turnaround with Parking Allowed on Outside Perimeter:

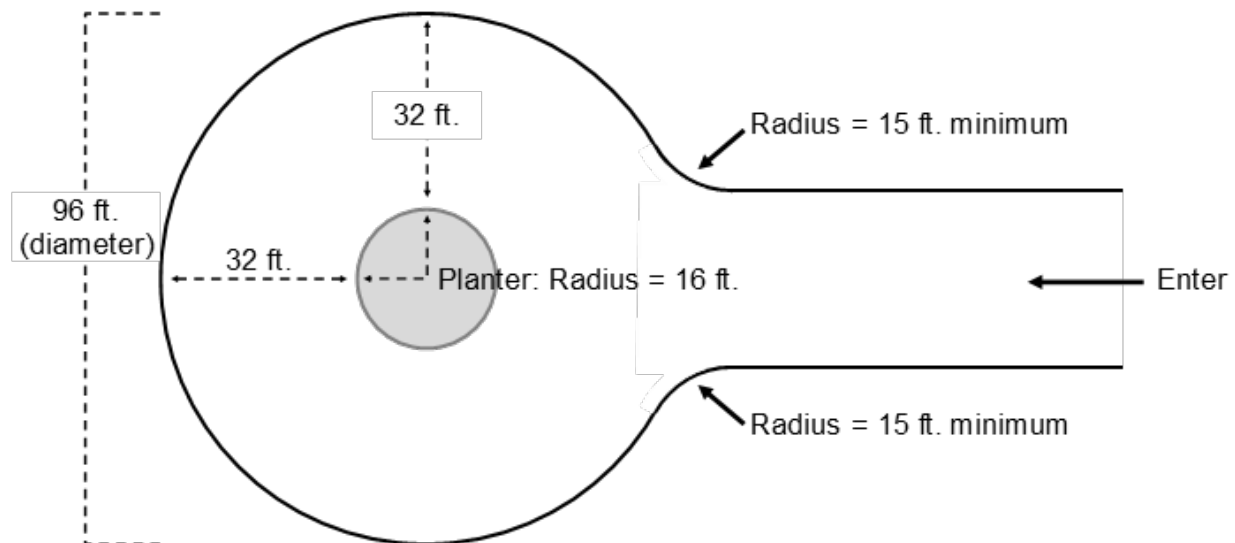


APPENDIX C-1 TURNAROUNDS

Bulb Turnaround Including Center Planter with No Parking Allowed (Red curbs and signage will be required)

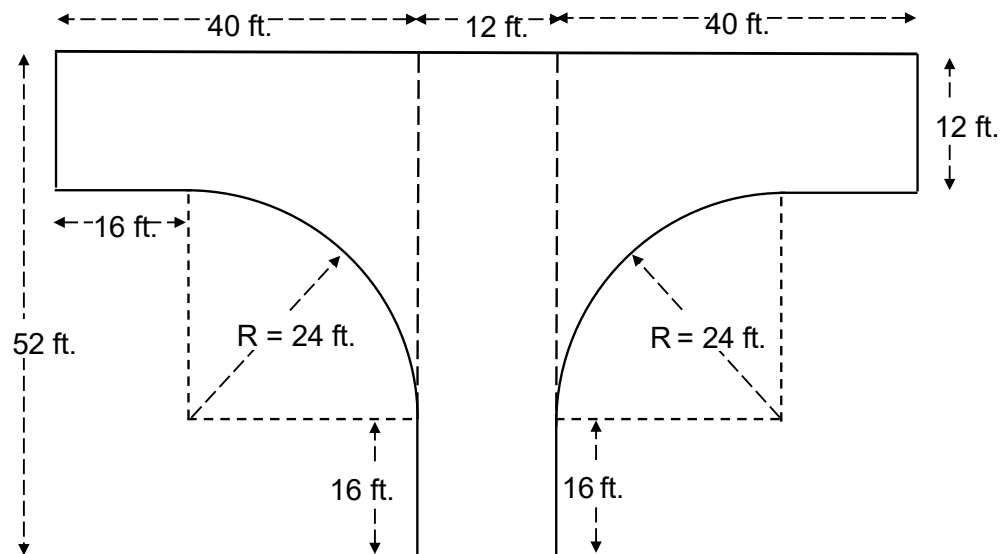
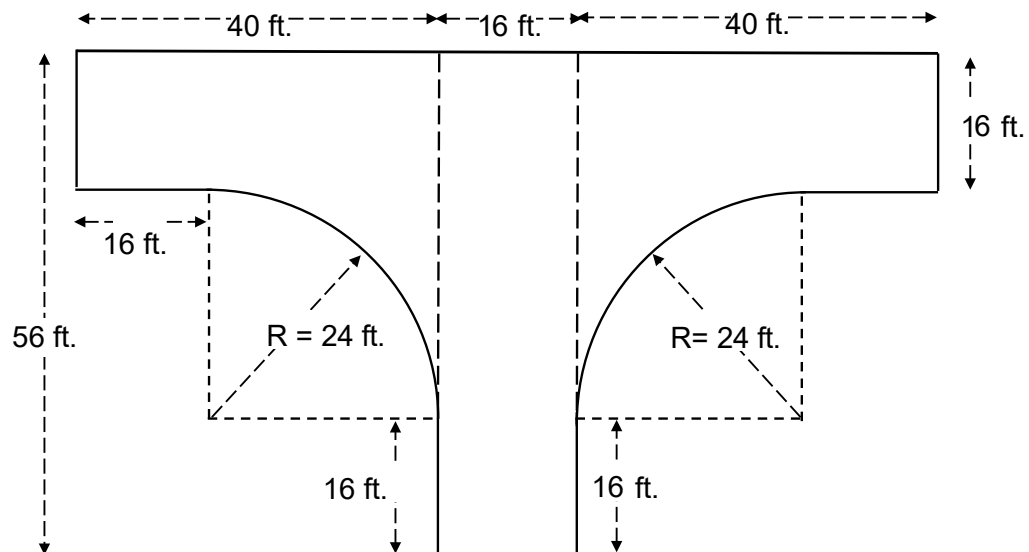


