

# SR Segment Signing Guide



Bureau of Maintenance & Operations  
Asset Management Division  
Roadway Inventory & Testing Unit

# ***SR Segment Signing Guide***

## ***Index***

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## SR Segment Sign Overview

Pennsylvania's state highway network is made up of individual roads called state routes (SR's). The SR's are made up of individual sections of highways at specified length's called segments. The apparatus used for identifying the individual segments along the SR's are segment signs or segment markers. Every state owned road should have segment signs installed at the beginning, end and at all segment change locations within the SR. This manual was created to establish dimensions, specific guidelines and methods of placing the signs on SR's.

## Segment Sign Description

All Segment signs have a white background with solid black numbering and lettering. The exact dimensions of the numbering and lettering are shown in figures 1 through 4. The signs may be made of metal or plastic, although metal is preferred due to problems with the plastic signs breaking off in the winter caused by snow plows. All of the specified dimensions, numbering, text, color, material and spacing of the signs should be strictly adhered to, so as to provide uniformity between signs in different counties and districts. A temporary sign that does not meet the exact sign specifications can be used until the permanent sign is ordered and replaced.

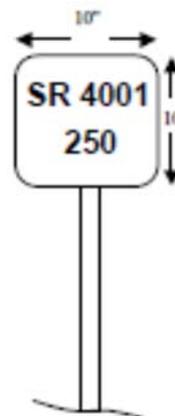
## Segment Sign Types, Usage, Dimensions and Character Spacing

### Type 1 Segment Signs: 10 x 10 Used at Non-State Road Intersections and Segments that are on Specific Features

#### Usage:

Type 1 signs are used to identify the beginning of the segment that you're going into in the direction you are traveling. Typically, this type of sign will be found at segment change locations on all the following types of feature types:

- Intersections with non-state roads
- Ramps
- Bridges
- Overpasses
- Railroad Crossings
- Rest Areas
- Truck Escape Ramps
- Tunnels
- Divided Highway Start/End
- Divided Highway Connectors
- Mileposts
- County & Municipal Boundaries
- Drainage Pipes
- Overhead Sign Structures
- Turnback Start and End
- This type of sign is also used at segment change locations without any identifiable feature (**stand-alone segments**), where the segment sign location is determined by footage only.



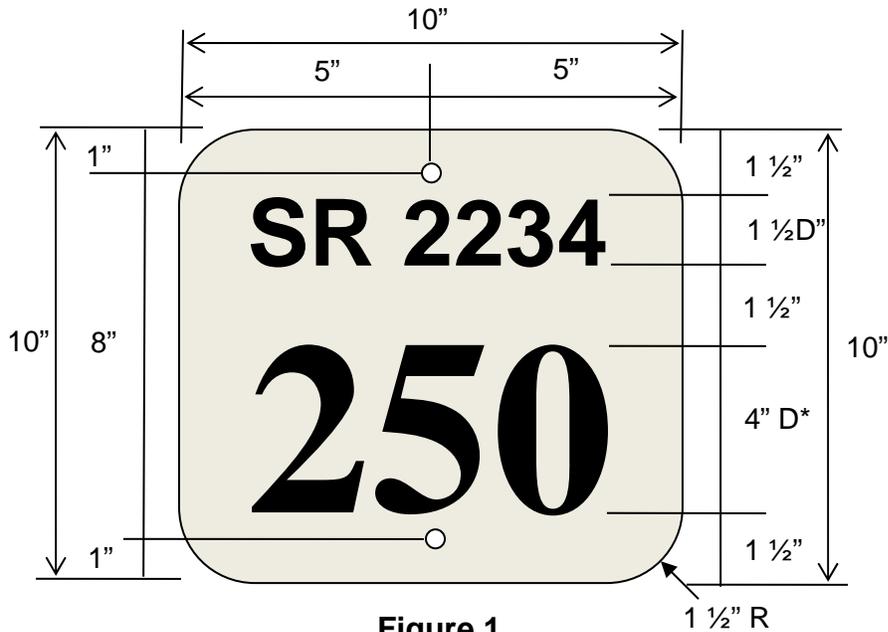
**Specification/Dimensions:**

Font Arial

Sign Color White  
Character Color Black

\* 4" B legend may be used if the segment number has 4 digits.

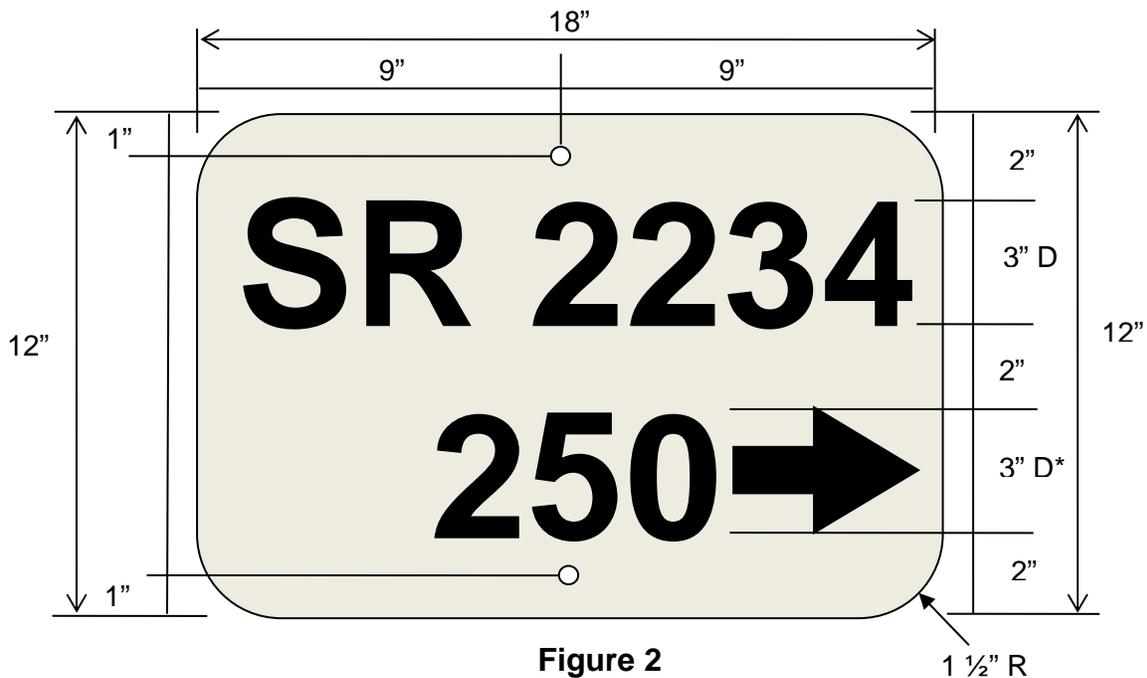
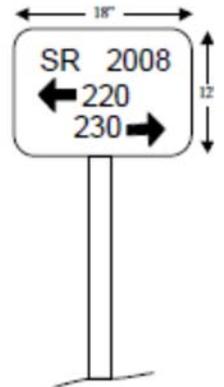
3/8" holes (Typical)



