

Subdivision Rules & Regulations: Fire Department Requirements

May 3, 2021

Fire Department Requirements

Per 04/21/21 email from Michael Killeen, Fire Prevention Officer

The following are the minimum requirements requested by the Fire Department for new developments:

- Street numbers: shall be visible from the street, day and night
- Visual alarms: alarm status shall be visible from the street
- Fire Department shall have access to the perimeter, for firefighting purposes
- Roadways/Driveways/Parking Lots
 - o Entrance shall be void of all obstacles to a minimum of 30 feet (i.e. light poles, trees, shrubs, stone walls, gates and posts, mailboxes, etc.)
 - o Should be at least 24 feet wide, preferably 28 feet wide
 - o Parking lots shall have turning radii that will accommodate fire apparatus
 - o Grade changes cannot change more than 5% in any 75 foot length, with minimal percentage change at changes of direction points (intersections)
 - o Street signs must be installed when roadway is cut
- Fire Hydrants
 - o Should be a maximum of 500 feet apart
 - o Should be a maximum of 10 feet off the curb
 - o One should be located near the Fire Department Connection
- Multiple entrances, multiple buildings with one entrance, and cross roads
 - o Shall indicate the building numbers and numbering sequence
- Electrical, radio, and/or mechanical equipment shall not interfere with local and municipal radio equipment

The above are basic minimum requirements that shall apply to all developments. They should assist you with the preliminary review of proposed developments and provide the developer with a foundation to work with.

Regarding fire apparatus turning radius:

- Cramp Angle: 45°
- Inside Turning Radius: 21 ft. 4 in.
- Curb to Curb: 38 ft. 2 in.
- Wall to Wall 41 ft. 10 in.

Fire Department Requirements

Applicable to Subdivision Rules & Regulations

- Roadways should be at least 24 feet wide, preferably 28 feet wide
- Grade changes cannot change more than 5% in any 75 foot length, with minimal percentage change at changes of direction points (intersections)
- Fire hydrants should be a maximum of 500 feet apart
- Fire hydrants should be a maximum of 10 feet off the curb
- Fire apparatus turning radius is relevant to minimum curve radius, minimum radius of pavement edge at corners, and radius of cul-de-sac turnarounds
- (Other requirements are not applicable to SRR, but may be applicable to other regulatory reviews)

Fire Department Requirements

Roadway Width

- Fire Department wants a minimum of 24'
- SRR specifies a minimum width of 22' for Minor Street C; 26' or more for other street categories (§ 4.1.4.2)
- From the 2004 Pioneer Institute survey of subdivision rules in 187 towns
 - The average and most common width of the narrowest road is 24'
 - The average and most common width of the typical road is 26'
- Grafton would be in line with most towns if we increase the minimum width of a Minor Street C to 24'

Fire Department Requirements

Grade Changes

- Fire Department wants a grade change no greater than 5% within a 75' length
 - This corresponds to a minimum K value of 15 for a vertical curve (§ 4.1.5.3)
 - SRR specifies a minimum K value of 28 (crest on minor street), 37 (sag on minor street), or 55 (crest and sag on major street)
- Fire Department wants minimum grade change at intersections
 - SRR (§ 4.1.5.6) requires “leveling areas” at intersections: 100' at 3% grade or less (minor street) or 200' at 2% grade or less (major street)
- SRR meets or exceeds Fire's requirements

