

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Mainline and Interchanges - IDOT**

Criteria	IDOT Mainline	IDOT C-D Road	Reference/Comments	IDOT Interchange Ramps			Reference/Comments
				SYSTEM	SERVICE		
				Directional & Semi-Directional	Diamond & Outer Connection	Loop	
GENERAL ELEMENTS							
Design Speed	70 mph	40-50 mph urban 50 mph rural	IDOT BDE Manual Fig. 44-5A, IDOT BDE Manual 37-4.02(b)	Directional: 50 mph Semi-Directional: 40 - 50 mph	Diamond: 50 mph to 25 mph Outer: 50 mph (Des.) / 45 mph (Min.)	30 mph (Des.) / 25 mph (Min.)	IDOT BDE Manual 37-4.04
Level of Service (Minimum)	C	---	IDOT BDE Manual Fig. 44-5A		---		
Design Vehicle	WB-65	WB-65	---		WB-65		IDOT BDE Manual 37-5.01
Sight Distance							
Stopping Sight Distance	730 ft		IDOT BDE Manual Fig. 31-3A		155 ft 200 ft 305 ft 425 ft		IDOT BDE Manual 31-3.01(a) IDOT BDE Manual Fig. 31-3A IDOT BDE Manual Fig. 31-3A IDOT BDE Manual Fig. 31-3A
Decision Sight Distance	1445 ft		IDOT BDE Manual Fig. 31-3C		515 ft 620 ft 825 ft 1030 ft		AASHTO GDHS, p. 117 IDOT BDE Manual Fig. 31-3C IDOT BDE Manual Fig. 31-3C IDOT BDE Manual Fig. 31-3C
		305 ft 425 ft 825 ft 1030 ft					
HORIZONTAL ELEMENTS							
Superelevation (Maximum)		6%	IDOT BDE Manual Fig. 44-5D		6 %		IDOT BDE Manual 37-4.07(b)
Horizontal Curvature							
Radius	3000 ft (Des.) / 2050 ft (Min.)		IDOT BDE Manual Fig. 44-5D		185 ft 275 ft 510 ft 835 ft		IDOT BDE Manual Fig. 37-4F
Length of Curve							
Maximum	1 mile	0.5 mile	IDOT BDE Manual 32-2.06				
Minimum ($\Delta \geq 5^\circ$)	500 ft	200 ft (40 mph), 300 ft (50 mph)	IDOT BDE Manual Fig. 32-2G				
Compound Curves							
Radius = 150 ft					70 ft (Des.) / 50 ft (Min.)		
Radius = 200 ft					90 ft (Des.) / 60 ft (Min.)		
Radius = 250 ft					120 ft (Des.) / 80 ft (Min.)		
Radius = 300 ft					140 ft (Des.) / 100 ft (Min.)		
Radius = 400 ft					180 ft (Des.) / 120 ft (Min.)		
Radius = 500 ft or greater					200 ft (Des.) / 140 ft (Min.)		
Compound Curve Ratio (Maximum)		1.5:1	IDOT BDE Manual 32-2.01(c)		2:1 for decreasing radii		IDOT BDE Manual 37-4.07(c)
Tangent Between Curves							
Opposite Direction Curves (Minimum)	As required for superelevation; Minimum length of normal crown = 2 sec. of travel time, if used		IDOT BDE Manual 32-3.06		As required for continuous superelevation transition		IDOT BDE Manual 37-4.07(b)
Same Direction Curves (Minimum)	1,500 ft		IDOT BDE Manual 32-2.01(f)		As required for superelevation transitions		
Lane Drop Taper	840 ft (70:1)		IDOT BDE Manual 44-2.06				
Lane Addition Taper	600 ft (50:1)		IDOT BDE Manual 44-2.06				
VERTICAL ELEMENTS							
Mainline Grade							
Maximum (Des. / Abs.)	±3.0% (Des.) / ±4.0% (Abs., restricted conditions)	±4.0% / -6.0%	IDOT BDE Manual Fig. 44-5D, 37-4F				
Minimum (Des. / Abs.)	±0.5% (Des.)	±0.3% (Abs.)	IDOT BDE Manual Fig. 44-5D				
Ramp Grade							
Maximum					+4.0% / -6.0%		IDOT BDE Manual Fig. 37-4F
Minimum (Des. / Abs.)					±0.5% (Des.) / ±0.3% (Min.)		
Intersection Approach Grade				NA	+1.5% - 2.0%, 150 ft - 200 ft min. platform		IDOT BDE Manual 37-5.01
Vertical Curve - Minimum K Values for SSD							
Crest Vertical Curve	247		IDOT BDE Manual Fig. 33-4A		12 19 44 84		AASHTO GDHS, Exh. 3-72 IDOT BDE Manual Fig. 33-4A IDOT BDE Manual Fig. 33-4A IDOT BDE Manual Fig. 33-4A
25 mph							
30 mph		44					
40 mph		84					
50 mph							
Sag Vertical Curve	181		IDOT BDE Manual Fig. 33-4E		26 37 64 96		AASHTO GDHS, Exh. 3-75 IDOT BDE Manual Fig. 33-4E IDOT BDE Manual Fig. 33-4E IDOT BDE Manual Fig. 33-4E
25 mph							
30 mph		164					
40 mph		96					
50 mph							

