

# ROARING FORK FIRE RESCUE ACCESS INFORMATION PACKET



If you have any questions or comments regarding the information contained within, or if you need assistance interpreting these requirements, please contact:

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## INTRODUCTION

With the interest of preservation of life and property in mind, we have developed this packet of codes and standards to advise the public of our specific needs for access to and around proposed buildings being construction or remodeled, having a change of use, or going through other modifications.

We deal with many different types of emergencies; therefore, we have a variety of vehicles. Some are very large and require much more area to maneuver and operate than most others. For example, ladder trucks are in excess of 40 feet in length and when set up to operate with outriggers deployed, they can exceed 15 feet in width. Additional room is needed for fire personnel to utilize the equipment stored on the sides of the trucks. Also, the number of vehicles needed on an incident and the room to quickly accommodate multiple apparatus is crucial. Depending on the situation, structure fires require a lot of manpower and equipment. A typical structure fire may require as many as five engines companies; two ladder trucks; Incident Command Center, support vehicles, ambulance, and police cars. Larger incidents would, of course, dictate a larger response.

In the process of producing this packet, the following documents (currently adopted) were referenced for text and content:

- The International Building and Fire codes (2015)
- The International Urban-Wildland Interface code (2015)
- The ICC Performance Based code (2015)
- NFPA 5000(2018)
- Town of Basalt Municipal code
- Eagle County Land Use Regulations
- Pitkin County Land Use Code
- Town of Snowmass Village Municipal Code

The Fire Code authorizes the Fire Chief to make interpretations and judgment calls and grant administrative relief in situations where the code and standards are in site-specific issues.

The Roaring Fork Fire Rescue Authority is one of several agencies that make recommendations and requirements to the Planning Departments, Planning and Zoning Commissions, and Town Council with regard to site development within our city. We also consult with those interested in pursuing a development project.

The following pages are designed to cover as many as possible issues and questions involving fire apparatus and emergency personnel access onto and around property, road design, fire lanes, ladder, and access issues.

## Fire Apparatus Access Design

1. Public roadways shall be constructed to County or Municipal code standards.
2. Public alleys proposed for use for fire apparatus access must meet the following:
  - Minimum 20-foot unobstructed width
  - Fire lane signs posted per RFFRA specifications (see Attachment 1- “Fire Lane Sign Requirements”)
  - Unobstructed height clearance of 13 feet, six inches
  - Bringing the alley to minimum standards and associated expenses are the Applicant / Owner’s responsibility.
3. Fire apparatus access roads shall be provided when any portion of the exterior wall of a structure are greater than 150 feet from the fire apparatus access
4. All roadways proposed for fire department access shall be engineered and constructed of an all-weather driving surface able to support the weight of fire apparatus. The term “H-20 loading” is used in our comments regarding roadway integrity means a roadway surface is capable of supporting a vehicle with a gross vehicle weight of 75,000 pounds.

Alternative methods such as brick pavers, road base, etc. may be considered on a case-by-case basis.

Access roadways designed to incorporate materials that allow grass to grow through or upon the surface such as Grassrings, Geoblock, Grasstone, or Grass Crete are not allowed It has been our experience that these types of alternatives are unacceptable as the defined H-20 surface area that have been allowed tend to disappear with time and its limits are unknown to the driver of fire apparatus, causing it to be useless.
5. Minimum widths for apparatus access roads shall be 20 feet. Widths are measured curb face to curb face or, where there are no curbs, edge of pavement to edge of pavement. These areas must be maintained unobstructed.
  - Access roadways with a width of 34 feet or more do not require fire lane signs. Parking is allowed on both sides of the roadway.
  - Access roadway widths may be reduced to a minimum of 28 feet. Roadways 28 to 34 feet wide shall have fire lane signs posted on one side of the roadway. Parking is allowed on only one side of the street.
  - Access roadways widths 20 to 26 feet shall have fire lane signs posted on both sides of the roadway. Parking is not allowed on either side of the street.