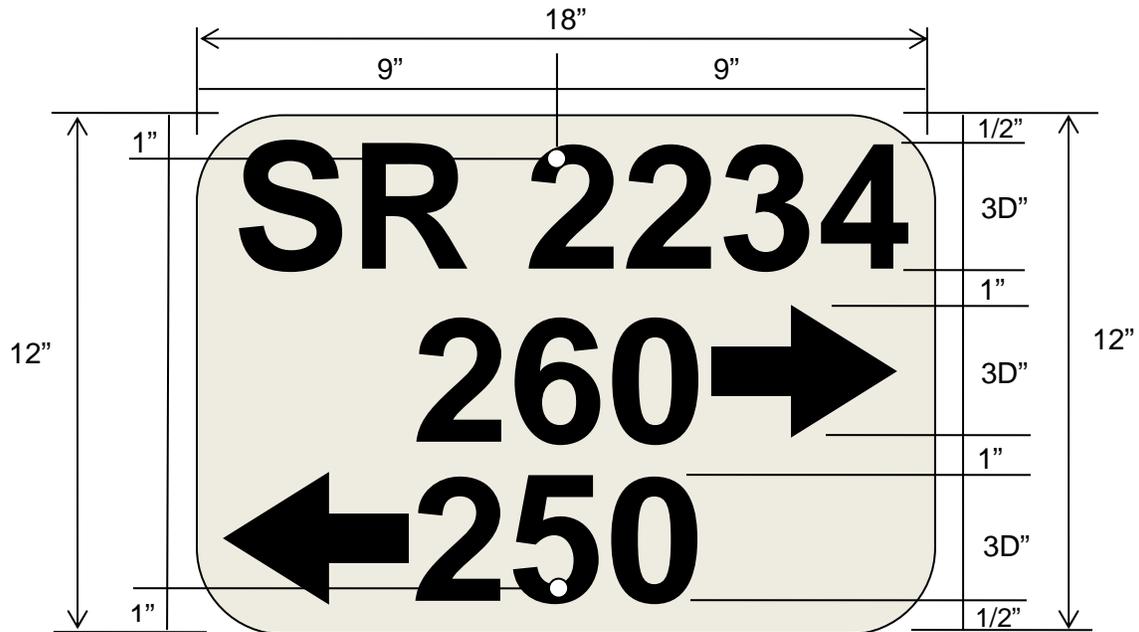
**Figure 1**  
Type-1, 10 x 10 Segment Sign Specifications

**Type 2 Segment Signs: 12 x 18 Signs Used at SR Intersections**

Type 2 signs are used primarily at intersection locations where 2 or more state roads meet. Whenever there are two SR's intersecting there should always be at least two type 2 signs shown at the intersection, usually on the same post. Type 2 signs are also used at special locations like an intersection of a state road and a twp road where the twp road contains structures that are owned by PennDOT (Turnback Bridges). For Turnback Bridges, the segment sign will have the SR number and either shows the word BRIDGE or the letters (BR) and an arrow indicating that there are state owned bridges on the road that the arrow points towards.

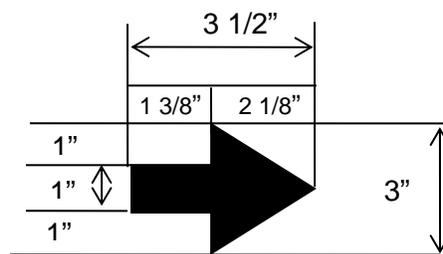


**Figure 2**  
Type -2, 12 x 18 Single Segment Sign Specifications



**Figure 3**  
Type-2, 12 x 18 Multi Segment Sign Specifications

**Arrow Dimensions:**



**Figure 4**  
Type-2, 12 x 18 Segment Sign Arrow Specifications

**Segment Sign Mounting**

- Fasten all Type-1 and Type-2 segment signs with anti-theft nuts and bolts.
- Permanently scribe 1 inch numerals on back of all signs indicating the day, month and year of installation, alternatively a sticker or permanent marker may be used for the inscription.
- Height – Fasten SR signs to post or supports with the top of the marker approximately 4 feet above the ground, expect as follows:
  - In business, commercial and residential districts, where pedestrian movement is likely, the top of signs should be installed approximately 8 feet above the ground.
  - Markers are to be installed at least 1 foot below other signs or a minimum of 3 feet above the ground.
  - Segment signs at bridges should be visible to approaching traffic. Segment signs may be installed above bridge clearance signs.
- Some sign installation may require specialized hardware and tools for mounting signs onto objects like a retaining wall, sound wall, bridge, light pole, etc..
- If you are unsure if you are allowed to mount a sign on a specific pole or post, like a telephone pole, always check with the owner of the pole or post.

## Segment Post Installation Requirements

If an existing sign post is not used, follow these guidelines for installation of segment sign posts:

- Use 2.5 lb./ft. breakaway channel bar posts and 5/16" x 2" galvanized, grade 2 anchor bolts.
- Locate posts near physical features in accordance with this manual.
- Drive anchors with no more than 4-inch exposure above ground elevation.
- Use 4 foot posts, except in business, commercial and residential areas. In these areas where pedestrian movement is likely, 8 foot posts will be required.
- In some instances, it may be necessary to contact the PA One Call System, if you suspect underground lines or pipes beneath the location that the post is to be installed at.

## General Installation of SR Signs

- The Type-1 10" x 10" SR signs should be used at segment change locations on all non-state road intersections and at feature locations (i.e. bridges, overpasses, railroad crossings, boundaries, pipes, ramps, etc).
- A Type-2 18" x 12" SR signs will normally be erected at the beginning and end of all SR's that intersect with another State Route, and at all locations within the SR that intersect another SR.
- Signs should be visible from within a vehicle on all State Highways that approach another State Highway.
- SR signs should be located to take advantage of existing sign posts or other supports, such as street sign posts.
- Signs should be installed with existing signs or by themselves at a point before crossing the centerlines of the intersections for the direction you're traveling.
- Segment signs installed with regulatory signs such as STOP, YIELD, speed limit, etc., cannot be mounted facing the same direction as the regulatory sign. They can be mounted on the back or sides. For warning and guide signs, the segment markers can face the same direction. Segment markers need to be 12 inches below the other sign.
- Segment signs will normally be installed back-to-back, with the sign giving the new segment number for the upcoming segment in the direction you are traveling.
- Segment signs should normally be installed on the right side of the highway when traveling in the direction of increasing segment numbers (North or East), unless it meets with the following exceptions; whenever you have a T, Back or Ahead intersection the segment sign may be installed on the left side of the road in the direction you are traveling, or where mounting on the right side would be impractical, like at a wide T-Right intersection at a stockpile entrance.
- Segment signs at physical features should be placed on existing sign supports that are within 20' of the physical feature, e.g. bridge clearance markers, municipal boundary name signs.

## Measuring for Segment Sign Placement

The establishment of segment locations and lengths were determined in accordance with guidelines developed by PennDOT's Bureau of Maintenance and Operations. SR's are typically broken into approximate ½ mile segments. Ideally segments should not be less than 200 feet or longer than 4000 feet in length, unless the entire segment is a structure that is greater than 4000ft.

**Note:** Whenever you are using a Straight Line Diagram (SLD) for measuring distance for sign placement, it is very important to always measure the distance to the next segment from the location that the sign is representing on the SLD, like the center point of a 4-way intersection, to determine the distance to your next segment sign, do not measure from the exact location of the physical sign placement, unless the sign is put up exactly perpendicular to the centerline of the highway, like a stand-alone segment sign or when a sign is mounted directly perpendicular to the centerline on a sign structure.

Signs that are associated with mileposts, boundaries and sign structures should always be located directly on the same sign post or sign structure support truss; these include all of the following features:

- Interstate and Traffic route mile posts
- Interstate and Traffic route 10<sup>th</sup> mile posts (usually .5 sign)
- State/County Boundaries
- Municipal Boundaries
- Cantilever and Chord\Truss sign structures



Figure 5  
Mile Post with Segment Sign



Figure 6  
Boundary with Segment Sign

### Intersection Segment Sign Placement

Since signs cannot be erected at the exact center of intersections (Cross, T and Y types), they are to be located cater-corner (*slanted across a polygon on a diagonal line*) from the center point (Point found that represents the crossing of the centerline of both intersections), i.e. 4-way intersection (Figure 7). Intersection signs should be placed to the right and before the intersecting road, if possible, so that they can be clearly seen in a vehicle before crossing the intersection. Signs can be put up on the right side after the intersection as an alternate location. The placement of the segment sign should be to an existing intersection sign post if possible.