Table 1
Preliminary Design Criteria: Mainline and Interchanges - IDOT

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Mainline and Interchanges - IDOT**

Criteria	IDOT Mainline	IDOT C-D Road	Reference/Comments	IDOT Interchange Ramps			Reference/Comments
				SYSTEM	SERVICE		
				Directional & Semi-Directional	Diamond & Outer Connection	Loop	
CROSS SECTION ELEMENTS							
Lane Width	12 ft	1-lane: 16 ft Multi-lane: 12 ft	IDOT BDE Manual Fig. 44-5A, IDOT BDE Manual 37-4.02(b)	1-lane: 16 ft, Multi-lane: 12 ft	1-lane: 16 ft, Multi-lane: 12 ft	16 ft	IDOT BDE Manual 37-4.06
Shoulder Width - Right							
Total Width	12 ft	10 ft	IDOT BDE Manual Fig. 44-5A, IDOT BDE Manual 37-4.02(b)	10 ft	1-Lane: 8 ft, 2-Lane: 10 ft	8 ft	IDOT BDE Manual 37-4.06, IDOT BDE Manual Fig. 44-5A
Paved	12 ft	10 ft		10 ft	1-Lane: 6 ft, 2-Lane: 8 ft	6 ft	
Shoulder Width - Left							
Total Width	12 ft (Min.)	1-Lane: 4 ft, Multi-Lane: 8 ft	IDOT BDE Manual Fig. 44-5A, IDOT BDE Manual 37-4.02(b)	1-Lane: 6 ft, 2/3-Lane: 8/10 ft	1-Lane: 6 ft, 2-Lane: 8 ft	6 ft	IDOT BDE Manual 37-4.06, IDOT BDE Manual Fig. 44-5A
Paved	12 ft (Min.)	1-Lane: 4 ft, Multi-Lane: 6 ft		1-Lane: 4 ft, 2/3-Lane: 6/10 ft	1-Lane: 4 ft, 2-Lane: 6 ft	4 ft	
Auxiliary Lane Right Shoulder							
Total Width	10 ft		IDOT BDE Manual Fig. 44-5A, IDOT BDE Manual 37-4.02(b)				
Paved	10 ft		IDOT BDE Manual 38-3.02				
Horizontal Clearances	30 ft, or as determined by warrants						
Cross Slopes			IDOT BDE Manual Fig. 44-5A,				IDOT BDE Manual 37-4.06
Lanes Adjacent to Crown		1.5%		1.5%	1.5%	1.5%	
For 2nd Lane in Same Cross Slope Direction		2.0%		1.5%	1.5%	NA	
For Additional Lanes in Same Cross Slope Direction		2.5%		2.0%	NA	NA	
Shoulders		4.0%		4.0%	4.0%	4.0%	
Rollover (Maximum)							
Between Pavement and Shoulders		8%	IDOT BDE Manual 32-3.04(a)		8%		IDOT BDE Manual 32-3.04(a)
Between Adjacent Pavement Lanes		4%	IDOT BDE Manual Fig. 36-2J		4%		IDOT BDE Manual Fig. 36-2J
Median Width							
Without Transit Corridor in Median	30 ft						
With Transit Corridor in Median	70 ft						
Sideslopes--Fill Section			IDOT BDE Manual 38-3				IDOT BDE Manual 38-3
Foreslopes							
Within Clear Zone	1:6 (Des.) / 1:4 (Max.)			1:6 (Des.) / 1:4 (Max.)			
Outside Clear Zone	1:3 (Des.) / 1:2 (Absolute)			1:3 (Des.) / 1:2 (Absolute)			
Back Slopes	1:3 (Des.) / 1:2 (Absolute)			1:3 (Des.) / 1:2 (Absolute)			
STRUCTURES - IDOT FACILITY OVER							
