

APPENDIX A

SUMMARY OF MAXIMUM GRADES FOR VERTICAL ROADWAY ALIGNMENT DESIGN

Street Hierarchy	Type of Terrain	Design Speed (mph)					
		20	30	40	50	60	70
		Maximum Grade (Percent)					
Residential Street							
Urban and Rural	Level ¹	7	7	6	N/A	N/A	N/A
	Rolling ²	10	9	8	N/A	N/A	N/A
Collectors							
Urban	Level	N/A	9	9	7	6	N/A
	Rolling	N/A	10	9	8	7	N/A
Rural	Level	N/A	7	7	6	5	N/A
	Rolling	N/A	9	8	7	6	N/A
Arterials							
Urban	Level	N/A	8	7	6	5	N/A
	Rolling	N/A	9	8	7	6	N/A
Rural	Level	N/A	N/A	N/A	4	3	3
	Rolling	N/A	N/A	N/A	5	4	4
Freeways and Highways							
Urban and Rural	Level	N/A	N/A	N/A	4	3	3
	Rolling	N/A	N/A	N/A	5	4	4

¹Level terrain is that condition where roadway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense

²Rolling terrain is that condition where the natural slopes consistently rise above and fall below the roadway grade and where occasional steep slopes offer some restriction to normal horizontal and vertical roadway alignment.