

**Texas Department of Transportation
Technical Provisions**

SH 183 Managed Lanes Project

**Attachment 8-1
Minimum Pavement Design Requirements**

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Dallas District

February 5, 2014

								Total Number of Equivalent 18K ESAL					
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 20 Year Period (2015 to 2035)				
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
	2015	2035			ADT	DHV							
SH 183 <u>Section 1</u>													
From SH 121 To SH 360	146,300	201,500	54-46	9.1	6.3	4.2	13,100	20	32,941,000	3	43,510,000	8"	
							13,100	20	32,941,000	3	44,444,000	10"	
							13,100	20	32,941,000	3	44,746,000	12"	
Tarrant County													

Data for Use in Air & Noise Analysis		
Vehicle Class	Base Year	
	% of ADT	% of DHV
Light Duty	93.7	95.8
Medium Duty	2.7	1.8
Heavy Duty	3.6	2.4

								Total Number of Equivalent 18K ESAL					
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 30 Year Period (2015 to 2045)				
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
	2015	2045			ADT	DHV							
SH 183 <u>Section 1</u>													
From SH 121 To SH 360	146,300	229,100	54-46	9.1	6.3	4.2	13,100	20	53,333,000	3	70,446,000	8"	
							13,100	20	53,333,000	3	71,957,000	10"	
							13,100	20	53,333,000	3	72,447,000	12"	
Tarrant County													

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Dallas District

February 5, 2014

									Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 20 Year Period (2015 to 2035)				
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
	2015	2035			ADT	DHV							
SH 183 <u>Section 2</u>													
From SH 360 To SH 161	206,700	284,700	54-46	9.1	5.4	3.6	13,200	20	39,972,000	3	52,745,000	8"	
							13,200	20	39,972,000	3	53,875,000	10"	
							13,200	20	39,972,000	3	54,242,000	12"	
Tarrant and Dallas Counties													

Data for Use in Air & Noise Analysis		
Vehicle Class	Base Year	
	% of ADT	% of DHV
Light Duty	94.6	96.4
Medium Duty	2.3	1.5
Heavy Duty	3.1	2.1

									Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 30 Year Period (2015 to 2045)				
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
	2015	2045			ADT	DHV							
SH 183 <u>Section 2</u>													
From SH 360 To SH 161	206,700	323,700	54-46	9.1	5.4	3.6	13,200	20	64,717,000	3	85,397,000	8"	
							13,200	20	64,717,000	3	87,228,000	10"	
							13,200	20	64,717,000	3	87,820,000	12"	
Tarrant and Dallas Counties													

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Dallas District

February 5, 2014

								Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 20 Year Period (2015 to 2035)			
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB
	2015	2035			ADT	DHV						
SH 183 <u>Section 3</u>												
From SH 161 To I-35E	164,300	226,300	54-46	9.1	6.0	4.0	13,100	20	35,253,000	3	46,551,000	8"
							13,100	20	35,253,000	3	47,549,000	10"
							13,100	20	35,253,000	3	47,873,000	12"
Dallas County												

Data for Use in Air & Noise Analysis		
Vehicle Class	Base Year	
	% of ADT	% of DHV
Light Duty	94.0	96.0
Medium Duty	2.5	1.7
Heavy Duty	3.5	2.3

								Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 30 Year Period (2015 to 2045)			
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB
	2015	2045			ADT	DHV						
SH 183 <u>Section 3</u>												
From SH 161 To I-35E	164,300	257,300	54-46	9.1	6.0	4.0	13,200	20	57,077,000	3	75,369,000	8"
							13,200	20	57,077,000	3	76,985,000	10"
							13,200	20	57,077,000	3	77,509,000	12"
Dallas County												

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Dallas District

February 5, 2014

								Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 20 Year Period (2015 to 2035)			
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB
	2015	2035			ADT	DHV						
SH 114												
From International Parkway (Dallas County Line) To SH 183	116,600	160,600	54-46	9.1	6.3	4.2	12,900	30	27,622,000	3	37,479,000	8"
							12,900	30	27,622,000	3	38,344,000	10"
							12,900	30	27,622,000	3	38,621,000	12"
Dallas County												

Data for Use in Air & Noise Analysis		
Vehicle Class	Base Year	
	% of ADT	% of DHV
Light Duty	93.7	95.8
Medium Duty	2.2	1.5
Heavy Duty	4.1	2.7

								Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 30 Year Period (2015 to 2045)			
			Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB
	2015	2045			ADT	DHV						
SH 114												
From International Parkway (Dallas County Line) To SH 183	116,600	182,600	54-46	9.1	6.3	4.2	13,000	30	44,721,000	3	60,680,000	8"
							13,000	30	44,721,000	3	62,082,000	10"
							13,000	30	44,721,000	3	62,529,000	12"
Dallas County												

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Dallas District

February 5, 2014

									Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 20 Year Period (2015 to 2035)				
	2015	2035	Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
					ADT	DHV							
SH 12													
From I-35E To South of SH 183	106,000	146,000	54-46	9.1	6.6	4.4	12,900	30	26,293,000	3	35,685,000	8"	
							12,900	30	26,293,000	3	36,509,000	10"	
							12,900	30	26,293,000	3	36,773,000	12"	
Dallas County													

Data for Use in Air & Noise Analysis		
Vehicle Class	Base Year	
	% of ADT	% of DHV
Light Duty	93.4	95.6
Medium Duty	2.3	1.5
Heavy Duty	4.3	2.9

									Total Number of Equivalent 18K ESAL				
Description of Location	Average Daily Traffic		Base Year				ATHWLD	% Tandem Axles in ATHWLD	Single Axle Load Applications in One Direction Expected for a 30 Year Period (2015 to 2045)				
	2015	2045	Dir. Dist. %	K Factor	Percent Truck				Flexible Pavement	S N	Rigid Pavement	SLAB	
					ADT	DHV							
SH 12													
From I-35E To South of SH 183	106,000	166,000	54-46	9.1	6.6	4.4	12,900	30	42,569,000	3	57,776,000	8"	
							12,900	30	42,569,000	3	59,111,000	10"	
							12,900	30	42,569,000	3	59,537,000	12"	
Dallas County													