Bulb Turnaround Including Center Planter with Parking Allowed on Outside Perimeter



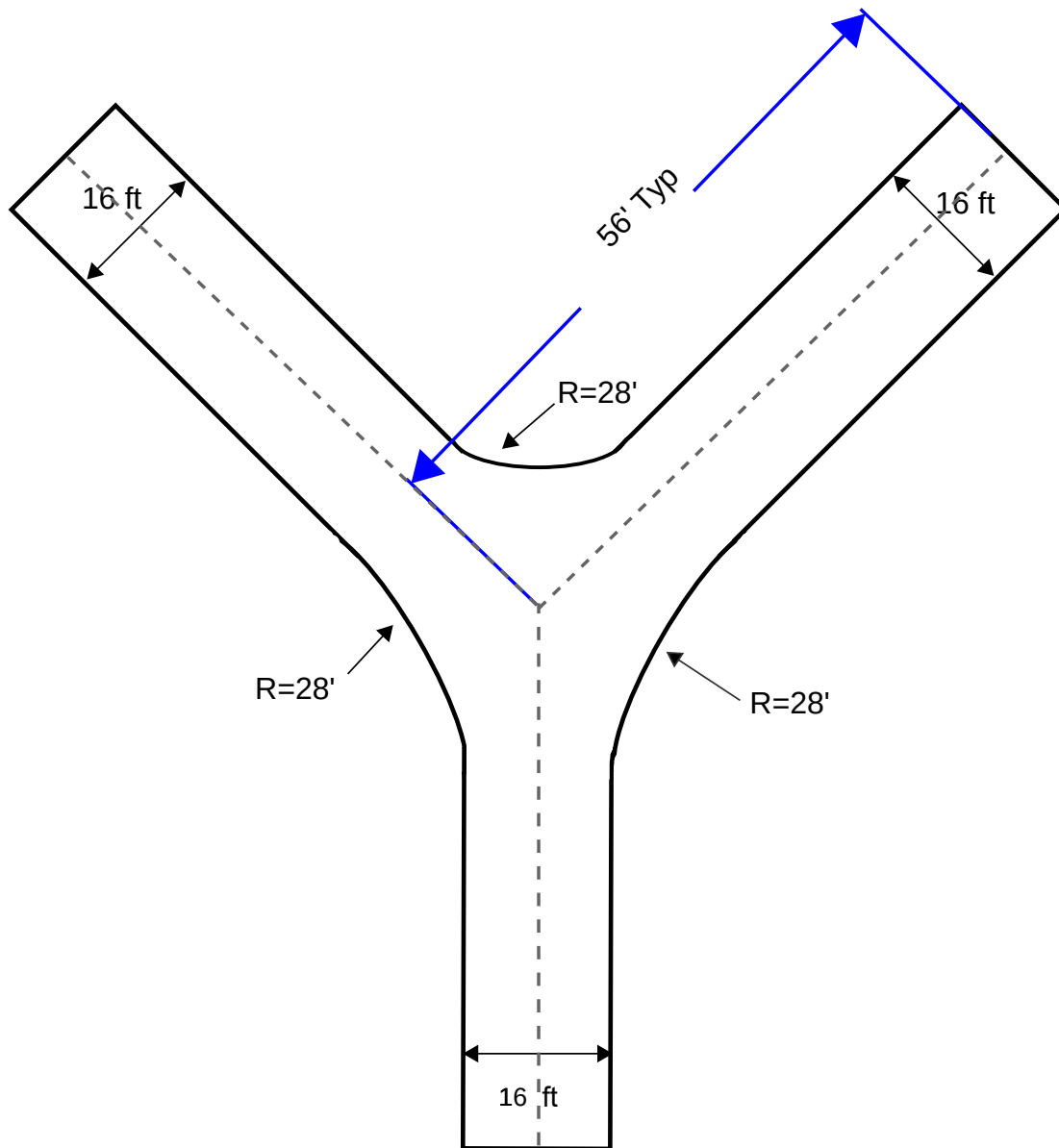
APPENDIX C-2

Hammerhead Style Turnarounds for Driveways



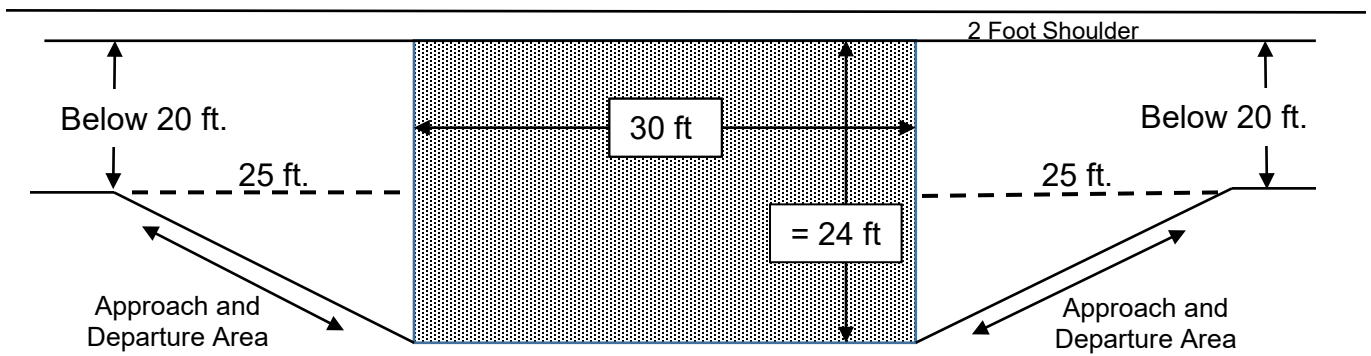
APPENDIX C-2

Hammerhead Style Turnarounds for Driveways



APPENDIX D

TURNOUTS



APPENDIX E

Minimum Bridge Requirements for Roadways

For Single Axle Trucks

