

To: Planning Board, Town Planner
From: David Robbins (Planning Board Member)
Subject: Intersection Radii
Date: December 7, 2020

December 8, 2020
Planning Board
Grafton, MA

In the review of the Ridings subdivision, a question was raised regarding the radius of the edge of pavement at an intersection. Typically, the radius of the property line (edge of right-of-way) at an intersection is 30', and the radius of the edge of pavement is also 30'. In the case at hand, the applicant has proposed a greater radius for the edge of pavement. In this memo, we review the requirements for intersection radii in the Subdivision Rules & Regulations (SRR) and illustrate the difference between the typical configuration and the applicant's proposed configuration.

The relevant SRR requirements are:

- 4.1.3.5 Property lines at street intersections shall be rounded or cut back to provide for a radius of not less than thirty feet (30').
- 4.1.3.7 Roadway centerlines shall be colinear with the centerline of the roadway right of way. The distance between edge of pavement and edge of right of way shall remain constant.

Note the following:

- The rule in 4.1.3.5 states that a radius of greater than 30' is acceptable.
- The rule in 4.1.3.7 requires a constant distance between edge of pavement and edge of right of way everywhere; it makes no exception for intersections.

The typical design, with a 30' radius at both edge of right-of-way and edge of pavement, is illustrated in Figure 1 with a 50' right-of-way and a 26' pavement width (Minor Street B).

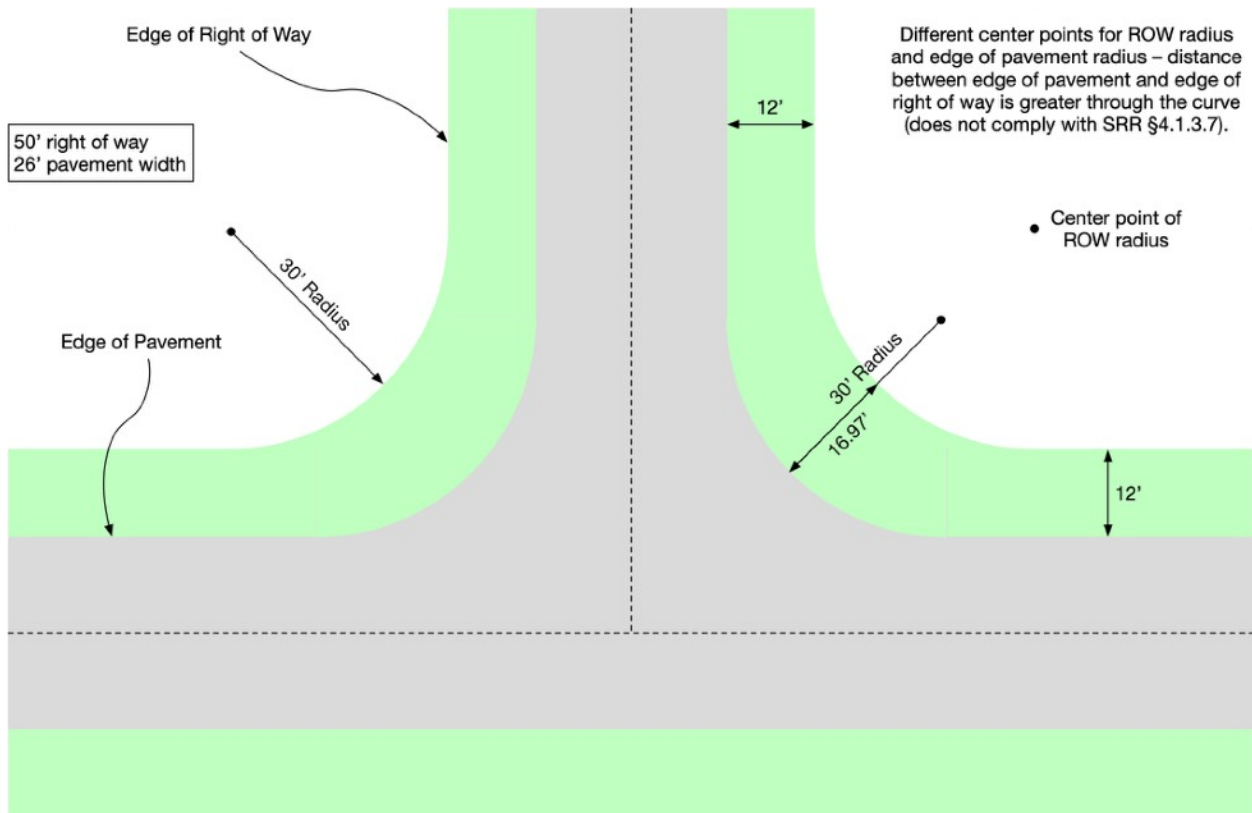


Figure 1

An alternative design, with a constant distance between the edge of right-of-way and the edge of pavement, is illustrated in Figure 2; the diagram shows where a pavement edge of 30' radius would line up.