Construct New Structure Over IDOT Roadway			IDOT BDE Manual Fig. 39-6A				IDOT BDE Manual Fig. 39-6A
Shoulder Width on Structure							
Right Side	12 ft	10 ft		10 ft	1-Lane: 6 ft, 2-Lane: 8 ft	6 ft	
Left Side	12 ft	1-Lane: 4 ft, Multi-Lane: 6 ft		1-Lane: 4 ft, 2-Lane: 6 ft, 3-Lane: 10'		4 ft	
Right Side, Auxiliary Lane	10 ft	10 ft					
Other Roadways	Use Paved Shldr. Widths; See IDOT Local Roads Criteria			Use Paved Shoulder Widths; See IDOT Local Roads Criteria			
Vertical Clearance, Minimum							
IDOT Facilities							
Freeways, Interchanges	16'-9" New, 16'-0" Reconstruction			16'-9" New, 16'-0" Reconstruction			IDOT BDE Manual Fig. 39-6A
Arterials, Marked Hwys. Classified as Collectors	16'-6" New, 16'-0" Reconstruction			16'-6" New, 16'-0" Reconstruction			IDOT BDE Manual Fig. 39-5R
Frontage Road A, ADT > 2000	16'-0"			16'-0"			IDOT BDE Manual Fig. 39-5R
Local Roads and Unmarked Collectors	15'-0"			15'-0"			IDOT BDE Manual Fig. 39-6A
Local Crossroads	14'-9"			14'-9"			IDOT BDE Manual Fig. 39-5R
Railroads	23'-0" (RR Co. may require greater clearance, e.g. 23'-4")			23'-0" (RR company may require greater clearance, such as 23'-4")			IDOT BDE Manual Fig. 39-5S
STRUCTURES - TOLLWAY UNDER							
Retain Existing IDOT Structure Over Tollway			Specific Tollway Direction (I-90)				
Vertical Clearance	15'-3" (Min.) / No Less Than Existing (Des.)			15'-3" (Min.) / No Less Than Existing (Des.)			Specific Tollway Direction (I-90)
STRUCTURES - TOLLWAY OVER							
Retain Exist. Tollway Structure Over Cross Streets							Refer to I-90 Design Approach Memo, Finalized June 2007
Vertical Clearance				No Less Than Existing			
STRUCTURES - OTHER							
Vertical Clearances Over IDOT Roadway							
Trusses, Overhead Signs, Pedestrian Overpasses	17'-3"		IDOT BDE Manual Fig. 39-6A	17'-3"			IDOT BDE Manual Fig. 39-6A
OPERATIONAL ELEMENTS							
Lane Balance	Applies		IDOT BDE Manual 37-2.03	Applies			IDOT BDE Manual 37-2.03
Lane and Route Continuity	Applies		IDOT BDE Manual 37-2.06	Applies			IDOT BDE Manual 37-2.06
Ramp Spacing (Minimum)		C-D or Frwy. Distribution Rd.:	IDOT BDE Manual Fig. 37-2D				
Entrance - Entrance, end of taper to gore	300 ft	300 ft					
Exit - Exit	1000 ft	800 ft					
Exit - Entrance	500 ft	400 ft					
Entrance-Exit (System to Service)	2000 ft	1600 ft					
Entrance-Exit (Service to Service)	1600 ft	1000 ft					