- Access roadways in parking lots may be reduced to a minimum of 24 feet where parking spaces are designed back to back. We acknowledge that the Zoning ordinance allows reductions in aisle width; however, those needed for fire department access shall be maintained at the 24-foot minimum as required by this standard. Where parking is designed back to curb, a minimum of 28 feet shall be provided without fire lane posting.
5. Unobstructed vertical clearance of 13 feet, six inches, shall be maintained above all fire department access ways. Obstructions include but are not limited to wires, tree limbs, awnings, etc.
6. Roadways with features such as landscape islands, traffic calming devices, etc. that cause a one way or reduction in width of roadway shall be a minimum 20 feet in width and no longer than 200 feet in length.
- The RFFRA acknowledges that there are desires to reduce access roadway widths for purposes such as devices as gates, key pads, mail boxes, and areas of parking lots where the roadway is not needed for access to a structure. We refer to these as “PINCH POINTS.” The design and construction shall meet the following requirements:
  - A minimum of 16 feet of unobstructed width shall be maintained including the devices and their mechanisms.
    1. Gates and other devices designed to limit access are in most cases discouraged, but may be allowed and sometimes required. The design of these devices are approved on a case-by-case basis.
    2. Gates and other approved devices designed to limit access shall be provided with the Knox Rapid Entry System with a manual override.
    3. Removable bollards designed to slide into the ground within the access ways are not permitted unless the RFFRA approves the design.
  - Private driveways for one-and-two family dwellings shall be provided with fire department access to within 150 feet of all first story exterior portions of the structures upon the property.
    - Driveways shall be provided and maintained as follows.
      - a. 0-200 lineal feet shall be 12 feet wide
      - b. 201-400 lineal feet shall be 14 feet wide
      - c. Over 401 lineal feet shall be 16 feet with pullouts (50’ long x 10’ wide tapered to accommodate 35’ fire truck) every 400 feet
    - Grades shall not exceed 10%. However, an increase of not more than 2% grade over 250 feet is permitted.
    - Turning Radii shall meet RFFRA specifications of 30’ inside radius minimum

- Dead-end driveways that are required for fire department access and exceed 150 feet shall be provided with an approved turnaround (see Attachment #2- Approved Turnarounds).

#### 8. Turnarounds and Maneuvering

- Dead-end fire access roadways in excess of 150 feet must be provided with an approved turnaround (see Attachment #2-Approved Turnarounds).
- Cul de sac bulbs shall be constructed to the following widths:
  - a. Dead-ends not exceeding 500 feet require a minimum 84-foot bulb.
  - b. Dead-ends exceeding 500 feet require a minimum 96-foot bulb.
  - c. Cul de sacs and dead-end access roads exceeding 700 feet shall be provided with intermediate turnarounds as deemed necessary by the Basalt Fire Department.
  - d. Turning radius shall be a minimum of 30 feet inside and 48 feet outside radius.
  - e. Turnarounds, cul de sacs, intersections, and pullouts of streets shall not exceed a grade of 6%.
  - f. Fire lanes, posting, and painting, where required, shall comply with Roaring Fork Fire Rescue Standards.

9. Bridges and Elevated Surfaces. If a bridge or elevated surface is part of a fire access road it shall be constructed and maintained in accordance with AASHTO *Standard Specification for Highway Bridges*. Vehicle load limits shall be posted at both ends of a bridge as deemed appropriate by the fire official.

10. Aerial Fire Apparatus Access Roads. Buildings (or any thereof) exceeding 30 feet in height above the lowest level of fire department vehicle access shall be provided with access road that will accommodate and aerial fire apparatus.

- Aerial apparatus access roads shall have a minimum unobstructed width of 26 feet with at least one of the access roads 15 feet minimum and 30 feet maximum from the building. The access road will be parallel to one entire side of the building.

### **Access to Buildings Under Construction or Modification**

- Required street and on-site fire hydrants/water mains shall be installed, operable tested, inspected and approved by RFFRA prior to starting
- Fire department access roads shall be established, engineered and maintained serviceable for fire protection and emergency purposes in accordance with the approved development plan, H-20 loading and approved Fire Codes.
- Access roads shall be kept clear of all obstructions such as but not limited to low hanging wires, construction materials, construction equipment, contractor trailers, and contractors' vehicles.
- Where required, fire lanes shall be posted when the access road is established.
- Street name identification and building addresses shall be installed at the time the access road is established.

### **Traffic Calming Devices**

Plans for these devices must be submitted for the fire departments review and approval. We support the design of safe streets and the need for devices intended to slow traffic, i.e. islands, roundabouts, and bump outs; however, we discourage the use of speed bumps. In most cases, these devices can be designed within our minimum requirements (see Attachment #3-Traffic Calming Device). Plans for these devices must be submitted for our review and approval.