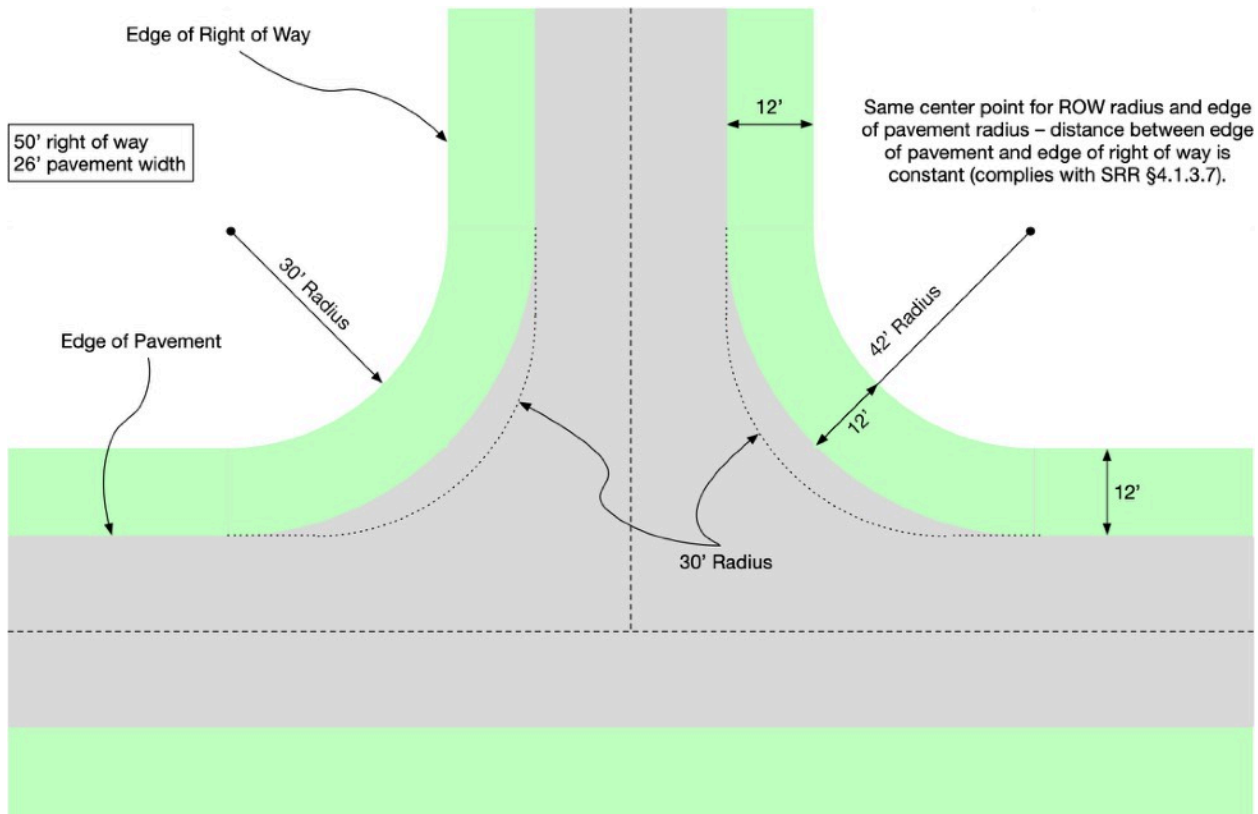


Figure 2

For some context regarding intersection radii, the *MassHighway Project Development & Design Guide (2006)* includes some discussion of intersection radius choices. For subdivision streets, the guidelines suggest the following:

- A minimum radius for an intersection with a single lane in each direction on each leg is 10' to allow a passenger car to make the turn without encroaching on the other lane.
- A 15' simple curb radius is appropriate for almost all 90° turns on local streets, allowing a passenger car to make the turn without encroaching on the other lane and allowing a truck to make the turn with an “acceptable” degree of encroachment.
- Where the major street is a collector street, a 20-30' radius is likely to be adequate.

The practical effect of a radius greater than the minimum is that a vehicle can safely make the turn at a higher speed.

The applicant for the Ridings subdivision has stated that recent guidance from the Massachusetts Fire Marshal's office recommends a radius of 40' or more at the edge of pavement, in order to allow fire apparatus to make the turn without encroaching on the other lane.

The Board may wish to take the foregoing information into account (1) in the review of the Ridings subdivision and (2) in updating the SRR.