Table 1
Preliminary Design Criteria: Mainline and Interchanges - IDOT

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Local Roads - IDOT**

Criteria	Local Road Design Speed = 50 mph	Reference/Comments	Local Road Design Speed = 45 mph	Reference/Comments	Local Road Design Speed = 30 mph	Reference/Comments
OPERATION						
Level of Service	C	IDOT BDE Figure 47-3C	C (Des.)	IDOT BLRS Figure 32-2C	D	IDOT BLRS Figure 32-2H
On-Street Parking	Not Recommended	IDOT BDE Figure 48-6A	Not Recommended	IDOT BLRS Figure 32-2C	Allowed	IDOT BLRS Figure 32-2H
Design Vehicle at Ramp Intersection	WB-65	IDOT BDE 37-5.01	WB-65	IDOT BDE 37-5.01	WB-65	IDOT BDE 37-5.01
Access Control	Consider Managed Access	IDOT BDE Figure 47-3C	Consider Managed Access	IDOT BDE Chapter 35	Consider Managed Access	IDOT BDE Chapter 35
Sight Distance						
Stopping Sight Distance	425 ft	IDOT BDE Figure 48-6C	360 ft	IDOT BLRS Figure 32-3B	200 ft	IDOT BLRS Figure 32-3C
Decision Sight Distance	890 ft		800 ft	IDOT BDE Figure 48-6C	620 ft	IDOT BDE Figure 48-6C
CROSS SECTION ELEMENTS						
Lane Width		IDOT BDE Figure 47-3C		IDOT BLRS Figure 32-2C		IDOT BLRS Figure 32-2H
Travel Lane	12 ft		12 ft		11 ft (Min.)	
Outside Lane Shared with Bicycles	--		14 ft (Des.) / 13 ft (Min.)		14 ft (Des.) / 13 ft (Min.)	
Turn Lane (1 or 2 lanes)	12 ft		12 ft		11 ft (Des.) / 10 ft (Min.)	
Auxiliary Lane	12 ft		12 ft (Des.) / 10 ft (Min.)		11 ft (Des.) / 10 ft (Min.)	
Parking Lane, including Gutter	--				8 ft (Min.)	
Shoulder Width (for Rural Sections)		IDOT BDE Figure 47-3C		IDOT BLRS Figure 32-2C		IDOT BLRS Figure 32-2B
Right						
Total Width	10 ft		8 ft		2 ft	
Paved	8 ft (Min.)		8 ft		--	
Left, if Present						
Total Width	6 ft		6 ft		--	
Paved	4 ft		4 ft		--	
Auxiliary Lanes	4 ft, paved		4 ft, paved		2 ft	
Outside Curbs (for Urban Sections)						
Curb Type and Width	M-6 Curb	IDOT BDE 34-2.04(c)	B-6.24, B-6.18 or B-6.12 CC&G	IDOT BDE 34-2.04(c)	B-6.24, B-6.18 or B-6.12 CC&G	IDOT BLRS Figure 32-2H
Median Width, if Present						
Rural Design		IDOT BDE Figure 47-3C		IDOT BDE Figure 47-3C		
Depressed	50 ft (Des.) / 44 ft (Min.)				--	
Flush, with Concrete Barrier	22 ft				--	
Urban Design		IDOT BDE Figure 48-6A		IDOT BDE Figure 48-6A IDOT BLRS Figure 31-1.05(b)		IDOT BLRS Figure 32-2F
Flush/TWLTL	11 ft - 13 ft		14 ft		14 ft	
Traversable TWLTL	16 ft		16 ft		--	
Raised-Curb	18 ft, 22 ft or 30 ft		18 ft, 22 ft or 30 ft	IDOT BDE Figure 48-6A	--	
Cross Slope		IDOT BDE Figure 47-3C				
First 2 Lanes Adjacent to Crown or Median	1.5%		1.5% - 2.0%	IDOT BLRS Figure 32-2C	1.5% - 2.0%	IDOT BLRS Figure 32-2H
Third Lane	2.0%		2.0% - 2.5%	IDOT BLRS Figure 32-2C	2.0% (Min.)	IDOT BLRS Figure 32-2H
Shoulders	4.0%		4.0%	IDOT BDE Figure 47-3C	4% - 6% Agg., 5% - 8% Turf	IDOT BLRS Figure 32-2B
Sidewalk Width						
Rural Design	Varies		Varies			
Behind Curb With Buffer Strip	5 ft	IDOT BDE 48-2.04	5 ft (Des.) / 4 ft (Min.)	IDOT BLRS Figure 32-2C	5 ft (Des.) / 4 ft (Min.)	IDOT BLRS Figure 32-2H
Behind Curb Without Buffer Strip	7 ft		6 ft	IDOT BLRS Figure 31-2.02	6 ft	IDOT BLRS Figure 32-2F
HORIZONTAL ELEMENTS						
Superelevation (Maximum)	6% or 4%	IDOT BDE Figure 32-3A	4%	IDOT BDE Figure 48-5A	4%	IDOT BDE Figure 48-5A
Design Assumption	Open Roadway	IDOT BDE Figure 32-3A	Low-Speed Urban Streets	IDOT BDE Figure 48-5A	Low-Speed	IDOT BDE Figure 48-5A
Horizontal Curvature		IDOT BDE Figure 48-6C				
Radius (Minimum)						
6% Max. Superelevation	835 ft				--	
4% Max. Superelevation	930 ft		665 ft	IDOT BLRS Figure 32-3B	230 ft	IDOT BLRS Figure 32-3C