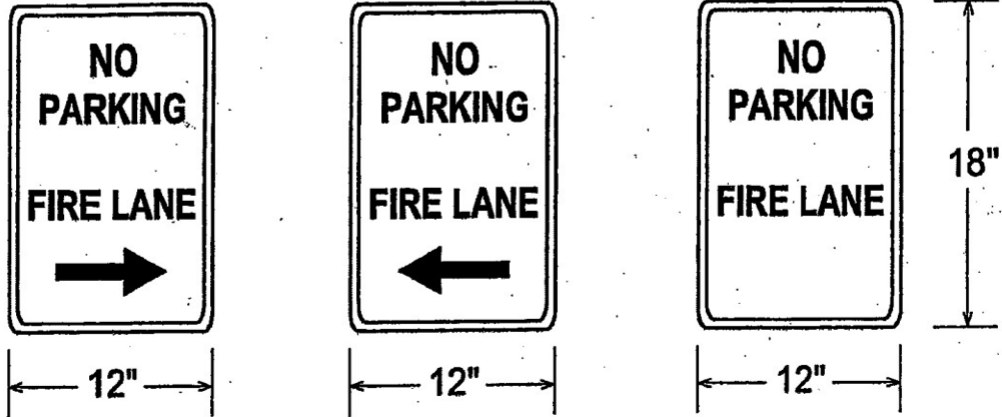
### **Attachments**

The following figures, templates, and examples have been added to help illustrate the text of this packet.

## Attachment 1-Fire Lane Sign Requirements

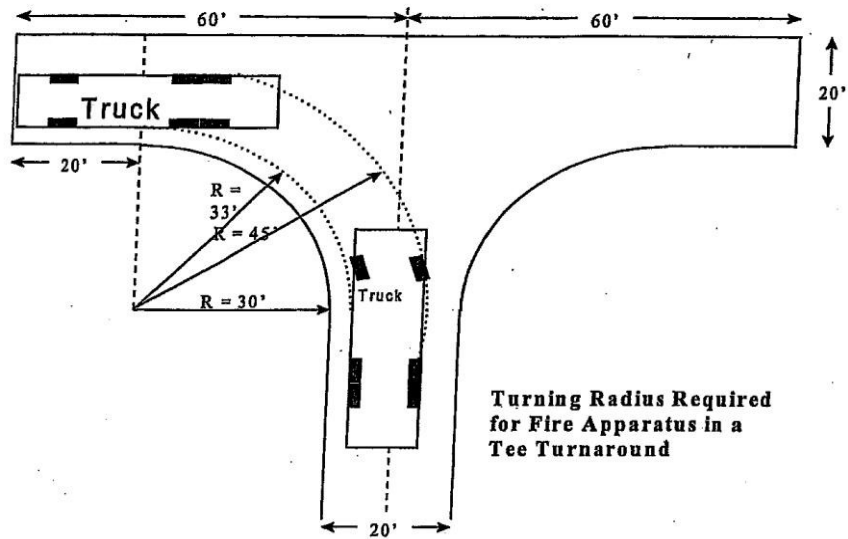
The Basalt Fire Department Fire Lane Sign Requirements are as follows:

- When required by the fire official, fire apparatus access roads shall be marked with permanent **NO PARKING-FIRE LANE** signs.
- Signs shall have a minimum dimension of 12 inches wide by 18 inches high with red letters on a reflective background.
- Fire apparatus access roads 20 to 26 feet wide will be posted on both sides as a fire lane
- Fire apparatus access roads greater than 26 feet wide will be posted on one side as a fire lane.
- Signs no more than 200 feet apart in restricted area

