

**Texas Department of Transportation
Technical Provisions**

SH 183 Managed Lanes Project

**Attachment 11-1
Roadway Design Criteria**

TABLE 1: Geometric Design Criteria

	Mainlanes	Managed Lanes	Frontage Roads	Ramps (Managed Lanes Ingress/Egress)	Ramps (Freeway)	Direct Connectors (DC)/ Collector Distributors (CD)	Turnarounds	Crossing Streets
General								
Roadway Classification	Urban Freeway or Tollway	Urban Freeway or Tollway	Low Speed Urban Street	Urban Freeway or Tollway	Freeway	Urban Freeway or Tollway	Low Speed Urban Street	Low Speed Urban Street
Design Speed (mph)	70 / 60 ^A / 50 ^B	70 / 60 ^A / 50 ^B	40 / 35 ^A	70 / 60 ^A / 50 ^B	45 / 40 ^B / 25 ^J	50 (DC) / 40 (CD)	15	40 / 35 ^C
Stopping Sight Distance (ft)	730 / 570 / 425	730 / 570 / 425	305 / 250	730 / 570 / 425	360 / 305 / 155	425 (DC) / 305 (CD)	80	305 / 250
Horizontal Alignment								
Max. Superelevation (%)	6	6	4	6	6	6	4	N/A
Min. Radius of Curvature (ft)	2050 / 1340 / 835	2050 / 1340 / 835	490 / 345	2050 / 1340 / 835	660 / 510 / 185	835 (DC) / 510 (CD)	45	490 / 345
Vertical Alignment								
Minimum Grade (%)	0.35 ^K	0.35 ^K	0.5 ^K	0.35	0.5 / 0.35 ^I	0.5	0.35	0.5
Maximum Grade (%)	3 / 3 / 4	3 / 3 / 4	7	3 / 3 / 6	6	6	4	7
Crest (Min. K-Value)	247 / 151 / 84	247 / 151 / 84	44 / 29	247 / 151 / 84	61 / 44 / 12	84 (DC) / 44 (CD)	3	44 / 29
Sag (Min. K-Value)	181 / 136 / 96	181 / 136 / 96	64 / 49	181 / 136 / 96	79 / 64 / 26	96 (DC) / 64 (CD)	10	64 / 49
Cross Section								
Lane Width (ft)	12	12	11	12	14	14 (DC) / 12 (CD)	14	12
Min. Inside Shoulder (ft)	10	2 ^D	None ^F	4	4 (Uncurbed) 2 (Curbed)	4 ^G (DC)	2	N/A
Min. Outside Shoulder (ft)	10	10 ^{D,E}	4 ^F	4	8 (Uncurbed) 6 (Curbed)	8 ^G (DC)	6	N/A
Cross Slope (%)	2.0 ^C	2.0 ^C	2.0	2.0 ^C	2.0	2.0	2.0	2.0
Clear Zone (from edge of travel lane) (ft)	30	30	10 (Uncurbed) 5 (Curbed) ^H	16	16	N/A (DC) / 10 ^H (CD)	N/A	(See Attachment 11-1, Table 2) ^H
Side Slopes within Clear Zone	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)	6:1 Usual (4:1 Max.)
Side Slopes outside Clear Zone	3:1 Max.	3:1 Max.	3:1 Max.	3:1 Max.	3:1 Max.	3:1 Max.	3:1 Max.	3:1 Max.
Vertical Clearance								
Roadway (ft)	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Railroad (ft)	23	23	23	23	23	23	23	23
Electrified Light Rail (ft)	26	26	26	26	26	26	26	26
Under Overhead Signs (ft)	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Pedestrian Facilities (ft)	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Other								

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	Mainlanes	Managed Lanes	Frontage Roads	Ramps (Managed Lanes Ingress/Egress)	Ramps (Freeway)	Direct Connectors (DC)/ Collector Distributors (CD)	Turnarounds	Crossing Streets
Design Vehicles	WB-62	WB-62	WB-62	WB-62	WB-62	WB-62	WB-62	See Attachment 11-1, Table 2
Min. Driveway Radius (ft)	N/A	N/A	30 (Commercial) 15 (Residential)	N/A	N/A	N/A	N/A	30 (Commercial) 15 (Residential)

Notes:

- A. Design criteria apply to SH 183 Interim improvements, SH 114, and Loop 12. Lower values meeting TxDOT Roadway Design Manual may be allowed for existing roadways to be widened or rehabilitated.
- B. Design criteria apply to applicable items in the RID Exhibit 11-1 Roadway Design Deviations.
- C. Steeper cross slopes, as required by the *TxDOT Roadway Design Manual*, shall apply. Lines joining two different cross slopes shall be placed along or within one foot of the edge of traveled lanes.
- D. Developer shall coordinate with Governmental Entities during final design to ensure adequate enforcement zones are provided.
- E. Developer shall provide a minimum 14 feet immediately downstream from each tolling gantry to allow for enforcement areas.
- F. Developer shall include curb on newly constructed and reconstructed frontage road sections as needed to match existing frontage road section.
- G. To mitigate restrictions on the design imposed by site distance, it is acceptable to position the wider shoulder on the inside of the curve.
- H. The face of the new bridge columns shall be located 6 feet or more from the face of curb.
- I. Design criteria applicable to ramps connecting to mainlanes.
- J. Design criteria apply to loop ramps.
- K. Lower values allowed for widening of existing roadways in Interim Areas.

TABLE 2: Crossing Street Functional Classification and Additional Design Criteria

Intersecting Street	Jurisdiction	Functional Classification/ Roadway Classification	Design Speed (mph)	Position (Over/Under)	Design Vehicle	EBWB Turnaround	WBEB Turnaround	Southbound				Turn Lanes	Northbound				Clear Zone for Thru Lanes	Bicycle Accomodation (Y/N)	Pedestrian Rail Protection/Barrier (Y/N)
								Sidewalk and Min. Usable Width	Curb & Gutter		Thru Lanes		Thru Lanes		Curb & Gutter	Sidewalk and Min. Usable Width			
FM 157 (Industrial Blvd.)	TxDOT, Bedford, Euless	Arterial Urban	45	Under	WB-62	Y	Y	Y (6')	Y		3	1	3		Y	N	3' from Curb Face	N	N
Ector Dr.	Euless	Collector Urban	40	Under	WB-62	Y	Y	Y (6')	Y		2	1	2		Y	Y (6')	3' from Curb Face	N	N
Main St.	Euless	Arterial Urban	40	Over	WB-62	Y	Y	Y (6')	Y		2	1	2		Y	Y (6')	3' from Curb Face	N	Y
Esters Rd.	Irving	Arterial Urban	35	Over	WB-62	Y	Y	Y (5')	Y		2	2	2		Y	Y (5')	3' from Curb Face	N	N
Story Rd.	Irving	Arterial Urban	40	Under	WB-62	Y	Y	Y (6') North of SH 183	Y		North of SH 183: 3 South of SH 183: 2	1 / 2 ³	North of SH 183: 3 South of SH 183: 2		Y	Y (6') North of SH 183	3' from Curb Face	N	N
Macarthur Blvd.	Irving	Arterial Urban	40	Under	WB-62	Y	Y	Y (6') South of SH 183	Curb, no gutter		North of SH 183: 3 South of SH 183: 2 / 3 ³	2	North of SH 183: 3 South of SH 183: 2 / 3 ³		Curb, no gutter	Y (6') South of SH 183	3' from Curb Face	N	N
O'Connor Rd.	Irving	Arterial Urban	40	Under	WB-62	Y	Y	Y (6') North of SH 183	Y		2	2	2		Y	Y (6') North of SH 183	3' from Curb Face	N	N
Carl Rd.	Irving	Collector Urban	40	Under	WB-62	Y	Y	Y (6') North of SH 183	Curb, no gutter		2	2	2		Curb, no gutter	Y (6') North of SH 183	3' from Curb Face	N	N
Maryland Dr.	Irving	Collector Urban	40	N/A	WB-62	N	N	N	Curb, no gutter		2	N/A	2		Curb, no gutter	N	3' from Curb Face	N	N
Spur 482	Irving	Arterial Urban	40	Over	WB-62	N	N	N	N		N/A	N/A	2		N	N	10'	N	N
Grauwylor Rd.	Irving	Collector Urban	40	N/A	WB-62	N	N	N	Y		N/A / 2 ³	N/A	N/A / 2 ³		Y	N	3' from Curb Face	N	N
Regency Dr.	Irving	Collector Urban	40	N/A	WB-62	N	N	Y (6')	Curb, no gutter		1	N/A	1		Curb, no gutter	Y (6')	3' from Curb Face	N	N
Regal Row	Dallas	Arterial Urban	40	Under	WB-62	N	Y	Y (6') North of SH 183	Curb, no gutter		3	1	3		Curb, no gutter	Y (6') North of SH 183	3' from Curb Face	N	N

Notes:

1. Crossing streets not requiring sidewalks shall be designed and constructed to accommodate sidewalk construction in the future.
2. Sidewalks shall be designed in accordance with applicable standards and Section 20.3.2.
3. Applies to corresponding Scope Component 1 or 2.