Table 1
Preliminary Design Criteria: Local Roads

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Local Roads - IDOT**

Criteria	Local Road Design Speed = 50 mph	Reference/Comments	Local Road Design Speed = 45 mph	Reference/Comments	Local Road Design Speed = 30 mph	Reference/Comments
VERTICAL ELEMENTS						
Maximum Grade						
Rural Design		IDOT BDE Figure 47-3D				
Level Terrain	6%		--		--	
Rolling Terrain	7%		--		--	IDOT BLRS Figure 32-3C
Urban Design		IDOT BDE Figure 48-6C		IDOT BLRS Figure 32-3B		IDOT BLRS Figure 32-3C
Level Terrain	4%		6%		9%	
Rolling Terrain	5%		7%		11%	
Minimum Grade						
With Ditch	0.5% (Des.) / 0.0% (Min.)	IDOT BDE Figure 47-3D	0.5% (Des.) / 0.0% (Min.)	IDOT BLRS Figure 32-3B	0.5% (Des.) / 0.0% (Min.)	IDOT BLRS Figure 32-3A
With Curb and Gutter	0.5% (Des.) / 0.3% (Min.)	IDOT BDE Figure 48-6C	0.5% (Des.) / 0.3% (Min.)	IDOT BLRS Figure 32-3B	0.5% (Des.) / 0.3% (Min.)	IDOT BLRS Figure 32-3C
Intersection Approach Grade, with Vehicle Storage	+1% - +2%, 100 ft min. platform	IDOT BDE 36-1.06(a)	+1% - +2%, 100 ft min. platform	IDOT BDE 36-1.06(a)	+1% - +4%, 50-100 ft min. pltfm.	IDOT BDE 36-1.06(a)
Vertical Curve - Minimum K Values		IDOT BDE Figure 47-3D		IDOT BLRS Figure 32-3B		IDOT BLRS Figure 32-3C
Crest Vertical Curve	84		61		19	
Sag Vertical Curve	96		79		37	
Rollover (Maximum)						
Between Pavement and Shoulders	8%	IDOT BDE 32-3.04(a)	8%	IDOT BDE 32-3.04(a)	8%	IDOT BDE 32-3.04(a)
Between Adjacent Pavement Lanes	4%	IDOT BDE Figure 36-2J	4%	IDOT BDE Figure 36-2J	5%	IDOT BDE Figure 36-2J
STRUCTURES - LOCAL ROAD OVER						
Local Road Over Tollway						
Retain Existing Structure Over Tollway	15'-3" (Min.) / ≥ Existing (Des.)	Specific Tollway Direction	15'-3" (Min.) / ≥ Existing (Des.)	Specific Tollway Direction	15'-3" (Min.) / ≥ Existing (Des.)	Specific Tollway Direction
Construct New Structure Over Tollway	16'-3"	ISTHA Design Criteria-6C	16'-3"	ISTHA Design Criteria-6C	16'-3"	ISTHA Design Criteria-6C
Local Road Over IDOT Facilities						
Freeways	16'-9" New, 16'-0" Reconstr.	IDOT BDE Figure 39-6A	16'-9" New, 16'-0" Reconstr.	IDOT BDE Figure 39-6A	16'-9" New, 16'-0" Reconstr.	IDOT BDE Figure 39-6A
Arterials; Marked Hwys. Classified as Collectors	16'-6" New, 16'-0" Reconstr.	IDOT BDE Figure 39-5R	16'-6" New, 16'-0" Reconstr.	IDOT BDE Figure 39-5R	16'-6" New, 16'-0" Reconstr.	IDOT BDE Figure 39-5R
Frontage Road A, ADT > 2000	16'-0"	IDOT BDE Figure 39-5R	16'-0"	IDOT BDE Figure 39-5R	16'-0"	IDOT BDE Figure 39-5R
Local Roads and Unmarked Collectors	15'-0"	IDOT BDE Figure 39-6A	15'-0"	IDOT BDE Figure 39-6A	15'-0"	IDOT BDE Figure 39-6A
Local Road over Local Crossroads	14'-9"	IDOT BDE Figure 39-5R	14'-9"	IDOT BDE Figure 39-5R	14'-9"	IDOT BDE Figure 39-5R
Local Road over Railroads	23'-0"	IDOT BDE Figure 39-5S, 39-5T	23'-0"	IDOT BDE Figure 39-5S, 39-5T	23'-0"	IDOT BDE Figure 39-5S, 39-5T
STRUCTURES - LOCAL ROAD UNDER						
Local Road Under Overpassing Structure						
New Overpassing Structure	16'-6"	IDOT BDE Figure 39-5R	See IDOT BDE Fig. 39-5R, 39-6A		See IDOT BDE Fig. 39-5R	
Existing or Reconstructed Overpassing Structure	16'-0"	IDOT BDE Figure 39-5R	See IDOT BDE Fig. 39-5R, 39-6A		See IDOT BDE Fig. 39-5R	