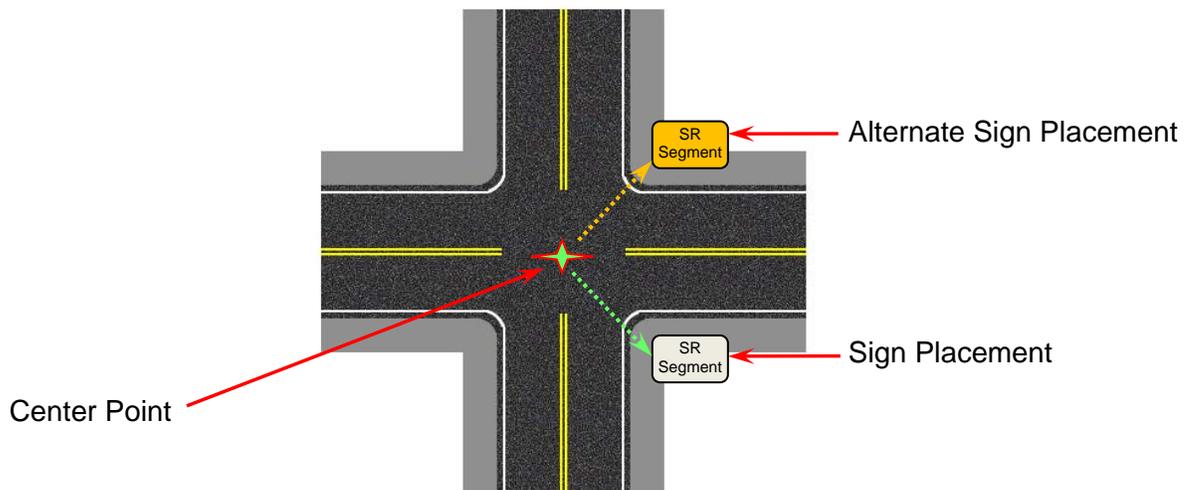


Figure 7  
4 Way Intersection Segment Sign Placement

**Note:** For T and Y type intersections, if the placement of a sign on the right interferes or falls on another road on the right, then the sign can be placed on the left side of the road perpendicular to the center point of the intersections, (i.e. Back Right Intersection).

### **Non-Intersection Sign Placement**

Placement of segment signs should be perpendicular to the center point and to the right on all (N/E) undivided SR's for all of the following features types:

- Bridges
- Overpasses
- Railroad Crossings
- Culverts
- Drainpipes
- Ramp Gores
- Divides Roadway Start/End Barriers or Lanes on divided roadways
- Sign Structures

### **Divided SR sign Placement**

Segment signs that are for the south or west direction of a divided SR should be put up on the right when traveling in the south or west direction. Signs that are on south or west bridges should be placed on the far end or the end of the bridge (traveling south or west), at a location that is directly across from where the north or east bound bridge signs are, on the other side of the road.

### **SR Segmentation**

Every state route is divided into specified sections of roadway known as segments. Segments can vary in length, but the majority of them are approx. one-half mile in length. Where possible, segments typically start and end at easily identifiable physical features along the roadway such as intersections, bridges, overpasses or railroad tracks.

Since bridge structures are identified by their LRS key, each entire bridge must be contained within a single segment. Therefore, the segment length will equal the length of the bridge in cases where the bridge is longer than one-half mile.

SR's are segmented in the North or East direction, and will normally increase in increments of "tens", i.e. 10, 20, 30 etc... Segments are even numbered on undivided roadways, and in the Northbound or Eastbound direction of divided roadways. On the Southbound or Westbound side of divided roadways, there is a corresponding odd numbered segment. Interstate segments are associated with the mile posts. Segment locations are identified in the field by segment marker signs, which are located according to the segment and offset found in RMS. On the Southbound or Westbound side of divided roadways, segment markers are placed at the "high end" or "high offset" of the segment that you're going into, because that will correspond to the way you are traveling when you see the signs. Figures 8 through 10 illustrate segmentation and segment marker location.

Sequencing of forward and backwards facing signs are shown below in Figure 8. The forward signs are shown on the left with their corresponding back facing sign shown to the right. On an undivided roadway the forward and backward signs are mounted on the same pole and are usually placed on the right side of the road in an Easterly or Northerly direction.

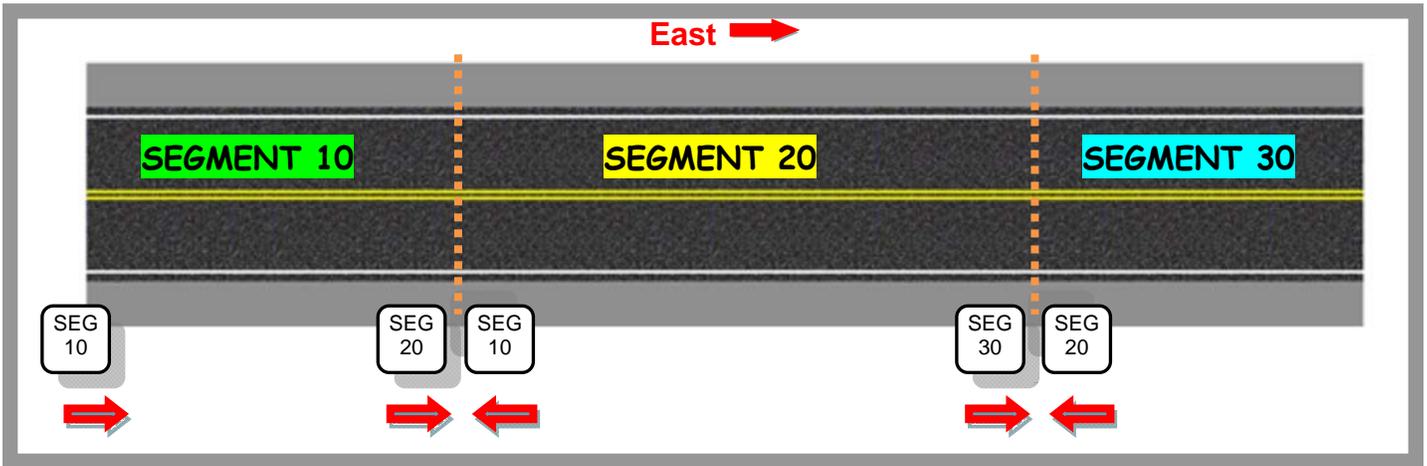


Figure 8  
Segmentation of an Undivided Roadway

In Figure 9 you will notice that the westbound signs, that are perpendicular to their corresponding eastbound signs, are signed with the segment you are traveling into, not the one you are leaving.