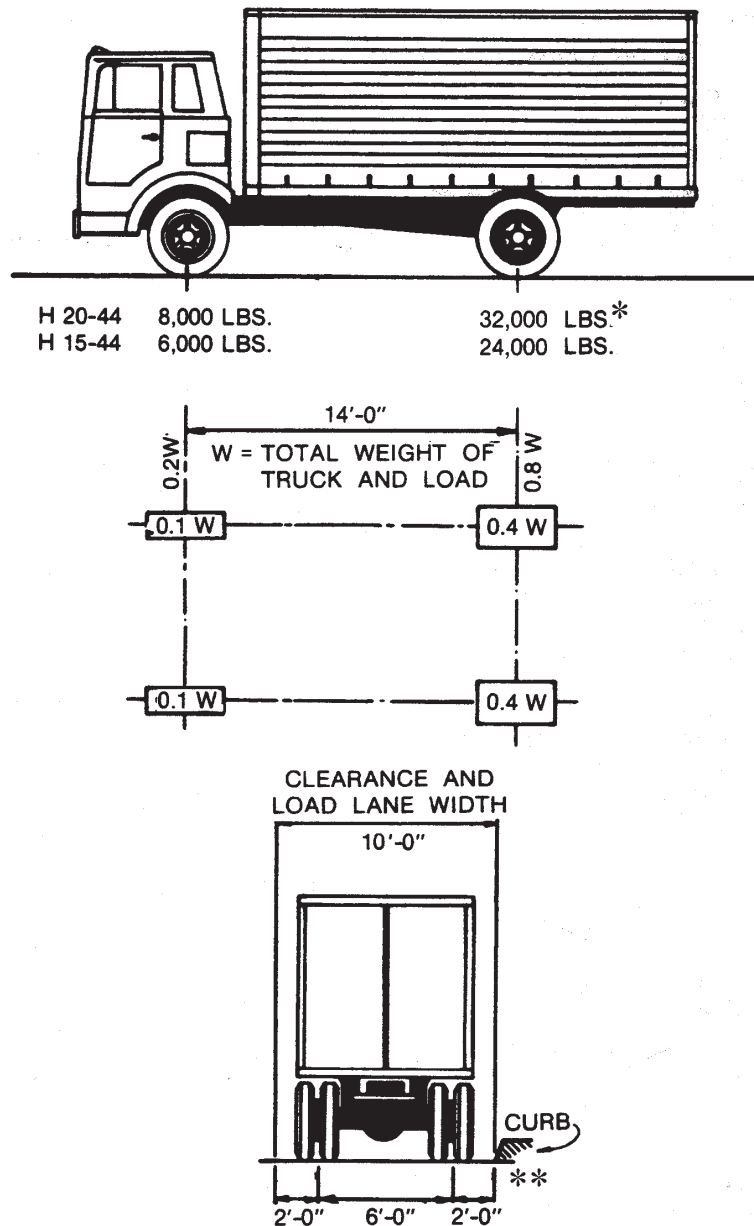


FIGURE 3.7.6A Standard H Trucks

* In the design of timber floors and orthotropic steel decks (excluding transverse beams) for H 20 loading, one axle load of 24,000 pounds or two axle loads of 16,000 pounds each spaced 4 feet apart may be used, whichever produces the greater stress, instead of the 32,000-pound axle shown.