Table 1
Preliminary Design Criteria: Local Roads

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Mainline and Interchanges - ISTHA**

Criteria	Tollway Mainline	Tollway C-D Road	Tollway Interchange Ramps			Reference/Comments
			SYSTEM	SERVICE		
			Directional & Semi-Directional	Diamond & Outer Ramps	Loop	
GENERAL ELEMENTS						
Design Speed:	70 mph	60 mph	50 mph	40 mph	30 mph	ISTHA Design Criteria-2
CLASSIFICATION						
Level of Service (Minimum)	D	D	D	D	D	ISTHA Design Criteria-1
Design Vehicle	WB-65	WB-65	WB-65	WB-65	WB-65	ISTHA Introduction C
Sight Distance						
Stopping Sight Distance	850 ft (Des.) / 730 ft (Min.)	650 ft (Des.) / 570 ft (Min.)	475 ft (Des.) / 425 ft (Min.)	325 ft (Des.) / 305 ft (Min.)	200 ft (Des. and Min.)	ISTHA Design Criteria-3A
Decision Sight Distance	1450 (Des.) / 1100 ft (Min.)	1275 ft (Des.) / 1000 ft (Min.)	1025 (Des.) / 750 ft (Min.)	825 ft (Des) / 600 ft (Min.)	625 ft (Des.) / 450 ft (Min.)	ISTHA Design Criteria 3B
HORIZONTAL ELEMENTS						
Horizontal Curvature						
Radius	2,292 ft (Des.) / 2,083 ft (Min.)	1910 ft	765 ft	470 ft	255 ft	ISTHA Design Criteria-4A
Degree of Curve	2°30' (Des.) / 2°45' (Min.)	3°00'				
Length of Curve	1,000 ft (Des.) / 600 ft (Min.)		L = 3 Seconds Travel Distance + 0.3 x (SE Runoff Distance)			ISTHA Design Criteria-4B
Compound Curve Ratio (Maximum)	1.5:1		2:1			ISTHA Design Criteria-4C
Tangent Between Curves	As Required for Superelevation		Continuous Transition			ISTHA Design Criteria-4D
Opposite Direction Curves (Minimum)	1,500 ft		Continuous Transition			
Same Direction Curves (Minimum)			6 %			
Superelevation (Maximum)	6%					ISTHA Design Criteria-4E, IDOT BDE Manual 37-4.07(b)
VERTICAL ELEMENTS						
Mainline Grade						
Maximum (Des. / Abs.)	±3.0%					ISTHA Design Criteria-5A
Minimum (Des. / Abs.)	±0.5% (Des.) / ±0.3% (Abs.)					ISTHA Design Criteria-5B
Ramp Grade						
Maximum (Des. / Abs.)			+3.0% / -4.0% (Des.) / +4.0% / -6.0% (Min.)			ISTHA Design Criteria-5A
Minimum (Des. / Abs.)			±0.5% (Des.) / ±0.3% (Min.)			ISTHA Design Criteria-5B
Intersection Approach Grade	NA		NA	±2%, 100 ft min. platform		ISTHA Design Criteria-5A
Profile Tangent Length (Des. / Min.)	1,000 ft (Des.) / 500 ft (Min.)		NA	NA	NA	ISTHA Design Criteria-5C
Vertical Curve - Minimum K Values						ISTHA Design Criteria-5D
Crest Vertical Curve	540 (Des.) / 247 (Min.)	310 (Des.) / 150 (Min.)	160 (Des.) / 84 (Min.)	80 (Des.) / 44 (Min.)	30	
Sag Vertical Curve	250 (Des.) / 181 (Min.)	160 (Des.) / 136 (Min.)	110 (Des.) / 96 (Min.)	70 (Des.) / 64 (Min.)	40	
CROSS SECTION ELEMENTS						
Mainline						
Pavement Width						ISTHA Design Criteria-7A
3 Lanes	37 ft paved (36 ft striped)					
4 Lanes	49 ft paved (48 ft striped)					
5 Lanes	61 ft paved (60 ft striped)					
6 Lanes	73 ft paved (72 ft striped)					
Auxiliary Lane	12 ft striped					
Shoulder Width - Right						ISTHA Design Criteria-7B
Open Drainage (No Gutter)	12 ft total = 1ft mainline + 11 ft shldr pavement (typical)					
Open Drainage (with Guardrail)	12 ft (typ.)					
Closed Drainage (Type F Barrier or Similar)	12 ft (typ.) + G-3 Gutter					
Closed Drainage (with Wall/Noise Barrier)	12 ft + 5 ft snow storage = 17 ft total, + G-3 Gutter					
Shoulder Width - Left						ISTHA Design Criteria-7B, modified
Open Drainage (Paved)	10 ft					
Closed Drainage (Median Barrier)	12.5 ft					
Horizontal Clearances	30 ft, or as determined by warrants					ISTHA Design Criteria-6B