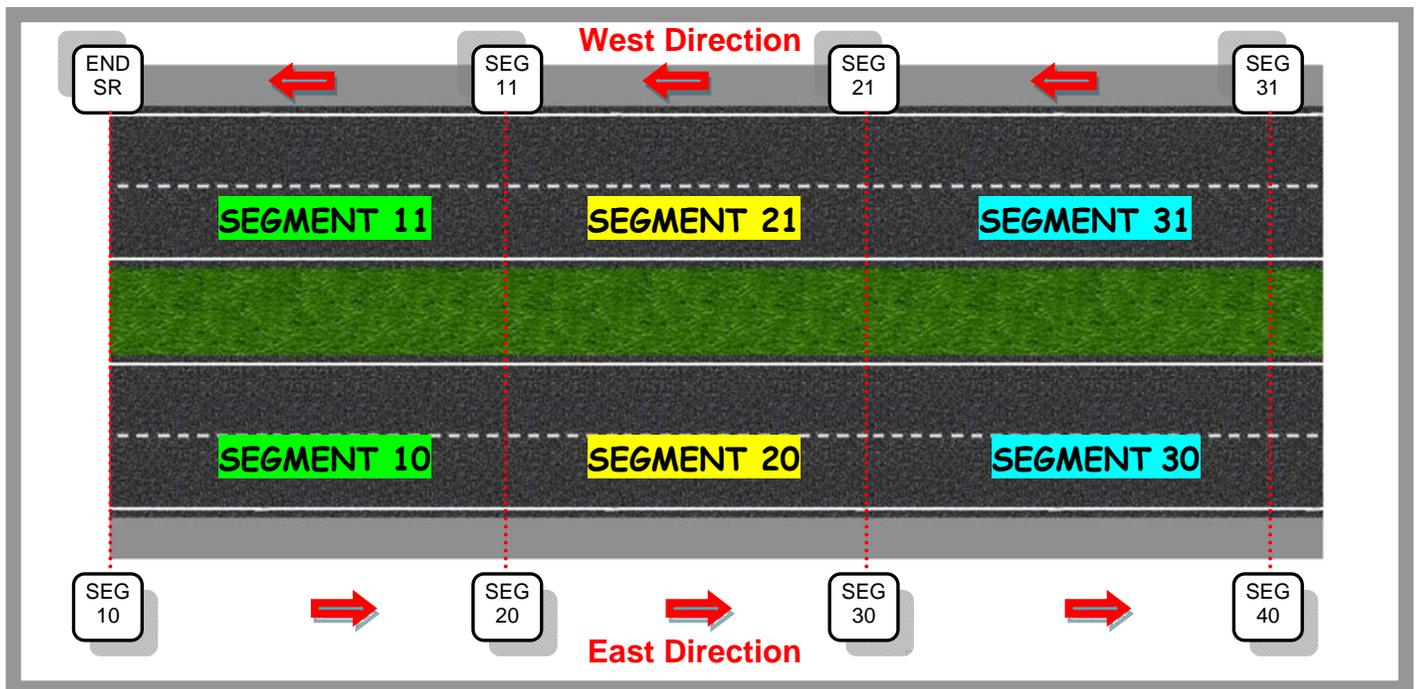


Figure 9  
Segmentation of a Divided Roadway

Interstate milepost and SR segmentation signing can be complicated. Figure 10 illustrates the correct sequence of signing for a particular section of roadway. The westbound segments that are on the milepost will always correspond to the segment that you are entering when driving west.

When installing signs for the first time on an interstate it is very important to locate the West and South side segment signs directly across from the North and East signs, even though the footage on the South and West sides, between signs, does not equal 2640 ft.

Whenever an interstate is signed it is important to keep the North or East mileposts exactly 1 mile apart. It may be necessary in some instance to reference the milepost location by measuring footage from the milepost in the prior state, district, or county to get an accurate placement.

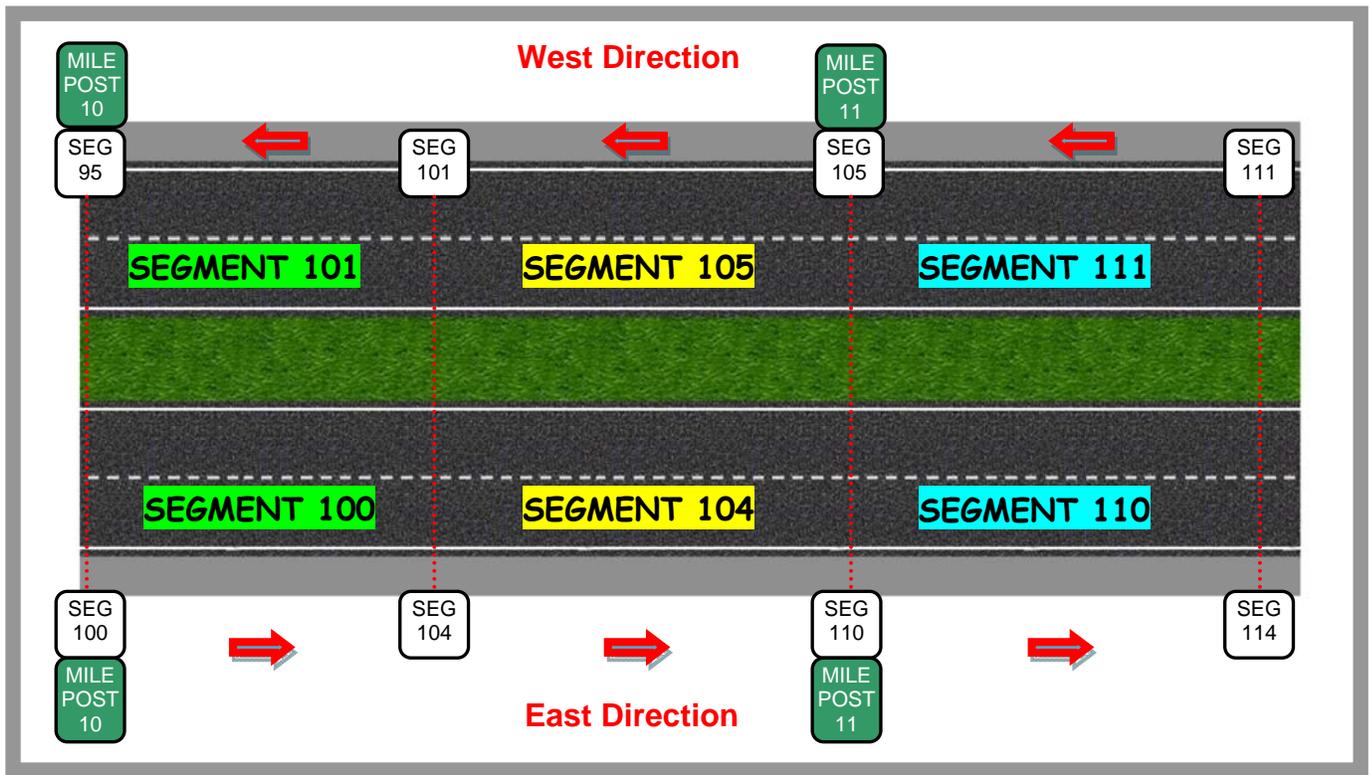


Figure 10  
Segmentation of an Interstate

On some interstates, there are bridge structures that will have a milepost location on the bridge with an accompanying segment located at the start of the structure, not mounted with the milepost sign. This situation occurs because SR segments cannot change in a structure, they must always occur at the beginning of the structure, therefore the milepost and segment may not be mounted together.

### SR Signing at Intersections and on Specific Features

All of the following illustrations represent correct sign placement for the feature or intersection that they are associated with:

#### Legend

Ideal Sign Placement -

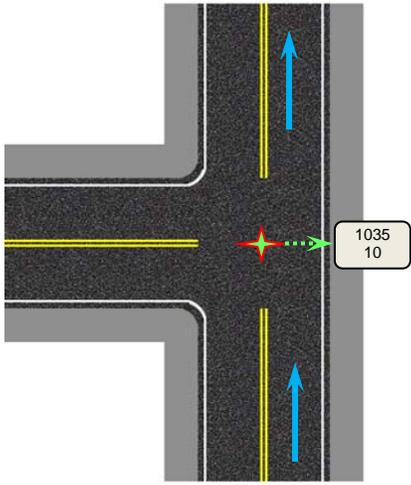
Acceptable Alternate Sign Placement -

Center Point to Sign Line -

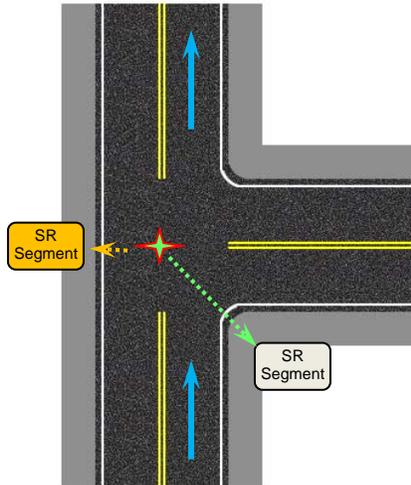
Alternate Center Point to Sign Line -

Center Point -

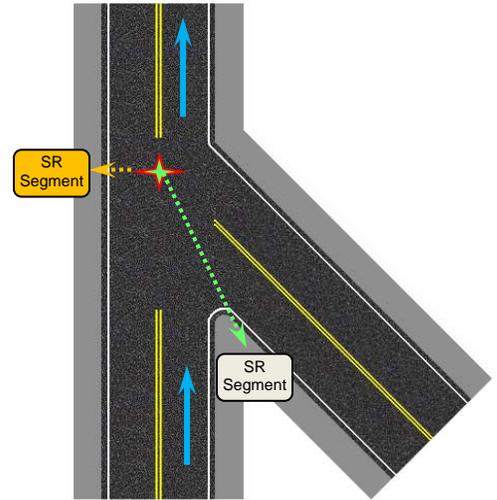
Directional flow of SR being signed -



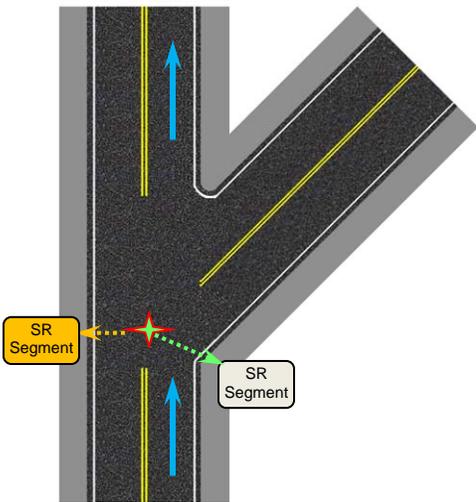
T-Left Intersection



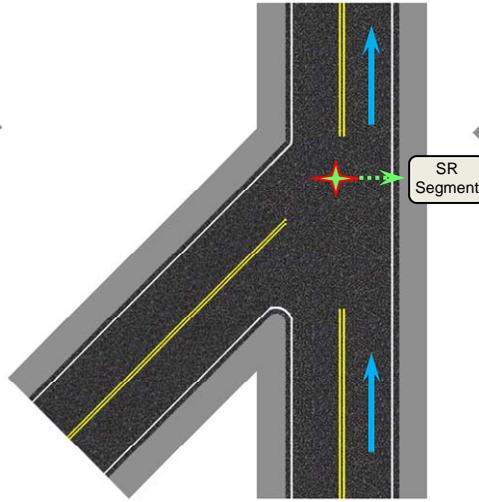
T-Right Intersection



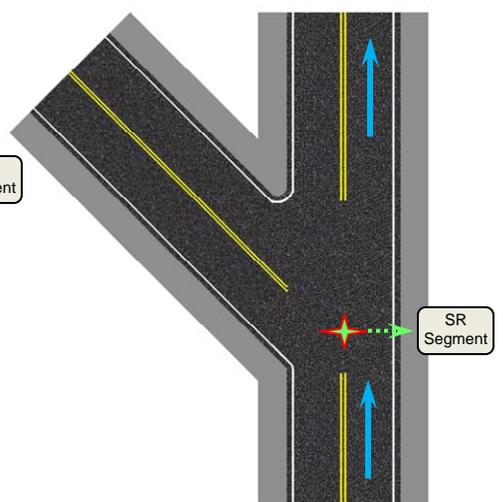
Back Right Intersection



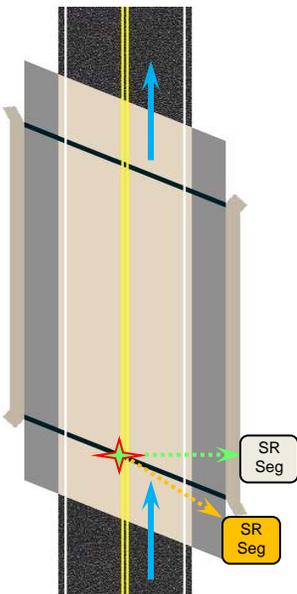
Ahead Right Intersection



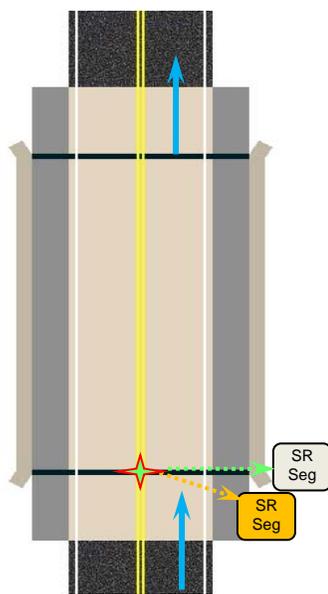
Back Left Intersection



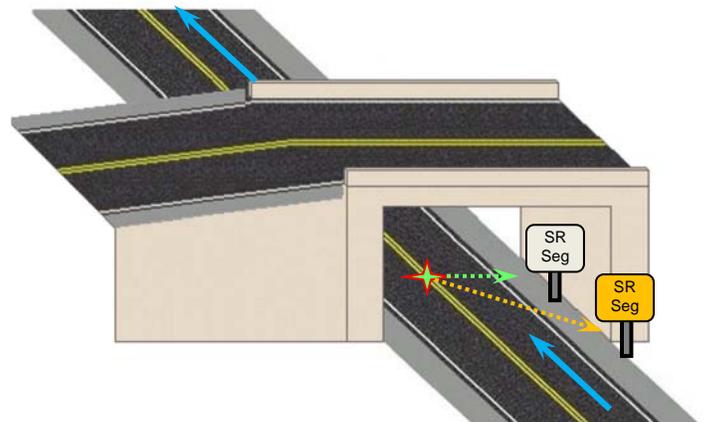
Ahead Left Intersection



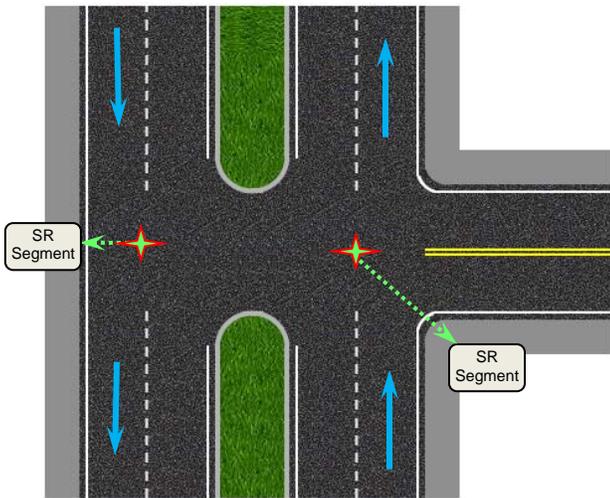
Skewed Bridge



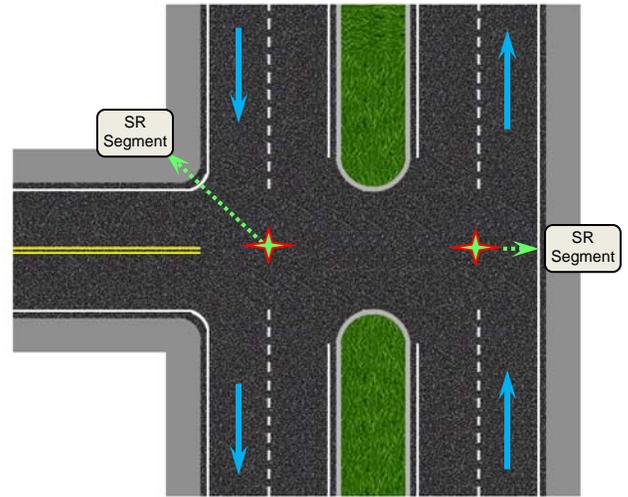
Bridge



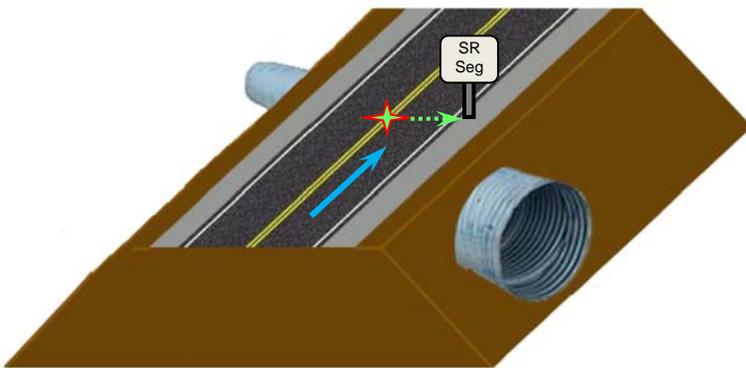
Overpass



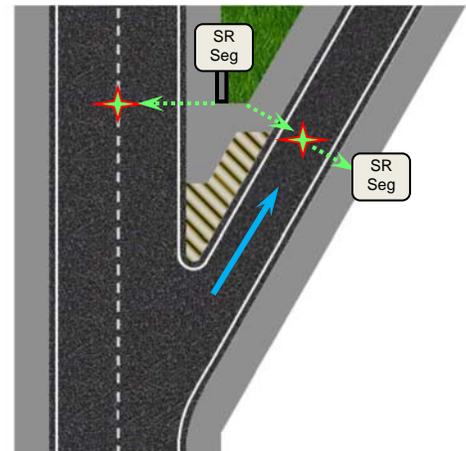
Divided SR with a T-Right Intersection



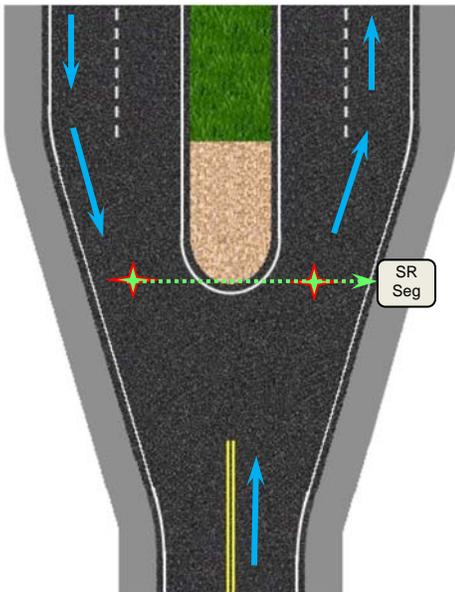
Divided SR with a T-Left Intersection



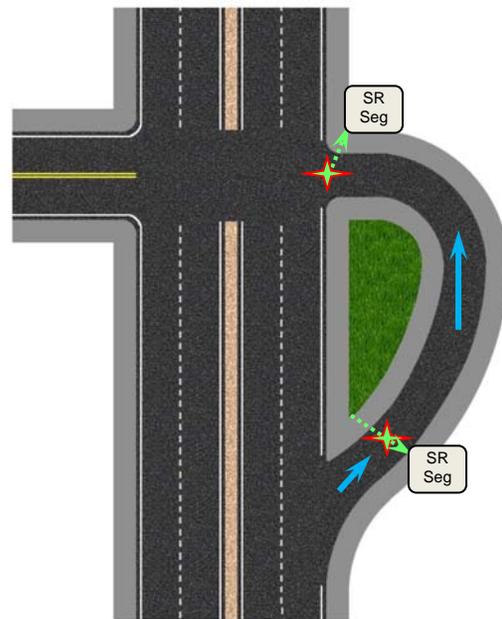
Drainage Pipe and Culverts



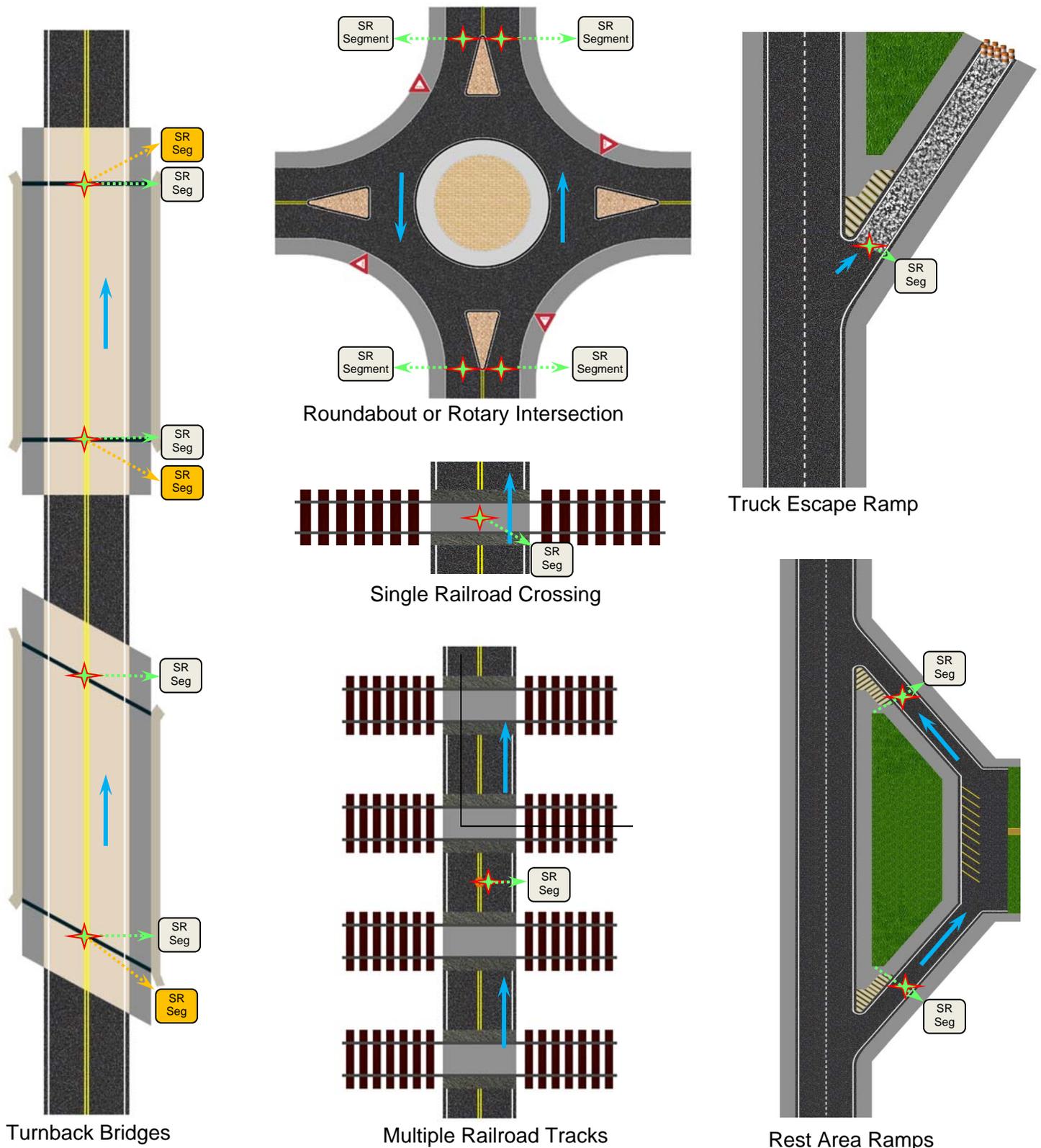