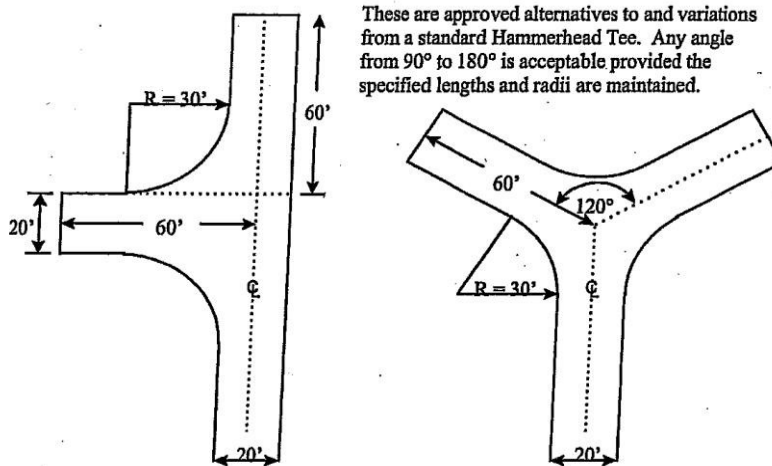




## Attachment 2-Approved Turnarounds



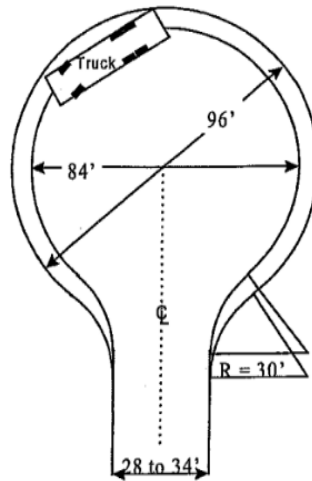
The 20 ft access width is a minimum for use only with an *exclusive* fire department emergency access way. For roadways or public streets, these access widths must be increased. The end length of 60 ft may remain the same, however. Variations of this hammerhead are shown below:



These are approved alternatives to and variations from a standard Hammerhead Tee. Any angle from 90° to 180° is acceptable provided the specified lengths and radii are maintained.

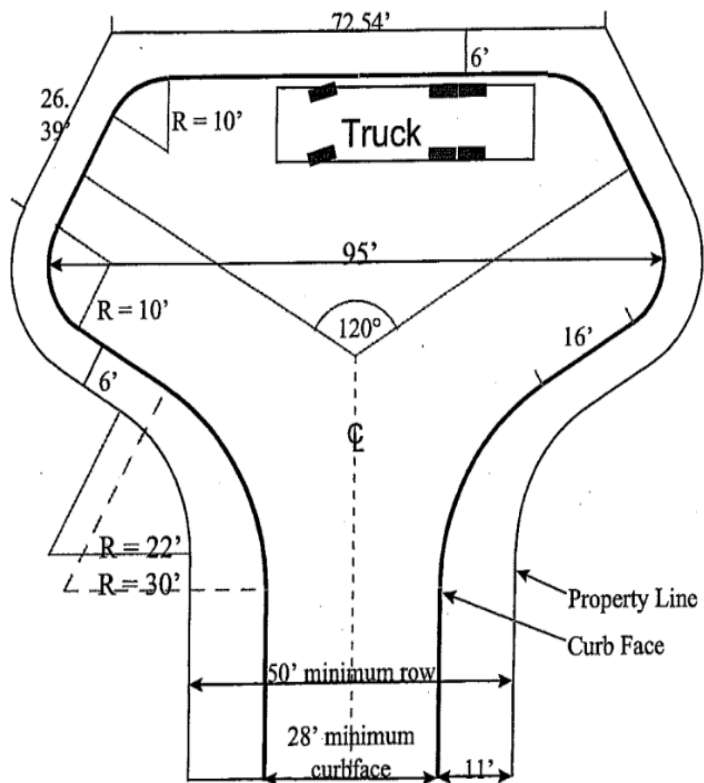
**\*\* ALL DIMENSIONS ABOVE MAY BE MODIFIED SUBJECT TO THE APPROVAL OF THE AHJ**

