

## 25 VERTICAL CURVES

Asterisks (\*) indicate problems that have partial answers given in Appendix G.

- 25.1** What is the advantage of using a parabola in the vertical design of highways and railroads?

From Section 25.1, paragraph 1: “Because parabolas provide a constant rate of change of grade, )”

- 25.2** What factors must be taken into account when designing a grade line on any highway or railroad?

From Section 25.1, paragraph 3: “There are several factors that must be taken into account when designing a grade line of tangents and curves on any highway or railroad project. They include (1) providing a good fit with the existing ground profile, thereby minimizing the depths of cuts and fills, (2) balancing the volume of cut material against fill, (3) maintaining adequate drainage, (4) not exceeding maximum specified grades, and (5) meeting fixed elevations such as intersections with other roads. In addition, the curves must be designed to (a) fit the grade lines they connect, (b) have lengths sufficient to meet specifications covering a maximum rate of change of grade (which affects the comfort of vehicle occupants), and (c) provide sufficient sight distance for safe vehicle operation (see Section 25.11).”