Exit Ramp



Divided Road Start and End

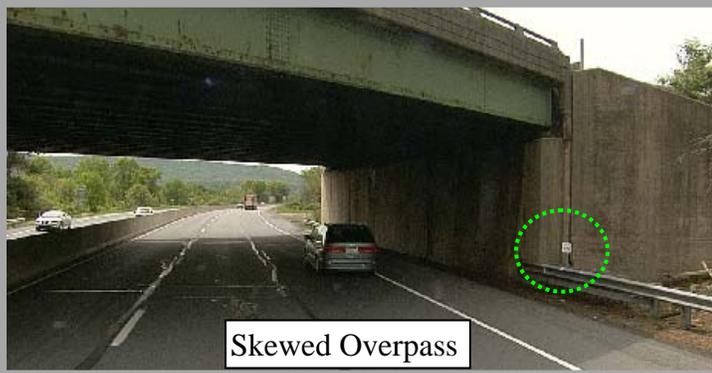


Jug Handle Intersection

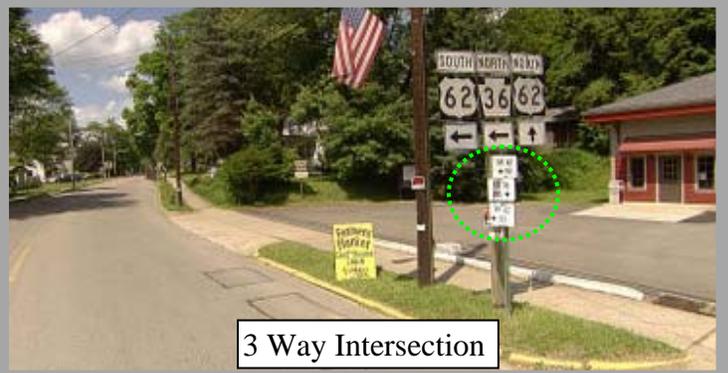


### Real World Sign Placement

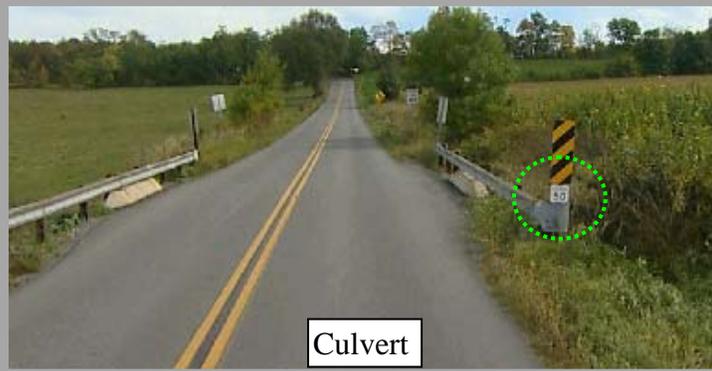
The photographs shown on the next page represent examples of acceptable segment sign placement for different types of intersections and features. Whenever you encounter a difficult location for sign placement, try to keep the signs as close to the point it represents as possible. In the worst case scenarios the signs should never be placed more than 100ft from their ideal location.



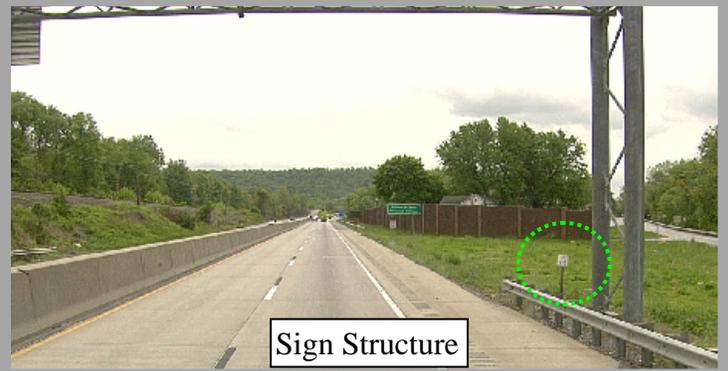
Skewed Overpass



3 Way Intersection



Culvert



Sign Structure



Skewed Bridge



T-Right Intersection



T-Left Intersection



Overpass



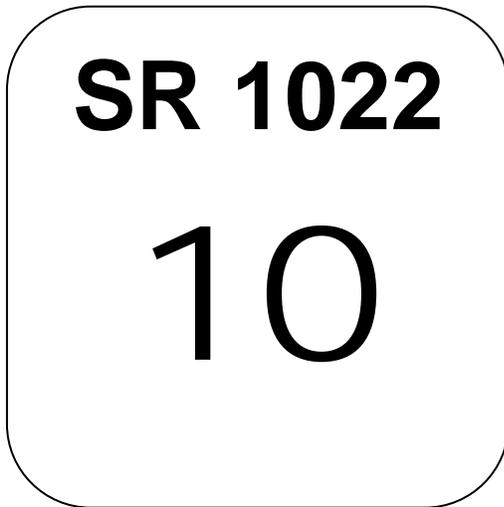
Ahead Left/Back Right Intersections



Stand Alone Segment

## Sign Usage Descriptions

### Type-1 Signs



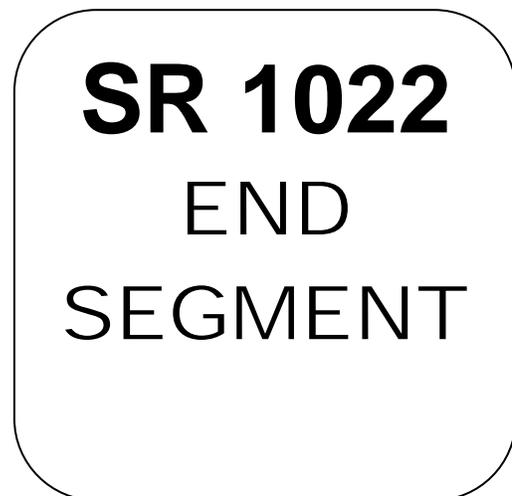
- This sign represents that you are entering segment 10
- Found on an undivided highway or on the EAST or NORTH side of a divided highway
