

## 4.0 Design Criteria

Table 4.0 presents the roadway design criteria for the four alternatives discussed in Chapter 7. The design criteria are based on design parameters outlined in A Policy on Geometric design of Highways and Streets (AASHTO, 2004), Roadway Plans Preparation Manual, Vol. 1 and II (FDOT, 2005) and Design Standards (FDOT, 2004). No standards exist in St. Johns County for arterial roadways.

**Table 4.0 – Roadway Design Criteria**

County Road 2209		
Design Element	Design Value	Source
<b>Facility Type</b>	Arterial	FDOT
<b>Design Speed</b>	60 mph	PPM <sup>1</sup> Table 1.9.1
<b>Minimum Lane Widths</b>	12' - travel lane	PPM, Table 2.1.1
<b>Shoulders</b>	Outside - 12', Inside - 10';	PPM, Table 2.3.2
<b>Median Width</b>	60 mph - 40' median	PPM, Table 2.2.1
<b>Minimum Border Width</b>	60 mph - 40' Border	PPM, Table 2.5.1
<b>Grades</b>	3% max	PPM, Table 2.6.1
<b>Max. Change in Grade w/o VC</b>	0.40%	PPM, Table 2.6.2
<b>Pavement Cross Slopes</b>	2% (2 inside lanes); 3% (outer lanes);	PPM, Figure 2.1.1
<b>Minimum Grade</b>	0.30% (curb & gutter sections only);	PPM, Table 2.6.4
<b>Roadway Base Clearance</b>	3' above D.H.W. <sup>2</sup>	PPM, Table 2.6.3
<b>Min. Stopping Sight Distance</b>	570'	PPM, Table 2.7.1
<b>Horizontal Curves</b>		
<b>Min. Length of curve</b>	60 mph-Horiz Cur = $15V = 900'$ , not <400'	PPM, Table 2.8.2a
<b>Max. Curvature</b>	5 deg 15'	PPM, Table 2.8.3
<b>Max. Curvature w/o Superelev</b>	0 deg 15' 00"	PPM, Table 2.8.4
<b>Max. Deflection w/o curve</b>	0 deg 45' 00"	PPM, Table 2.8.1a
<b>Crest Vertical Curve</b>	60 mph - minimum K =245; minimum L = 400';	PPM, Table 2.8.5
<b>Sag Vertical Curve</b>	60 mph - minimum K = 136; minimum L = 300; L=KA (where A=Algebraic Dif in Grades in %)	PPM, Table 2.8.6
<b>Superelevation</b>	60 mph = 5 deg 15', e max =0.10  Superelevation Transition Rate - 1:180 / 1:225 80% of super trans. in tangent	PPM, Table 2.9.1 Standard Index 510 PPM Table 2.9.3
<b>Intersection Design Vehicle</b>	WB-50	
<b>Minimum Vertical Clearance</b>	16'6" Roadway Over Roadway	2.10.1
<b>Clear Zone &gt; 55 mph</b>	≥1500 AADT 36' Travel Lanes; 24' Aux Lanes ;	PPM, Table 2.11.9
<b>Turn Lane Deceleration Distance</b>	405' at 60 mph design speed	Design Standard 301
Notes: <sup>1</sup> PPM = Plans Preparation Manual (Volume 1 - English) (Revised January 2005), Florida Department of Transportation <sup>2</sup> Roadway base clearance requirement of 3' for rural mainline was reduced to 1' in superlevelated or high fill areas in order to reduce right-of-way requirements and cost.		