Table 1
Preliminary Design Criteria: Mainline and Interchanges - ISTHA

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Mainline and Interchanges - ISTHA**

Criteria	Tollway Mainline	Tollway C-D Road	Tollway Interchange Ramps			Reference/Comments
			SYSTEM		SERVICE	
			Directional & Semi-Directional	Diamond & Outer Ramps	Loop	
CROSS SECTION ELEMENTS - Continued						
Ramps						
Pavement Width					ISTHA Design Criteria-7A	
1 Lane			16 ft	16 ft	18 ft	
2 Lanes			24 ft	24 ft	NA	
3 Lanes			36 ft	---	---	
Shoulders					ISTHA Design Criteria-7B	
Right (Paved)			10 ft	10 ft	10 ft	
Left (Paved)			4 ft	4 ft	4 ft	
With Wall or Noise Barrier			Add 3 ft to width including G-3 Gutter			
Cross Slopes (Mainline & Ramps)					ISTHA Design Criteria-7C	
For 2 Lanes	1.5%		1.5%	1.5%	1.5%	
For 3rd Lane in Same Cross Slope Direction	1.5%		1.5%	1.5%	NA	
For Additional Lanes	2.0%		NA	NA	NA	
Shoulders	4.0%		4.0%	4.0%	4.0%	
Rollover (Maximum)					ISTHA Design Criteria-4F	
Between Pavement and Shoulders	7%		7%			
Between Adjacent Pavement Lanes	3%		3%			
Median Width	30 ft (minimum)				N/A	
Sideslopes--Fill Section						
Foreslopes						
Within Clear Zone	6:1 (Des.) / 4:1 (Max)		6:1 (Des.) / 4:1 (Max)			
Outside Clear Zone	4:1 (Des.) / 2.5:1 (Absolute)		4:1 (Des.) / 2.5:1 (Absolute)		ISTHA Design Criteria-7D and Tollway Maintenance	
Back Slopes	4:1 (Des.) / 2.5:1 (Absolute)		4:1 (Des.) / 2.5:1 (Absolute)			
STRUCTURES - TOLLWAY UNDER						
Retain Existing Structure Over Tollway						
Shoulder Width, Minimum						
Right Side	Case By Case					
Left Side	Case By Case					
Vertical Clearance	15'-3" (Min.) / No Less Than Existing (Des.)				Refer to I-90 Design Approach Memo, Finalized June 2007 Specific Tollway Direction	
Construct New Structure Over Tollway						
Shoulder Width on Tollway					ISTHA Design Criteria-7B	
Right Side	12 ft					
Left Side	10 ft (min)					
Vertical Clearance	16'-3"				ISTHA Design Criteria-6C	
STRUCTURES - TOLLWAY OVER						
Retain Existing I-90 Structure						
Shoulder Width, Minimum						
Right Side	Case By Case					
Left Side	Case By Case					
Vertical Clearance	No Less Than Existing				Refer to I-90 Design Approach Memo, Finalized June 2007	
Widen Existing I-90 Structure						
Shoulder Width						
Right Side (minimum)	12 ft				ISTHA Design Criteria-6A	
Left Side (minimum)	10 ft					
Vertical Clearance	No Less Than Existing				Refer to I-90 Design Approach Memo, Finalized June 2007	