- Offset 0000 will start at the feature associated with the sign or at the point on the road that is perpendicular to the sign



- This sign represents that you are at the ending point of an SR
- Found at the END of any State highway or Ramp
- The ending offset or high offset value will end at the feature associated with the sign or at the point on the road that is perpendicular to the sign



- This sign represents that you are entering segment 11
- Found on the WEST or SOUTH side of a divided highway, can also be found on a one-way street that runs WEST or SOUTH
- The high segment offset will start at the feature associated with the sign or at the point on the road that is perpendicular to the sign



- This sign represents that you are at the end of the current segment of the SR you are on
- Found most commonly at the end of a bridge or municipal line on an SR that has been partially turned back
- The ending offset or high offset value will end at the feature associated with the sign

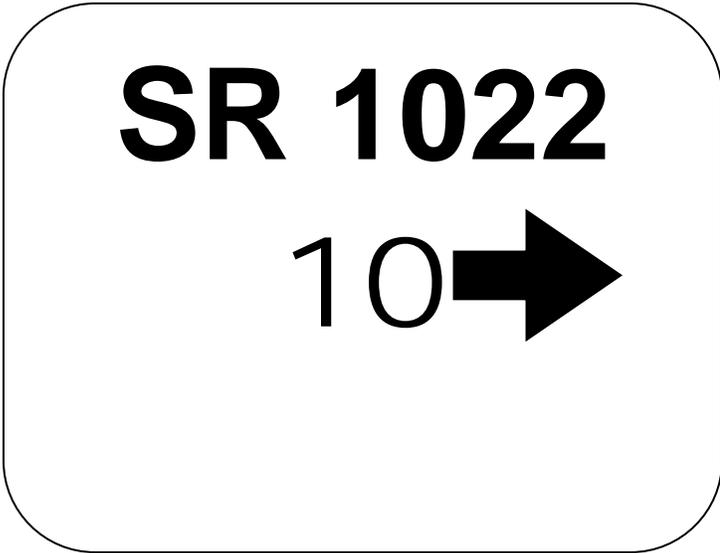


- This sign represents that you are at the beginning point of a ramp
- Offset 0000 will start at the gore area associated with the sign