** For slab design, the center line of wheels shall be assumed to be 1 foot from face of curb. (See Article 3.24.2)

APPENDIX E

For Double Axle Trucks

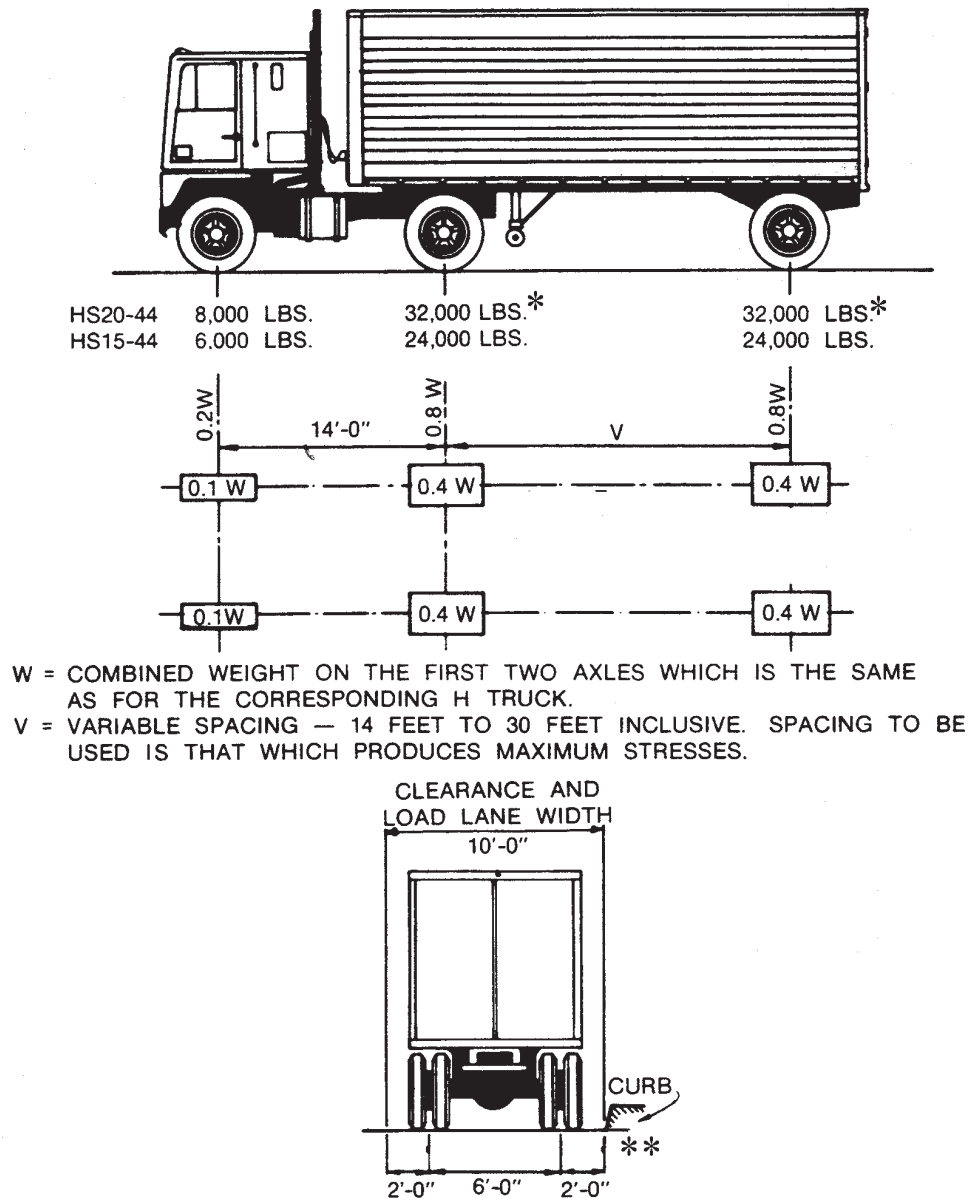


FIGURE 3.7.7A Standard HS Trucks

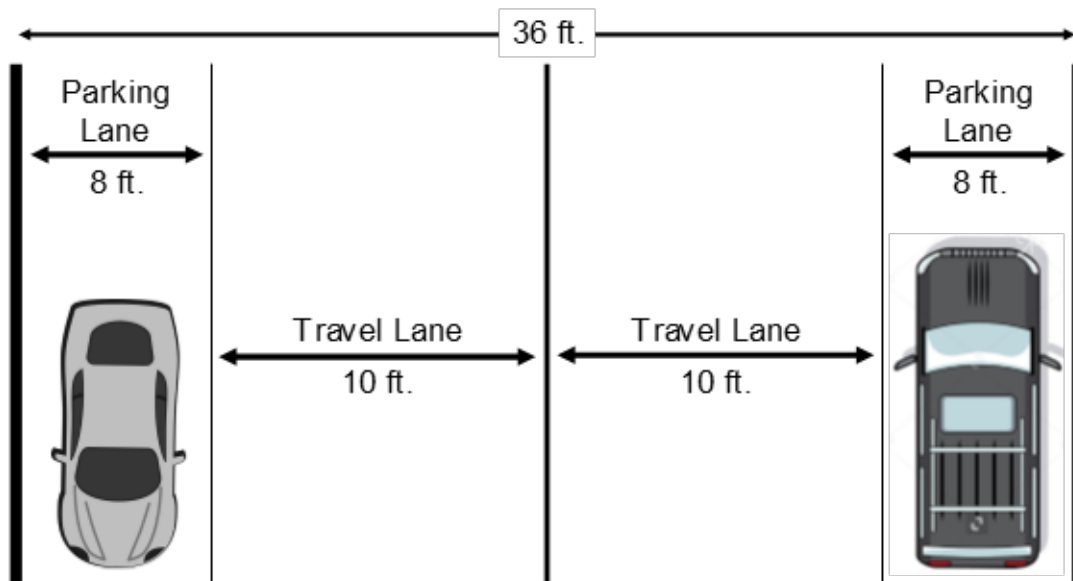
* In the design of timber floors and orthotropic steel decks (excluding transverse beams) for H 20 loading, one axle load of 24,000 pounds or two axle loads