

# 4.0 Design Criteria

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## 4.1 Design Criteria

Several sources were consulted in determining the design criteria to be used for this study. These sources include the following:

- Manual on Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways, State of Florida.
- Plans Preparation Manual, Florida Department of Transportation
- A Policy on Geometric Design of Highways and Streets, AASHTO
- A Policy on the Design of Urban Highways and Arterial Streets, AASHTO
- Drainage Manual, Florida Department of Transportation
- Manual on Uniform Traffic Control Devices, Federal Highway Administration
- Roadway and Traffic Design Standards, Florida Department of Transportation
- Highway Capacity Manual, Transportation Research Board
- Structures Design Manual, Florida Department of Transportation

Table 4-1 summarizes the design criteria for the roadway improvement alternatives. Table 4-2 summarizes the design criteria for the minor connecting roads. All criteria are subject to change and only current criteria will be used during the final design phase.

**Table 4-1  
Roadway Design Criteria**

<b>Design Element</b>	<b>Suburban Roadway</b>	<b>Urban Roadway</b>	<b>Source</b>
Design speed	45 mph	45 mph	FDOT PPM Table 1.9.1
Minimum median width	22 ft.	22 ft.	FDOT PPM Table 2.2.1
Maximum degree of curvature	3°4'20"	8°15'00"	FDOT PPM Table 2.8.3 and Table 2.9.1
Maximum degree of curvature with normal crown	0°50'00"	2°45'00"	FDOT PPM Table 2.8.4
Desirable length of horizontal curve	675 ft.	675 ft.	FDOT PPM Table 2.8.2a
Minimum length of horizontal curve	400 ft.	400 ft.	FDOT PPM Table 2.8.2a
Maximum deflection without horizontal curve	1°00'00"	1°00'00"	FDOT PPM Table 2.8.1a
Minimum stopping sight distance	360 ft.	360 ft.	FDOT PPM Table 2.7.1
Maximum superelevation	5%	5%	FDOT PPM Table 2.9.1 (Suburban) and Table 2.9.2 (Urban)
Minimum curve radius			
Normal crown	6,878 ft.	2,083 ft.	FDOT PPM Table 2.9.1(Suburban) and Table 2.9.2 (Urban)
Reverse crown	5,087 ft.	955 ft.	
Maximum superelevation	1,865 ft.	694 ft.	
Superelevation transition slope rate	1:200	1:150	FDOT PPM Table 2.9.3 and Table 2.9.4
Maximum profile grade	5%	6%	FDOT PPM Table 2.6.1
Maximum change in grade without vertical curve	0.70%	0.70%	FDOT PPM Table 2.6.2
Crest vertical curve			
K value	98	98	FDOT PPM Table 2.8.5
Minimum length	135 ft.	135 ft.	
Sag vertical curve			
K value	79	79	FDOT PPM Table 2.8.6
Minimum length	135 ft.	135 ft.	
Minimum base clearance above design high water elevation	3 ft.	1 ft.	FDOT PPM Table 2.6.3
Lane width	11 ft.	11 ft.	FDOT PPM Table 2.1.1
Total shoulder width			
Inside	N/A	N/A	FDOT PPM Table 2.3.2
Outside	8 ft	N/A	
Paved shoulder width			
Inside	N/A	N/A	FDOT PPM Table 2.3.2
Outside	5 ft	N/A	
Clear zone	18 ft.	4 ft.	Florida Greenbook Table 3-12
Minimum pavement cross slope	0.02	0.02	FDOT PPM Figure 2.1.1
Minimum border width	33 ft.	14 ft.	FDOT PPM Table 2.5.1 and Table 2.5.2

**Table 4-2  
Minor Roads Design Criteria**

<b>Design Element</b>	<b>Minor Roads</b>	<b>Source</b>
Design speed	30-50 mph	Florida Greenbook, Table 3-1
Minimum width of Clear Zone	Based on Type of Facility	Florida Greenbook, Table 3-12
Maximum degree of curvature	Based on Design Speed	Florida Greenbook Table 3-3
Maximum degree of curvature with normal crown	Based on Design Speed	Florida Greenbook Table 3-3
Desirable length of horizontal curve	15 x Design Speed (mph)	FDOT PPM Table 2.8.2a
Minimum length of horizontal curve	400 ft	FDOT PPM Table 2.8.2a
Maximum superelevation	5% (Urban)	Florida Greenbook Table 3-3
	10% (Rural)	
Crest vertical curve	Based on Design Speed	Florida Greenbook, Table 3-6
Sag vertical curve	Based on Design Speed	Florida Greenbook, Table 3-6
Minimum Curve Radius	Based on Design Speed	Florida Greenbook Table 3-3
Minimum base clearance above design high water elevation	1 ft.	FDOT PPM Table 2.6.3
Turn lane Queue Length	50' Min (Rural/Town Area)	Florida Greenbook, Figure 3-13
	100' Min (Urban/Suburban)	