

## **SECTION 2A - 6 - STUDY OF ALTERNATES**

### **PROJECTING HORIZONTAL ALIGNMENT**

In projecting horizontal alignment at this stage of development, all practical considerations should be tested, subject to information obtained from the initial field reconnaissance. The alignment should be governed by the Geometric Design Standards in [Appendix A, Section A-1](#), based on the design speed for the Functional Classification of the highway system that is being considered. In corridor selection, any deviation from these standards is to be noted for consideration. Additional information may also be obtained from AASHTO's *A Policy on Geometric Design of Highways and Streets* and other related publications. As corridors are studied, it is suggested that one baseline be projected for each alternate.

The use of spiral transitions for compound and reverse curves on urban roadways should be avoided. However, the Engineer does have latitude in the use of spiral transitions if the geometrics are warranted. Should spiral transitions be utilized see Road and Bridge Standards, pages 802.01, 802.13 and 802.14 for details.

### **PROJECTING VERTICAL ALIGNMENT**

When all horizontal alignments have been selected and shown on the prints, a tentative grade is necessary in order to properly evaluate these alternates. Care must be taken to conform to applicable standards in regard to gradient and to passing and stopping sight distances on both crest and sag vertical curves. Crest vertical curves shall meet or exceed AASHTO design criteria for Stopping Sight Distance, not the "k" Values. Sag vertical curves shall meet or exceed the AASHTO minimum "K" Values. The "K" values for sag vertical curves take into account the headlight sight distance. Therefore, when the "K" Value for a sag vertical curve does not meet the VDOT Road Design Manual minimum, same as the AASHTO minimum, it shall be submitted as a design waiver and shown as "Other" on the LD-448 Waiver Form.\* Grades should present a smooth appearance and eliminate the "roller coaster" concept whenever possible.

### **EVALUATING ALTERNATIVES**

In evaluating alternates at this stage of the project development, it should be kept in mind that this is the initial attempt to define a corridor location and the alignment and grades projected are subject to refinement as shown in [Section 2B-3-DETERMINATION OF ROADWAY DESIGN](#). The basic objective at this time is to eliminate the corridors or alignments which are inferior to others considered within the project area. Ideally, one alignment and grade should appear superior to others considered within a given corridor. The aforementioned items used in considering horizontal and vertical alignment offer the best means of evaluating alternates in addition to any information which was obtained from other sources.

---

\* Rev. 1/17