of 16,000 pounds each spaced 4 feet apart may be used, whichever produces the greater stress, instead of the 32,000-pound axle shown.

** For slab design, the center line of wheels shall be assumed to be 1 foot from face of curb. (See Article 3.24.2)

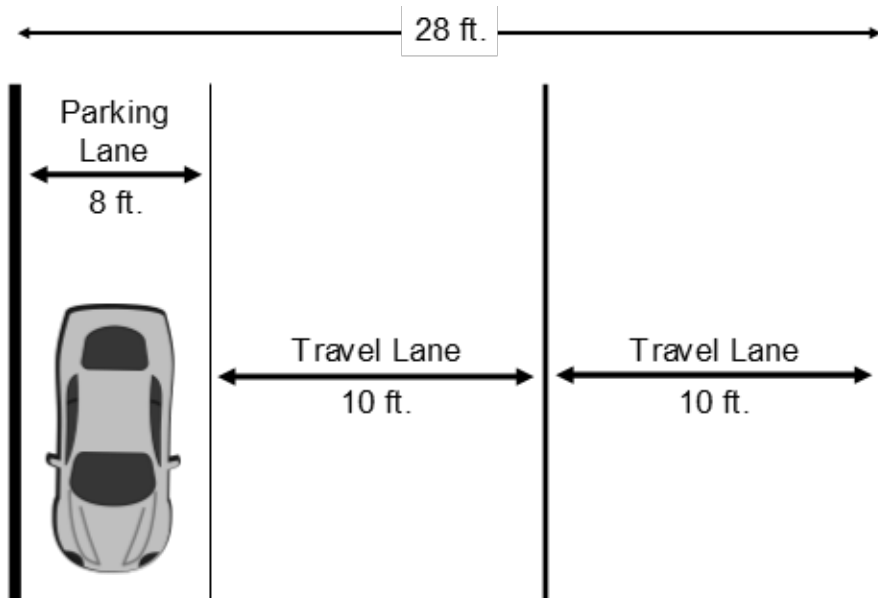
APPENDIX F

Unobstructed Road Widths

Minimum Unobstructed Road Width for Development with Parking Allowed on Both Sides of the Street:

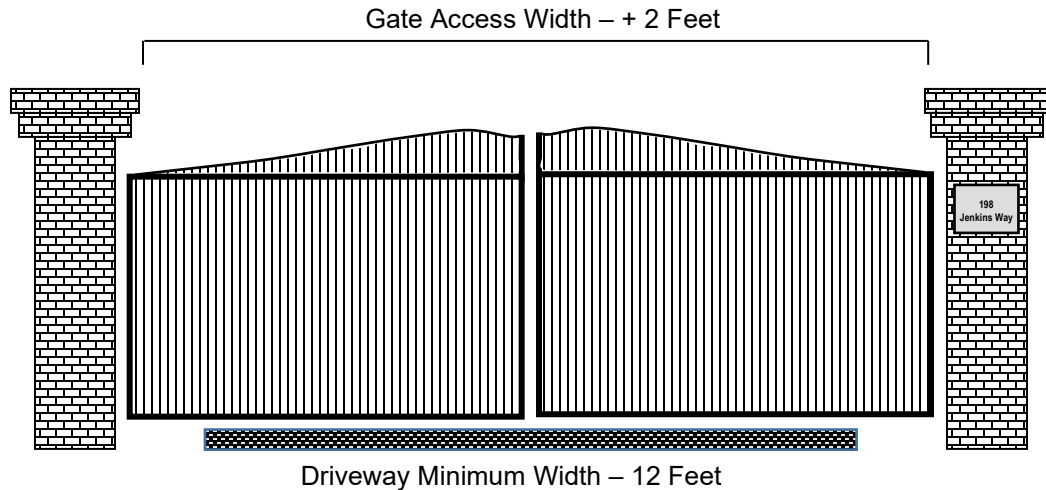


Minimum Unobstructed Road Width for Development with Parking Allowed on One Side of the Street:

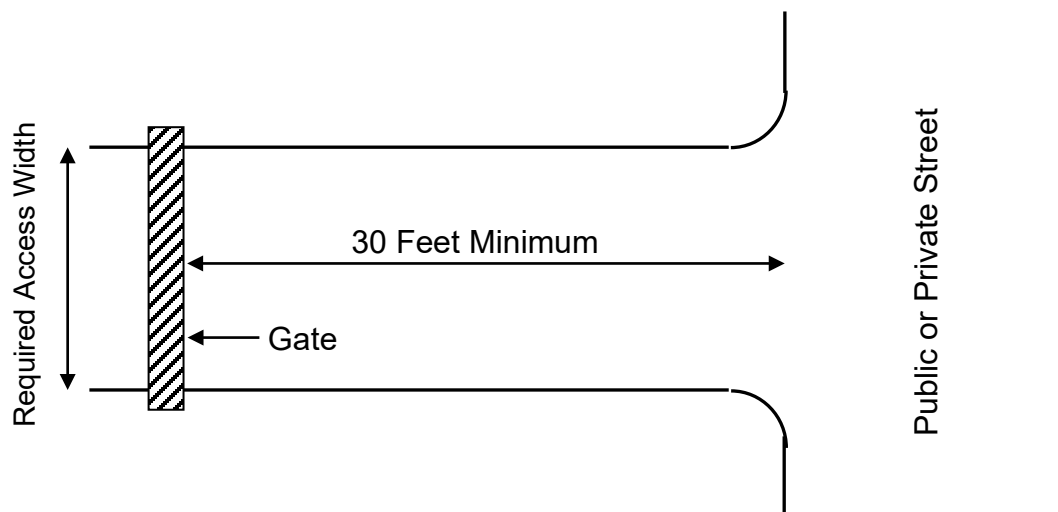


APPENDIX G

Private Driveway – Single Family Dwelling



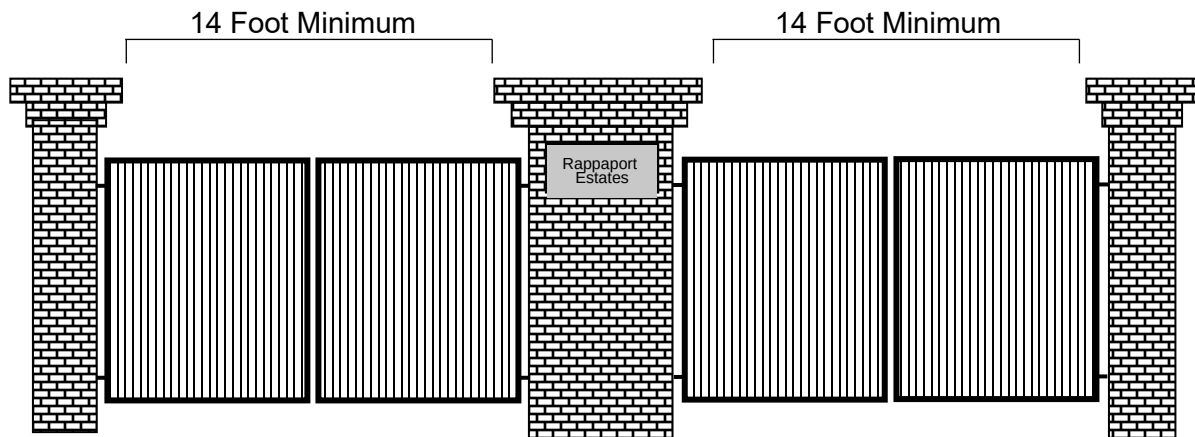
Driveway Gate Set-Back Distance



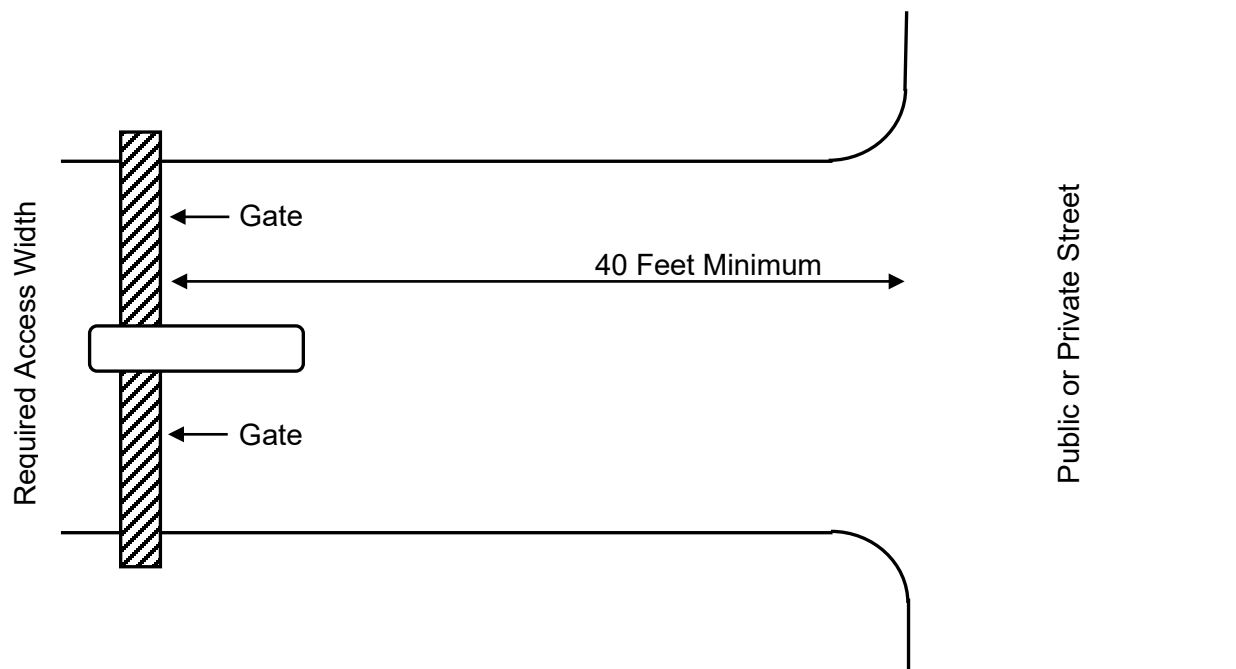
Entry gates on driveways shall be set back from the nearest curb line of any public or private street to provide a minimum 30 feet of storage for a fire engine to stage without interfering with through traffic.

APPENDIX H

Double Gate Example for Gated Communities (Subdivisions)



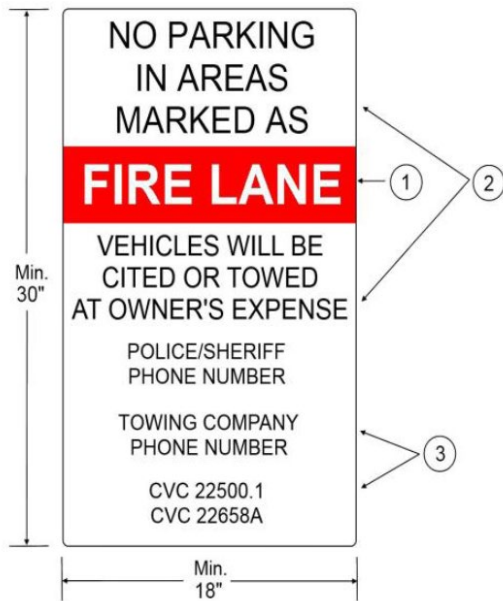
The gate(s) shall be constructed so that there is a minimum of 14 feet of clear access width when the gate is in the open position.



Entry gates on private roadways shall be set back from the nearest curb line of any public or private street to provide a minimum 40 feet of storage for entering vehicles to stack without interfering with through traffic.

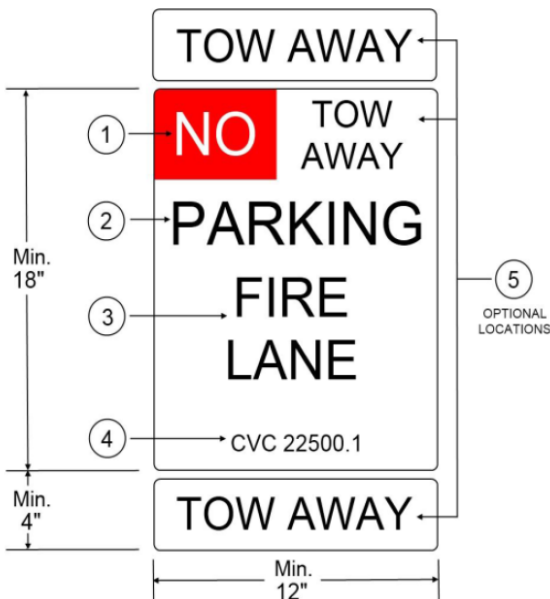
APPENDIX I

Fire Lane Identification – Posted Signs



NOTE: The sign shall be of a durable material, securely mounted, facing the direction of travel and clearly visible to oncoming traffic entering the designated area.

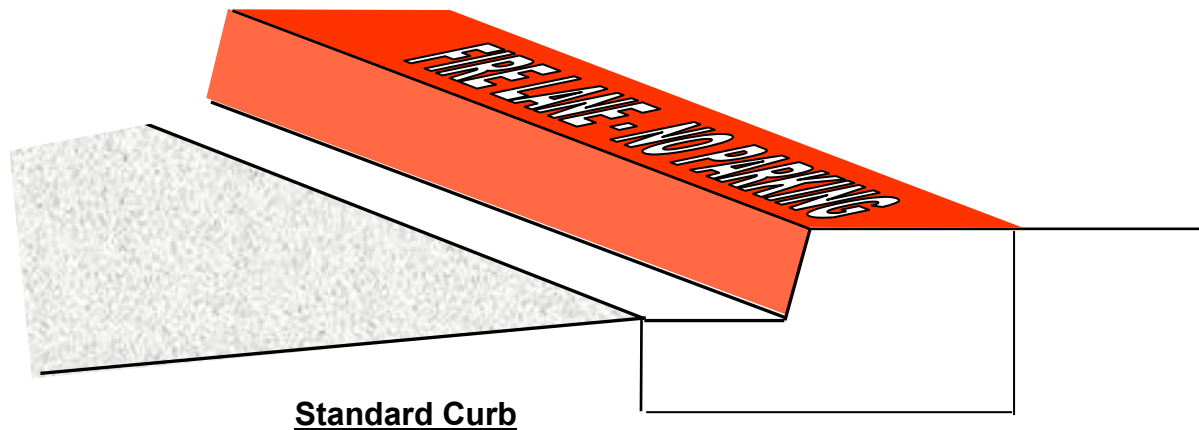
1. The words "FIRE LANE" shall be white reflective lettering on a red background and no smaller than 4 inches in height.
2. Lettering shall be on a white reflective background, no smaller than 2 inches in height.
3. The words "SHERIFF" and the name of each towing company under written authorization agreement from the property owner to tow shall be placed on the sign. The respective telephone number for each shall be listed below their name. The applicable California Vehicle Code sections shall be listed. Lettering shall be red on a white reflective background and be no smaller than 1 inch in height.



1. The word "NO" shall be white reflective on a red background and no smaller than 3-1/2 inches in height.
2. Lettering shall be red on a white reflective background, no smaller than 3 inches in height.
3. Lettering shall be red on a white reflective background, no smaller than 2-1/2 inches in height.
4. Lettering shall be red on a white reflective background, no smaller than 1 inch in height.
5. The words "TOW AWAY" shall be in one of the three optional locations. The lettering shall be red on a white reflective background, no smaller than 2-1/2 inches in height.

APPENDIX J

Fire Lane Identification (Red Curbs)



1. Curbs shall be painted OSHA Safety Red.
2. "FIRE LANE – NO PARKING" shall be painted on top of curb in 4-inch white lettering at a spacing of 30ft or portion thereof.

