APPENDIX A

SCDOT Preliminary Approved Design Criteria

RTE: US 17		Functional Classification	**Rural Arterial**		Rte. #	Existing

Traffic	2020	2040
AADT	17200	20600

Design Criteria for Rural Two-Lane Arterials (New Construction/Reconstruction) Figure 20.1D (SCHDM 2003)

	Design Element			**Manual Section**	**Design Criteria**	17
Design Controls	Design Forecast Year			9.6.2	20 Years	2033
	*Design Speed (maximum)	Level		9.5.2	70 mph	-
					65 mph	-
		Rolling			60 mph	60
		Mountainous			50 mph	-
	Access Control			9.8	Controlled by Regulation	na
	Level of Service			9.6.4	Level/Rolling: B Mountainous: C	B
Cross Section Elements	*Travel Lane Width **(1)**			13.2.3	12'	12
	*Shoulder Width **(2)**	Total Width		13.2.4	10'	10
		Paved			2'	4' inside/6' outside (Bike)
	Auxiliary Lanes	Lane Width		13.2.5	12'	12
		Shoulder Width	Total Width		10'	10
			Paved		2'	4' inside/6' outside (Bike)
	Cross Slope	*Travel Lane		13.2.3.3	2.08% (48:1)	48:1
		Auxiliary Lane		13.2.5	2.08%	48:1
		*Shoulder	Paved	13.2.4.3	2.08% **(3)**	24:1 - 4' inside & 6' outside; 48:1 - 2' outside
			Unpaved		8.33% (12:1)	12:1
	Median Width (TWLTL)			21.2.7	15'	36' divided
	Ditches	Minimum Grade		2.2.4 Hydro Design Studies	Min. 0.30%	0.30%
Roadway Slopes	Side Slopes	Cut Section	Foreslope	13.3.1	6H:1V to 4H:1V	6:1
			Ditch Type		V-Ditch	V
			Back Slope		4H:1V to 2H:1V	2:1
			Rock Cut		0.25H:1V	na
		Fill Section	0′ – 5′		6H:1V	6:1
			5′ – 10′		4H:1V	4:1
			> 10′		2H:1V	2:1
	Clear Zone			14.3	See AASHTO Roadside Design Guide	30'
Bridges	New and Reconstructed Bridges	*Structural Capacity			HL-93	
		*Clear Roadway Width		13.5.1.1	44' (5)	Future Backriver Bridge: 56' (10' shoulder/12' lane/12' lane/10' shoulder/2' barrier wall/10' MUP)
	Existing Bridges to Remain in Place	*Structural Capacity			HS-20 **(6)**	na
		*Clear Roadway Width		13.5.1.1	44'	na
	USCG Navigational Clearance	Vertical Clearance		USCG Reg		na
		Horizontal Clearance				na
	*Vertical Clearance (Arterial Under) **(7a)** Roadway Crossings	New/Replaced Overpassing Bridges **(7b)**		12.6	17'-0"'	na
		Existing Overpassing Bridges			16'-0"	na
		Pedestrian Bridges			18'-0"	na
		Overhead Signs			17'-6"	na
	Clearance (Arterial Over)	*Railroads		12.6	23'-0"	na
		Underpass Width		13.5.2	Traveled Way plus Clear Zone	na
	Vert Clearance Waterway Crossings	FEMA Study		1.1 Hydro Design Studies	FEMA Requirements	
		Design Storm			50 Year (Interstates/Primaries)	

Alignment Criteria Figure 20.1F	**Design Element**		**Design Speed**						
				40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	60 mph
	*Stopping Sight Distance **(1)**		10.1	305′	360′	425′	495′	570′	645′	730′	570′
	Passing Sight Distance		10.2	1470′	1625′	1835′	1985′	2135′	2285′	2480′	2135′
	Intersection Sight Distance **(2)**		10.4	445′	500′	555′	610′	665′	720′	775′	665′
	*Minimum Radii	e_{max} = 8%	11.2.3	–	–	–	965′	1205′	1485′	1820′	1205′
		e_{max} = 6%		510′	660′	835′	–	–	–	–	–
	*Superelevation Rate **(3)**		11.3	6%	6%	6%	8%	8%	8%	8%	0.08
	*Horizontal Sight Distance **(4)**		11.4	23′	24′	27′	32′	34′	35′	36′	34′
	*Vertical Curvature (K-values) **(5)**	Crest	12.5	44	61	84	114	151	193	247	151
		Sag		64	79	96	115	136	157	181	136
	*Maximum Grade	Level	12.3.1	5%	5%	4%	4%	3%	3%	3%	0.03
		Rolling		6%	6%	5%	5%	4%	4%	4%	0.04
		Mountainous		8%	7%	7%	6%	6%	5%	5%	0.06
	Minimum Grade **(6)**		12.3.2	0.50%							0.50%

*Controlling design criteria (see Section 9.2).

(*) - See SCHDM