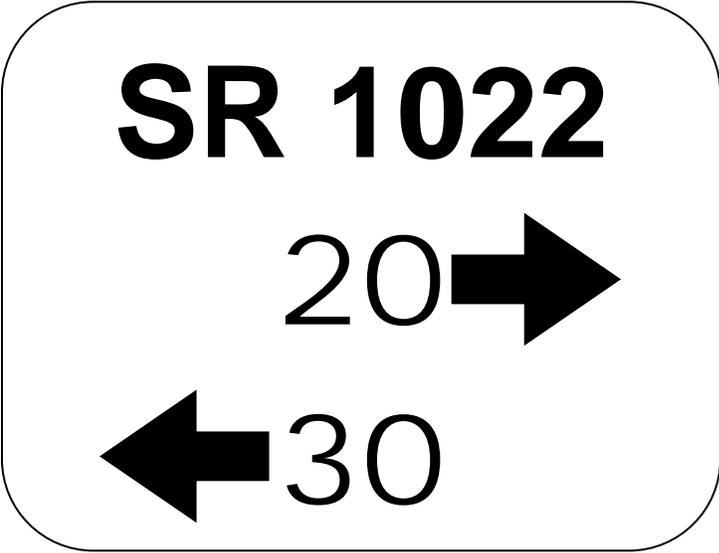


- This sign represents that you are at the ending point of a ramp
- The ending offset or high offset value will end at the gore area associated with the sign

**Type-2 Signs**



- This sign represents that you are at an intersection and segment 10 is to your right
- Offset 0000 will start at the intersection point of the road you are on and the road to your right
- This type of sign may be found on divided or undivided intersections of at least two SR's



- This sign represents that you are at an intersection and segment 20 is to your right and segment 30 is to your left
- Segment 30 offset 0000 will start at the intersection point of the road you are on and the road to your left
- Segment 20 at its high offset will start at the intersection point of the road you are on and the road to your right
- This type of sign may be found on an undivided intersections of at least 2 SR's

**SR 1022**

21 →

← 31

- This sign represents that you are at an intersection of a divided highway and segment 21 is to your right and segment 31 is to your left
- Segment 31 offset 0000 will start at the intersection point of the road you are on and the road to your left
- Segment 21 at its high offset will start at the intersection point of the road you are on and the road to your right
- This type of sign may be found on divided intersections of at least 2 intersecting SR's

**SR 1022**

21 →

← 30

- This sign represents that you are at an intersection of a divided highway and segment 21 is to your right and segment 30 is to your left
- Segment 30 offset 0000 will start at the intersection point of the road you are on and the road to your left
- Segment 21 at its high offset will start at the intersection point of the road you are on and the road to your right
- This type of sign may be found at divided intersections of at least 2 intersecting SR's

**SR 1022**

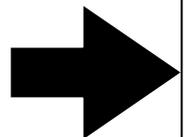
20 →

← 20

- This sign represents that you are at an intersection and segment 20 is to your right and left and that segment 20 does not start at the intersection
- This type of sign may be found on a divided or undivided intersections of at least 2 SR's

**SR 1007**

BRIDGE



- This sign represents that you are at an intersection of a state road and a local road.
- The bridge indicator means that there is a state-owned bridge on the local road that the arrow is pointing towards.
- This type of sign may be found on divided or undivided intersections of an SR and a local road.



## Ordering SR Signs

1. Order the required 18" x 12" and 10" x 10" SR\segment signs from current Traffic Sign Contract No. 460008263 (contract number may change over time).
2. Central Sign Shop has blank 18" x 12" and 10" x 10" SR\segment signs available.

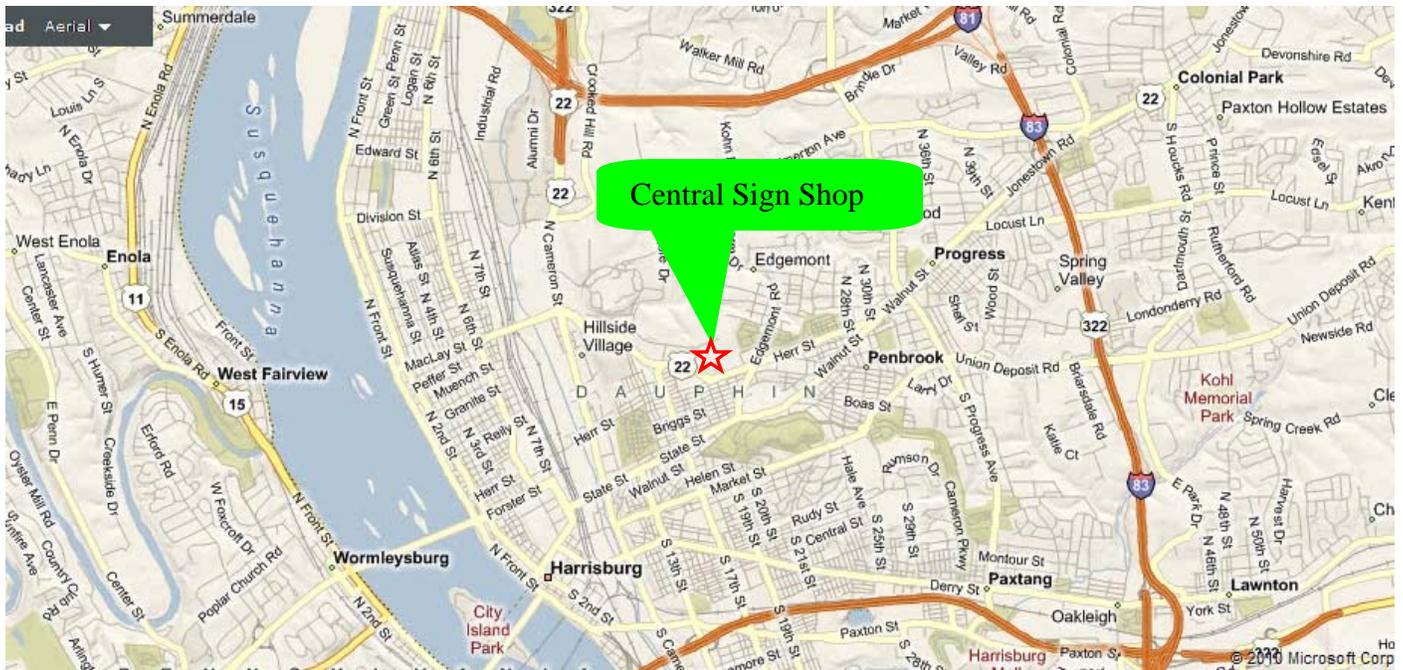
### Ordering Specifications:

- 10x10 - 307942 nomenclature C1-2
  - 18x12 - 307943 nomenclature C2-2
3. Characters on signs can be either stenciled or directly applied with prepositioned letters and numbers. To re-use SR signs, place white non-reflective and pressure- sensitive overlay on the sign then use direct-applied prepositioned letters and numbers.

### Sign Shop Contact Information:

**Location:** PENNDOT Sign Shop Distribution Center  
21st & Herr Streets, Harrisburg, PA 17033

**Phone:** (717) 787-6105



The sign shop is currently a destination pickup for PennDOT's Pony Express delivery trucks.

**If you have additional questions or comments about SR Signing please feel free to contact the Asset Management Division at:**

**717 783-0172**

**or**

**717 783-6843**