### Attachment 3-Access Roadway Approved Cul-de-Sac

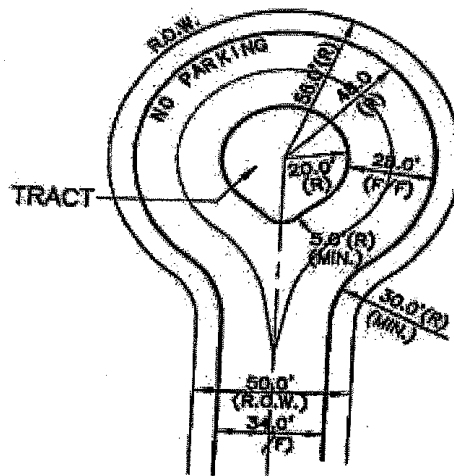
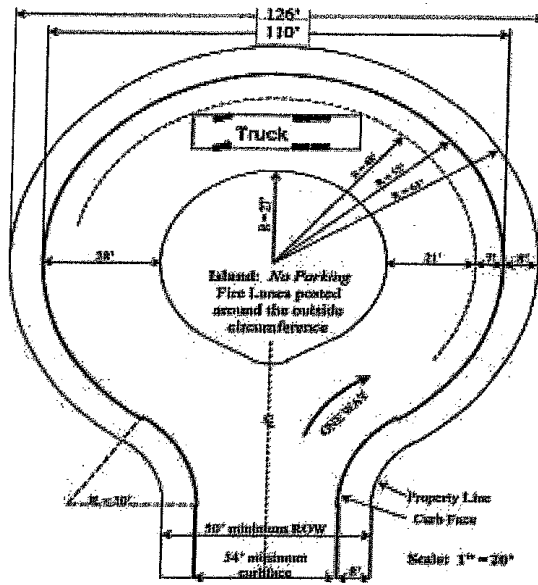


For cul-de-sacs under 500 ft in length as measured from the beginning curb of the dead end roadway to the center of the cul-de-sac, an 84 ft diameter bulb may be used. For any dead-end exceeding 500 ft, a 96 ft diameter bulb shall be used.

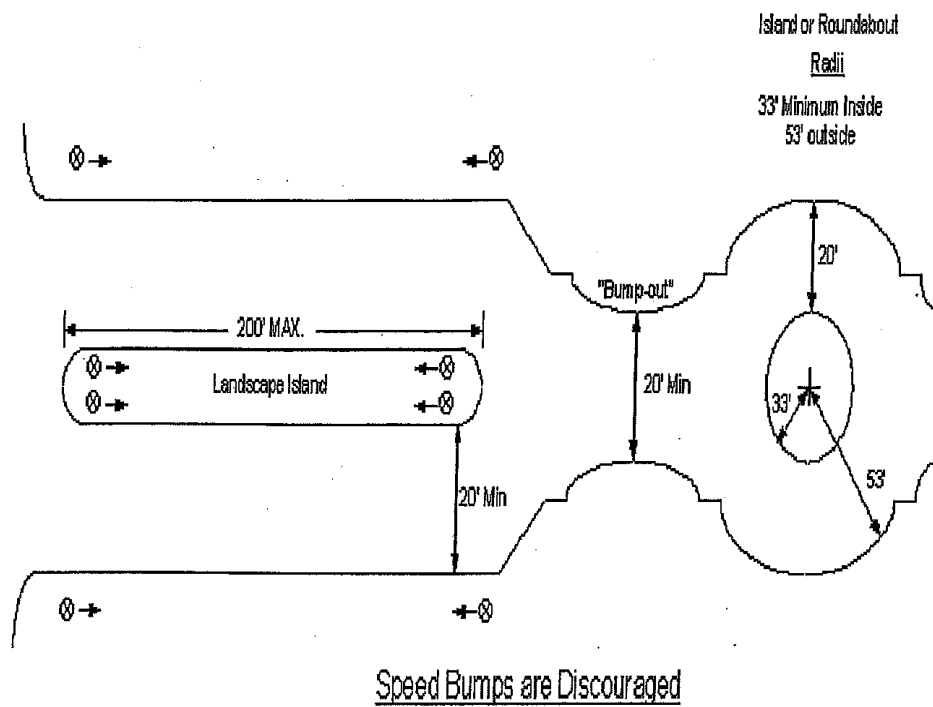
As an alternative to this requirement, the cul-de-sac below may be used regardless of the dead-end length from the curb. Please note the change in scale.



