Roadway				
PIN Number			**Submittal Date**	
Project Number				**Approval Date**
District	(Select District)	**Assistant District Engineer**		
County	(Select a County)	**or**		
Route		**Office Director**		
Location				
Work Type				
Segment Manager				
Designer				

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Urban Interstates (Urban Freeways)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		5 miles above the anticipated posted speed limit	50	
Maximum superelevation rate (%) (Refer to Section 2A-2)		6	8	
Design lane width (ft)		12	12	
Full depth paved width (ft)	Outside lane	12	12	
	Inside lane(s)	12	12	
Auxiliary-lane width (ft)		12	12	
Pavement cross-slope	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3 % maximum	
	Auxiliary lanes	3%	3% maximum	
	Crown break at centerline	4%	4% maximum	
Shoulder cross-slope	Interstates	4%	6% max, but not less than the cross slope of the adjacent lane	
	Freeways	4%	6% max, but not less than the cross slope of the adjacent lane	
Curb type (Refer to Section 3C-2)	Interstates	4-inch sloped	4-inch sloped	
	Freeways	4-inch sloped	4-inch sloped	
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	4:1 for Interstates, 3:1 for Freeways*	
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	
	Curbed roadways	2%	4:1 for Interstates, 3:1 for Freeways*	
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	
Transverse Slopes	w/ drainage structures	8:1	6:1	
	w/o drainage structures	10:1	6:1	
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	
	Median ditch depth (ft)	4	--	
Median width (ft) (Refer to Section 3E-1)	Interstates	34	10	
	Freeways	34	10	
Bridge width—new***	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	
Bridge width—existing***	Bridge length ≤ 200 ft	design lane widths + no less than 10' right and 3.5' left	design lane widths + 10' right shoulder and 3.5' left shoulder	
	Bridge length > 200 ft	design lane widths + no less than 3.5' left and right	design lane widths + 3.5' right and left of the design lane widths	
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks))	Over primary	16.5	16	
	Over non-primary	16.5 at interchange locations, 15 ft at all other locations	14	
	Over railroad	23.3	23.3	
	Sign trusses and pedestrian crossings	17.5	17	
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service	Freeway segments	C	C**	
	Auxiliary Facilities	C	C**	

*Design Exception not required for Freeways
**LOS D may be acceptable in spot locations with FHWA approval
***FHWA notification via email is required if acceptable criteria is not met on the Interstate or NHS systems (No formal design exception required)

Roadway Design Speed (mph) =	

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Design Criteria for High Speed Roadways

Design Element			Preferred Criteria						Acceptable Criteria						Project Values
			Design Speed, mph						Design Speed, mph						
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	
	sag vertical curves	roadways without fixed source lighting	96	115	136	157	181	206	96	115	136	157	181	206	
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	–	–	–	
		Rural roadways							5	5	4	4	4	4	
		Interstates							5	5	4	4	4	4	
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						

Directional Design Hourly Volume (DDHV) for Trucks =

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Effective Shoulder Width and Type for Interstates (Freeways)

Auxiliary Lanes	Preferred (values shown in feet)		Acceptable (values shown in feet)		Project Values
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
	6	6	6	6	

4-Lane Sections

Design Year Traffic	Outside		Median Side		Outside		Median Side		Project Values
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Less than or equal to 250 DDHV	10	10	6	6	10	10	4	4	
Greater than 250 DDHV	12	12	6	6	12	12	4	4	

Sections with 6 or more lanes

Design Year Traffic	Outside		Median Side		Outside		Median Side		Project Values
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Less than or equal to 250 DDHV	10	10	10	10	10	10	10	10	
Greater than 250 DDHV	12	12	12	12	12	12	12	12	

Curbs should be located beyond the outer edge of the paved shoulder

Notes: