

### 3.1 General

Delineation is the pavement markings, guideposts, and raised pavement markers used on and adjacent to the roadway to define vehicular travel paths. The [MUTCD](#), *Design Manual*, and *Standard Plans* provide delineation placement guidelines.

The *Roadway Delineation Practices Handbook*, published by FHWA, discusses specialized materials and delineation treatments for unique applications and situations. This handbook does not establish policies or standards but is only a reference document.

### 3.2 Pavement Markings

Pavement markings are classified as either longitudinal or transverse. Materials typically used for each are paint for longitudinal markings and thermoplastics for transverse markings. Approved sources for thermoplastic materials are listed in the General Special Provisions. A purchase contract is available for the purchase of paint. Other durable materials are continually being evaluated.

- A. **Intersection Channelization.** The [MUTCD](#) has a provision that allows pavement markings to be extended through an intersection where design or visibility conditions make it desirable to provide control through the intersection. These markings are only installed as the result of a traffic engineering analysis that considers horizontal curvature and other visibility conditions. For statewide uniformity, the dotted line used for this extension is applied as a 2-foot stripe with a 4-foot gap between stripes.

Multilane approaches may provide exclusive or shared lanes for turning and through vehicles. At most intersections through traffic must share a lane with one direction of turning traffic. To minimize delay, through traffic should normally be combined with right-turning traffic unless opposite approach geometrics are unfavorable. An offset centerline and minor widening may help accomplish the proper lane assignments.

Stopbars are to be included at all signalized intersections with or without crosswalks. At nonsignalized intersections stopbars are necessary on the stop sign control approaches when crosswalks are not included. Including the stopbar at stop sign control locations having marked crosswalks is optional.

- B. **Interchange Off Ramps.** At either a parallel or a tapered deceleration lane, the [MUTCD](#) allows the application of an optional dotted extension of the main line right edge line through the ramp opening. The dotted line is a 2-foot stripe with a 4-foot gap.

For statewide uniformity, these optional dotted extensions should only be installed where the exit ramp is located on a horizontal curve, except for locations with continuous illumination, and at locations with prevalent foggy periods. They are generally not needed at ramps exiting from tangent sections. These markings are only to be installed as a result of a traffic engineering analysis.

- C. **Crosswalks.** Marked crosswalks serve to guide pedestrians in the proper paths. Crosswalks should only be marked at locations that are signalized (and have significant pedestrian volumes), where crossing guards are provided, or where pedestrian volumes meet the criteria for signal Warrant 3 in Section 4C-5 of the [MUTCD](#).

Crosswalk markings should not be used at remote locations or where the speed limit exceeds 35 miles per hour unless protection is provided by a traffic signal or stop sign. Studies show that marked crosswalks have higher accident rates than unmarked crossings, thus crosswalks should not be considered safety devices.

Illumination of marked crosswalks is normally provided when pedestrian volumes meet the criteria in [MUTCD](#) Section 4C-5. When markings are requested by others and volumes do not meet those requirements, funding and power for crosswalk lighting is normally provided by the requestor.

- D. **No Passing Zone Marking.** No passing zones are to be established and marked on horizontal and vertical curves in accordance with the [MUTCD](#).

State law, in the Rules of the Road [RCW 46.61.100](#) – [RCW 46.61.165](#), identifies several situations with a statutory no passing zone distance such as “. . . when approaching within 100 feet of or transversing any intersection or railroad crossing . . .” or “. . . the view is obstructed upon approaching within 100 feet of any bridge, viaduct, or tunnel . . . .” However, state law does not imply a need to mark no passing zones for such situations.

### 3.3 Guideposts

Guideposts, discussed in the [MUTCD](#) as delineators, are light retroreflecting devices mounted at the side of the roadway to indicate roadway alignment. They are effective aids for night, wet, or other reduced visibility driving conditions and are intended to guide rather than warn motorists.

Guidepost installation and spacing requirements are included in the *Standard Plans* and the *Design Manual*. The field spacing for guideposts shall be determined from [Figure 3-1](#). Approved sources for guideposts as well as reflective materials are listed in the General Special Provisions.

### 3.4 Barrier Delineation

Barrier delineation is the extension of guideposts through an area of guardrail or concrete barrier. Spacing is the same as for guideposts.

Guardrail is delineated by mounting guideposts on guardrail posts as shown in the *Standard Plans*.

Concrete barrier is delineated by placing reflective devices on the face of the barrier about 6 inches down from the top. When concrete barrier is placed immediately adjacent to the traveled lane, such as in construction zones, delineator spacing should be a maximum of 40 feet on tangents and 20 feet through curves.

### 3.5 Chevron Alignment Signs

Although the Chevron Alignment Sign is intended to provide additional emphasis and guidance for drivers through horizontal curves in the roadway, this sign is not a delineator. See the [MUTCD](#) and the warning sign section of this manual for use.

### 3.6 Raised Pavement Markers

As described in the *Design Manual*, raised pavement markers are extensively used in western Washington to simulate lane lines and to supplement painted pavement markings.

Maintenance of raised pavement markers is discussed in the *Maintenance Manual*.

- A. **Right Edge Lines.** The general use of raised reflective pavement markers to supplement, or in lieu of, right edge lines is strongly discouraged. At night, such markers can be easily mistaken for lane lines.