### Attachment 4-Permitted Cul-de-Sac Island Designs



## Attachment 5-Traffic Calming Device



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Fire Lane Signs (Directions)



## Turning Performance Analysis

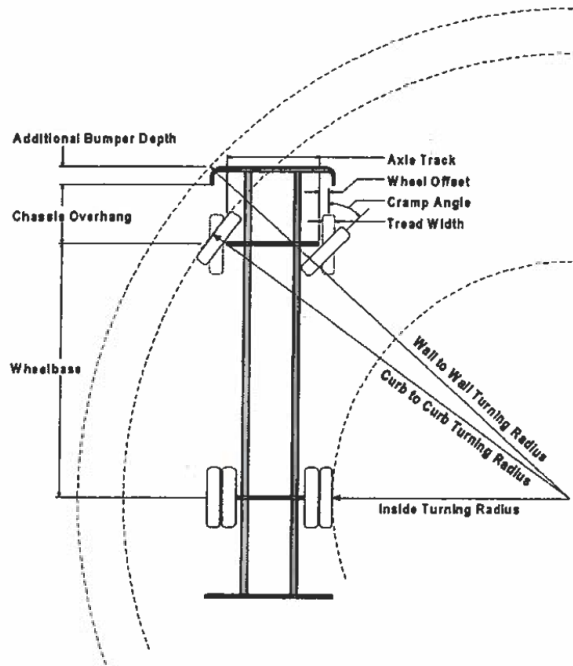
05/16/2019

**Bid Number:** 866

**Department:** Roaring Fork Fire Rescue Authority

**Chassis:** Enforcer Chassis, PUC

**Body:** Pumper, PUC, Aluminum *E42*



**Parameters:**

*Inside Cramp Angle:	50°
Axle Track:	85.86 in.
Wheel Offset:	3.12 in.
Tread Width:	12.5 in.
Chassis Overhang:	65.95 in.
Additional Bumper Depth:	26 in.
Front Overhang:	91.95 in.
Wheelbase:	183 in.

**Calculated Turning Radii:**

Inside Turn:	12 ft. 0 in.
Curb to curb:	25 ft. 11 in.
Wall to wall:	30 ft. 11 in.

Category	Option	Description
Axle, Front, Custom	0784595	Axle, Front, EZ Trac, Hydraulic AWD, 20,000 lb, SFR/Enf
Wheels, Front	0001655	Wheels, Front, 22.50" x 9.00", Steel, Hub Pilot, 315/80R Tire
Tires, Front	0664491	Tires, Front, Michelin, XZU S2, 315/80R22.50, 20 ply
Bumpers	0606302	Bumper, 26" Extended, Saber FR/Enforcer

**Notes:**

\*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

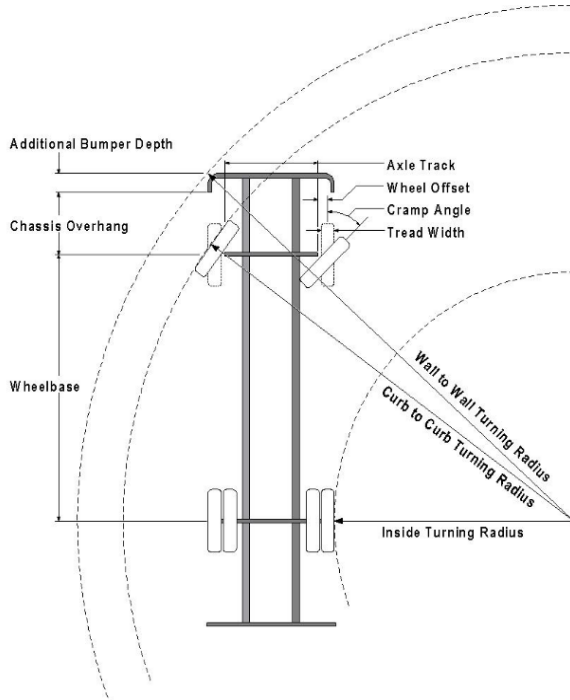


## Turning Performance Analysis

07/31/2019

**Bid Number:** 845  
**Department:** Roaring Fork Fire Rescue Authority

**Chassis:** Enforcer Chassis, Aerials, Single Axle, Ascendant PUC  
**Body:** Aerial, HD Ladder 107' ASL Single, PUC, Quint, Alum Body



**Parameters:**

*Inside Cramp Angle:	50°
Axle Track:	81.92 in.
Wheel Offset:	5.25 in.
Tread Width:	16.6 in.
Chassis Overhang:	65.95 in.
Additional Bumper Depth:	16 in.
Front Overhang:	90.5 in.
Wheelbase:	235.5 in.

**Calculated Turning Radii:**

Inside Turn:	15 ft. 4 in.
Curb to curb:	31 ft. 7 in.
Wall to wall:	36 ft. 6 in.

Category	Option	Description
Axle, Front, Custom	0637883	Axle, Front, Dana, D-2200F, 22,800 lb, Enforcer, (425 Tires)
Wheels, Front	0001656	Wheels, Front, 22.50" x 12.25", Steel, Hub Pilot
Tires, Front	0078244	Tires, Front, Michelin, XZY3 (wb), 425/65R22.50, 20 ply
Bumpers	0624298	Bumper, 16" Extended, Saber FR/Enforcer
Aerial Devices	0786787	Aerial, 107' ASL Single Axle, Active Damping System, 750/500 Tip, 35 MPH Wind

**Notes:**

\*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

### **Access Inspection Checklist**

The checklist that follows is supplied as a guideline to prepare your fire access provisions of your project.

### **Fire Department Access Inspection Checklist**

This document is a guideline to assist you in preparing for your fire department access inspections. It shall not be construed to be all inclusive of Fire, Building or other Town/County Codes. Additional items may be established for your particular project. Contractors/Owners will refer to the plan review comments attached to their plans. Please call us at (970) 340-7040 with any questions.

#### **Address Requirements**

- Numbers face street
- Numbers highly visible
- Numbers can be read from 100 feet
- Numbers contrast with background
- Address numbers and the business name are on the rear door of the business
- Remote signage installed if building more than 100' from road
- Street signs installed

#### **Access Roadways**

- Access roadways approved prior to construction
- Fire department access completed prior to construction
- Access roads are clear
- Buildings easily accessible
- Fire Lane posted
- Width, height, and grade requirements satisfied
- Turnaround(s) in place
- Roadway meets loading criteria
- Roadway materials appropriate

#### **Fire Lanes**

- RFFRA approved signage
- Access roads 20-26 feet, signs both sides
- Access roads greater than 26 feet, signs one side
- Signs no more than 200 feet apart

### **Knox Equipment**

- ❑ Knox equipment required
- ❑ Knox equipment ordered through RFFRA
- ❑ Knox Box mounted in approved location
- ❑ Appointment for lock-up established
- ❑ Keys are clearly labeled
- ❑ Knox Key Switch on electronic gates tested by RFFRA and operational
- ❑ Required Knox Padlock(s) installed



# Fire Access Road and Driveway Specifications

## Snowmass Village

### Fire Access Road

- § The Fire Access Road shall end at any building such that the fire apparatus is within 100 feet of all points of the building perimeter. Additional fire protection will be required if the Fire Access Road cannot satisfy the above;
- § Twenty four (24) foot minimum width throughout;
- § Curve Radii shall be: Inside-41 feet minimum; Outside-65 feet minimum;
- § Vertical Clearance shall be 13 foot, 6 inches minimum;
- § The road surface shall be an all weather type, H20 ASME rated capable of withstanding a 70,000 pound truck load without damaging the roadway surface;
- § Other conditions shall comply with the International Fire Code 2015.503 and Appendix D.

### Fire Access Driveway

- § The Fire Access Driveway shall end at any building such that the fire apparatus is within 100 feet of the building perimeter. Additional fire protection will be required if the Fire Access Driveway cannot satisfy the above;
- § Minimum width of any Fire Access Driveway shall be no less than 16-18 feet and vertical clearance shall be no less than 13 foot, 6 inches;
- § Any Driveway over 100 feet in length shall have an approved turn around. See Appendix D of the 2015 International Fire code for acceptable turn around configurations. Variations on these turn around designs are approved on a case by case basis;
- § Curve Radii shall be: Inside-41 feet minimum; Outside-65 feet minimum;
- § Vertical Clearance shall be 13 foot 6 inches minimum;
- § A pull off, 10 x 40 feet minimum shall be installed at hydrants and other water outlets intended for fire department use;
- § Any driveway over 400 feet in length shall have at least one pull off, 10 x 40 feet, approximately every 400 feet in an area that affords good sight lines in all directions. A pull off at the water source as stated above may be used as one of these pull offs;
- § The road surface shall be an all weather type H20 ASME rated capable of withstanding a 70,000 pound truck load without damaging the roadway surface;
- § Other conditions shall comply with the International Fire Code 2015.503 and Appendix D.

July 2019