Table 1
Preliminary Design Criteria: Mainline and Interchanges - ISTHA

**Elgin O'Hare - West Bypass
Preliminary Design Criteria: Mainline and Interchanges - ISTHA**

Criteria	Tollway Mainline	Tollway C-D Road	Tollway Interchange Ramps			Reference/Comments
			SYSTEM		SERVICE	
			Directional & Semi-Directional	Diamond & Outer Ramps	Loop	
STRUCTURES - TOLLWAY OVER - Continued						
Construct New Tollway Structure						
Shoulder Width					ISTHA Design Criteria-6A	
Right Side (minimum)	12 ft			10 ft		
Left Side (minimum)	10 ft			6 ft		
Vertical Clearance						
Tollway Facilities	16'-3"			16'-3"	ISTHA Design Criteria-6C	
IDOT Facilities						
Freeways	16'-9" New, 16'-0" Reconstruction			16'-9" New, 16'-0" Reconstruction	IDOT BDE Manual Fig. 39-6A	
Arterials, Marked Hwys. Classified as Collectors	16'-6" New, 16'-0" Reconstruction			16'-6" New, 16'-0" Reconstruction	IDOT BDE Manual Fig. 39-5R	
Frontage Road A, ADT > 2000	16'-0"			16'-0"	IDOT BDE Manual Fig. 39-5R	
Local Roads and Unmarked Collectors	15'-0"			15'-0"	IDOT BDE Manual Fig. 39-6A	
Local Crossroads	14'-9"			14'-9"	IDOT BDE Manual Fig. 39-5R	
Railroads	23'-0" (RR Co. may require greater clearance, e.g. 23'-4")			23'-0" (RR company may require greater clearance, such as 23'-4")	ISTHA Design Criteria-6C	
STRUCTURES - OTHER						
Horizontal Clearances						
Sign Truss Supports (behind guardrail)	4 ft (Min.)			4 ft (Min.)	ISTHA Design Criteria-6B	
Vertical Clearances					ISTHA Design Criteria-6C	
Sign Bridge over Tollway	17'-3"			17'-3"		
Toll Plaza Canopy	17'-3"			17'-3"		
OPERATIONAL ELEMENTS						
Lane Balance	Applies		Applies		AASHTO GDHS, pp. 811-814	
Lane and Route Continuity	Applies		Applies		AASHTO GDHS, pp. 807-808	
Ramp Spacing (Minimum)					AASHTO GDHS, Exh.10-68	
Entrance - Entrance	1000 ft	800 ft				
Exit - Exit	1000 ft	800 ft				
Exit - Entrance	500 ft	400 ft				
Entrance-Exit (System to Service)	2000 ft	1600 ft				
Entrance-Exit (Service to Service)	1600 ft	1000 ft				
Interchange Access Control Requirements						
Spacing from Ramp to Access Point (Minimum)					ISTHA Access Control Requirements, Table 1	
Cross Street Design Speed:						
30 mph	450 ft					
40 mph	625 ft					
45 mph	750 ft					
50 mph	900 ft					
55 mph	1050 ft					

Table 1
Preliminary Design Criteria: Mainline and Interchanges - ISTHA