Fire Department Requirements

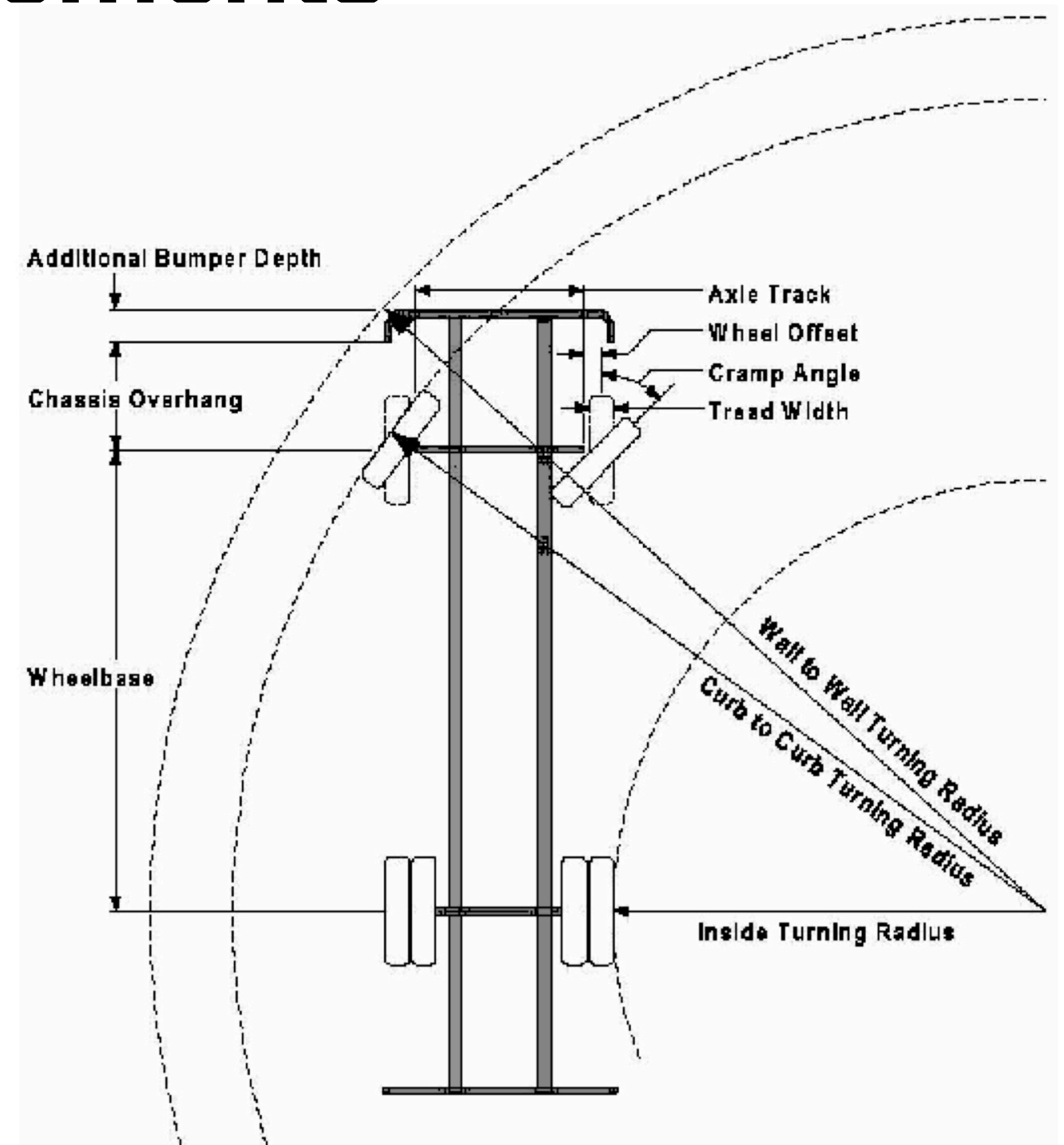
Fire Hydrants

- Fire hydrants should be a maximum of 500 feet apart
 - SRR (§ 4.7.7.1) requires fire hydrants every 500' or portion thereof on one side of each street
- Fire hydrants should be a maximum of 10 feet off the curb
 - SRR (Schedules A & B) cross sections for all classes of street require fire hydrants to be located two feet off the curb
- SRR meets or exceeds Fire's requirements

Fire Department Requirements

Fire Apparatus Turning Radius

- Inside turning radius: 21' 4"
 - Inside curb radius
- Curb to curb: 38' 2"
 - Outside curb radius
- Wall to wall: 41' 10"
 - Radius of area beyond outside curb that must be clear of obstructions



Fire Department Requirements

Fire Apparatus Turning Radius

- Inside curb radius (minimum 21' 4")
 - SRR (§ 4.1.3.5) is being updated to specify a minimum radius of 30' for pavement edge at corner
 - SRR (§ 4.1.3.2) specifies a minimum radius of a curved street to be 400' (major street) or 100' (minor street)
 - SRR does not address inside curb radii for a cul-de-sac turnaround; an inside radius would apply to the corners at the entrance to the turnaround and to an island located in the center of a turnaround
- Outside curb radius (minimum 38' 2")
 - This would be applicable to the paved portion of a cul-de-sac turnaround
 - SRR (§ 4.1.6.7) specifies a 100' right of way diameter (50' radius) for a cul-de-sac turnaround, but does not specify a minimum radius for the paved portion of the turnaround
- Radius of clear area beyond outside curb (minimum 41' 10")
 - This would be applicable to the portion of a cul-de-sac turnaround between the paved area and the edge of right of way, and would require a minimum of 3' 8" extending from the edge of pavement to be kept clear of obstacles (e.g., fire hydrants, aboveground utility boxes, street light poles)

Fire Department Requirements

Potential SRR Revisions

- Minimum pavement width of 24' for Minor Street C (§ 4.1.4.2)
- Add requirements for cul-de-sac turnarounds (§ 4.1.6.7)
 - Minimum radius of paved area: 38' 2" or more (maybe a round number, e.g., 40')
 - Minimum radius of area to be kept clear of obstructions between edge of pavement and edge of right of way: 41' 10" or more (maybe a round number, e.g., 42')
 - This might be an exception to the specification in the cross sections (Schedules A & B) for fire hydrants to be 2' from the edge of pavement
 - If a turnaround includes an island, the maximum allowable radius of the island depends on the radius of the paved area and the fire apparatus that must be accommodated, and must be determined on a case by case basis
- Corner radius requirements (§ 4.1.3.5) could apply to corners at turnaround entrance