The State Traffic Engineer has approved the use of reflective markers to supplement right edge lines in these locations:

- On the taper in lane reduction sections, such as from four lane to two lane.
- Through sections with reduced lane width, such as narrow structures.
- At the gore of exit ramps.

- B. **Recessed Markers.** Recessed reflective markers and recessed lane lines appear to be an effective way to provide additional centerline and lane line delineation in areas requiring extensive snow plowing.

The details for installation of the recessed marker are contained in the *Standard Plans*.

Recessed markers and recessed lane lines are expensive and data is still being collected to determine effectiveness and expected life. As a result, the criteria for application and installation are still subject to change and the State Traffic Engineer's office should be contacted when recessed markers or recessed lane lines are being considered.

With prior approval of the State Traffic Engineer, recessed markers may also be installed on bridges. Currently several alternative methods are being considered for this application to minimize the impact on bridge decks.

### 3.7 Impact Attenuator Marking

The end of impact attenuators adjacent to the roadway and facing traffic are to be marked with a modified type 3 object marker. The design and use of the marker shall be the same as the **MUTCD** type 3 marker except that the attenuator marker shall be square. Attenuators in gore areas or where traffic may pass on either side shall have the stripes in a chevron pattern sloping down from the center of the marker. These designs are provided in the *Sign Fabrication Manual*.

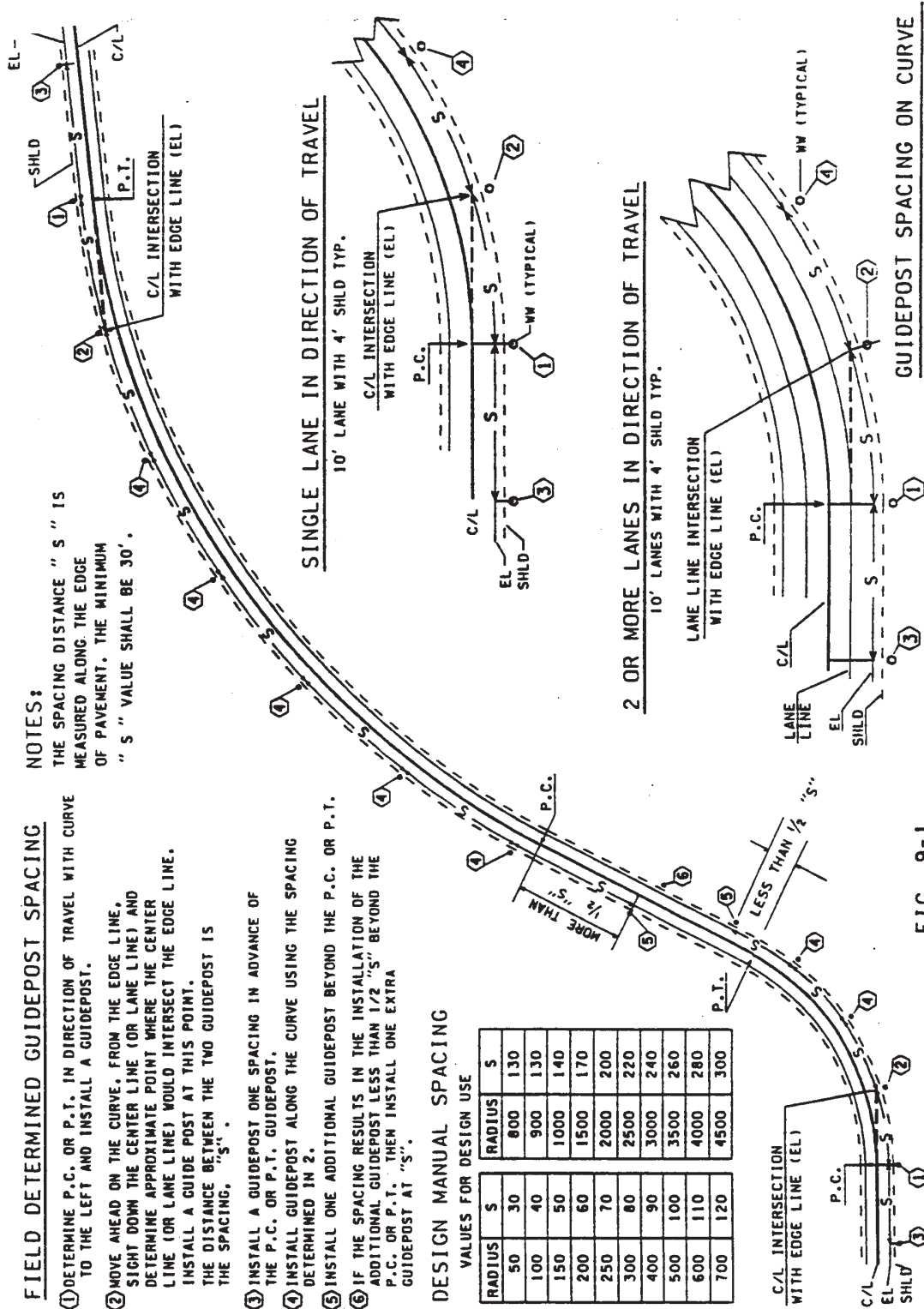


Figure 3-1

