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## **327 EXIT ADVISORY SPEEDS**

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### **327.1 INTRODUCTION AND GENERAL CONSIDERATIONS**

Ramps exiting a freeway should be signed with appropriate exit and ramp advisory speed signs as appropriate. If a ramp leads to a terminus using stop, yield, or signalized control, then a W13-2, W13-6, or W13-6a sign (using the word "EXIT") should be used. If a ramp leads to another highway in a free-flow non-intersection condition, then a W13-3, W13-7, or W13-7a sign (using the word "RAMP") should be used.

### **327.2 EVALUATION OF RAMP ADVISORY SPEED**

The advisory speed for a ramp should be determined by an engineering evaluation, using a multi-step process as described herein.

#### **Step 1 - Evaluation of Horizontal Alignment:**

If the ramp has horizontal turns or curves, the advisory speed for each turn or curve should be determined by an engineering evaluation in accordance with TGP 321.

#### **Step 2 - Evaluation of Ramp Length:**

When determining the advisory speed for an exit ramp by ramp length (i.e. advisory speed not controlled by horizontal curves), the mean truck speed is the desired value to post as the ramp advisory speed. This uses the distance between the freeway exit ramp gore point and the downstream (signalized or stop-controlled) intersection as primary criteria. Table 327-A tabulates recommended advisory speeds based on ramp length. Note that Table 327-A is not applicable to free-flow ramps such as freeway to freeway ramps.

**Table 327-A. Recommended Ramp Advisory Speed by Ramp Length**

Ramp Length (Gore Point to Intersection)	Recommended Advisory Speed
less than 200 ft	30 mph
200 - 600 ft	35 mph
601-1000 ft	40 mph
1001-1700 ft	45 mph
1701 - 3000 ft	50 mph
3001 ft or greater	55 mph

Reference: " Establishing Advisory Speeds on Non Direct-connect Ramps: Technical Report", TTI, 2009

### Step 3 - Determination of Advisory Speed:

The lesser of the two advisory speeds (based on horizontal curvature and ramp length) should be used to determine the advisory speed to be posted on the W13 series sign near the upstream end of the ramp. If the ramp has multiple curves which qualify for advisory speed signing, the advisory speed for the curve nearest the upstream end of the ramp should be used, with additional W1 series horizontal alignment warning signs and W13-1P advisory speed plaques placed in advance of each subsequent curve as conditions permit. If the ramp geometrics do not permit the placement of downstream horizontal alignment warning signs and plaques, then the lowest advisory speed for all ramp curves should be posted on the W13 series sign near the upstream end of the ramp.

If there are horizontal curves on the ramp that have an advisory speed lower than the recommended advisory speed by ramp length, then supplemental horizontal alignment warning signs such as large arrows or chevrons should also be installed in accordance with the Warning Signs chapter of the MUTCD and TGP 321.

In cases where the distance from the ramp gore to the downstream intersection is short (less than 400 ft), or where queues of stopped vehicles are observed to regularly extend up the ramp, a more detailed engineering investigation may be advisable.

### 327.3 SIGN PLACEMENT AND SELECTION

W13 series exit and ramp signs should be placed in advance of the exit ramp using the distances listed in the Guidelines for Advance Placement of Warning Signs table of the MUTCD, using Condition B and deceleration from the posted speed on the freeway mainline to the advisory speed for the ramp, measured from the back of paved gore to the sign. However, in order to not confuse drivers on the mainline or lose the relationship between the advisory speed sign and the ramp, the advisory speed sign should not be placed in advance of the exit direction sign or the beginning of the ramp taper.

Most ramps will use a W13-2 exit advisory speed sign (or a W13-3 sign for a free-flow ramp). However, loop-type ramps containing a curve ranging from 120 to 225 degrees in angle should use a W13-6a (or W13-7a) combination horizontal alignment + advisory speed sign incorporating a hairpin curve arrow, and loop-type ramps containing a curve of 225 degrees or greater in angle should use a W13-6 (or W13-7) combination horizontal alignment + advisory speed sign incorporating a loop-type arrow. These signs using the hairpin and loop-type arrows may be highly advisable where the severity of the exit ramp curvature might not be apparent to road users in the deceleration lane or where the curvature needs to be specifically identified as being on the exit ramp rather than on the mainline. If determined to be advisable based on engineering judgment, more than one combination horizontal alignment + advisory speed sign may be installed on the exit or ramp approach.