Chapter 23

Design Exceptions and Design Variations

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Chapter 23

Design Exceptions and Design Variations

23.1 General

The Department's roadway design criteria and standards are contained in this volume and are usually within the desirable ranges established by AASHTO. The values given in this volume have been accepted by FHWA and govern the design process. When it becomes necessary to deviate from the Department's criteria, early documentation and approval are required. There are two documentation and approval processes, Design Exceptions and Design Variations. When the Department's criteria are met, no Design Exception nor any Design Variation is required. However, when the Department's criteria are not met, a Design Exception or Design Variation is required. This requirement applies to all entities affecting planning, design, construction, maintenance and utility placement.

To expedite the approval and/or final concurrence of these deviations, it is important that the correct processes be followed. This chapter includes specific coordination, approval, concurrence and documentation requirements for both Design Exceptions and Design Variations. In both cases, the project file should clearly document the action taken and approval given. To aid in the identification and processing of Design Exceptions and Design Variations a process flowchart, ***Exhibit 23-C*****,** has been provided.

When design criteria are not met for utilities, the process in the current ***Utility Accommodation Manual (Topic No. 710-020-001)*** is to be used.

Safety improvement projects are generally developed to address specific safety problems. Only items identified under the scope of work for the safety improvement project must meet design criteria and are subject to the design exception or design variation process. Existing features within the limits of the safety improvement project that do not meet design criteria and are not being addressed as part of the project do not require a design exception or design variation.

When the Department enters into an agreement with a Utility for joint use of a utility pole, and the Department requires the location of the pole to not be in compliance with the applicable horizontal clearance requirements, the Department or Consultant Design Engineer is responsible for the design variation or exception.

23.2 Design Exceptions

Design Exceptions are required when neither the Department's criteria nor AASHTO's criteria can be met for any one of the following 13 Critical Design Elements, which are typically safety related issues:

1. Design Speed
2. Lane Widths
3. Shoulder Widths
4. Bridge Widths
5. Structural Capacity
6. Vertical Clearance
7. Grades
8. Cross Slope
9. Superelevation
10. Horizontal Alignment
11. Vertical Alignment
12. Stopping Sight Distance
13. Horizontal Clearance

23.2.1 Coordination and Conceptual Concurrence

In order to allow time to research alternatives and begin the analysis and documentation activities, it is critical that Design Exceptions be identified as early in the process as possible. This is preferably done during the PD&E process for major projects and the scope development process for minor projects. It is required that approval be obtained no later than the initial engineering phase.

When the need for a Design Exception has been determined, the District Design Engineer must coordinate with the State Roadway Design Engineer's Office. The appropriate Area Design Engineer will assist in obtaining conceptual concurrence and in identifying the necessary level of effort for justification and documentation.

For Design Exceptions requiring FHWA approval, the State Roadway Design Engineer's Office will coordinate with FHWA to obtain conceptual concurrence and any required documentation requested by FHWA.

Design Exceptions impacting a structure require concurrence of both the State Roadway Design Engineer and the State Structures Design Engineer. Conceptual concurrence should first be obtained from the appropriate Area Engineer in the State Structures Design Office, and decisions or special conditions documented for Design Exception support.

This coordination effort will expedite the approval and concurrence process.

23.2.2 Justification and Documentation

Once conceptual concurrence of the Design Exception has been coordinated and completed, the justification must be documented. The objective of the justification of Design Exceptions is to demonstrate that the impacts on the operation and safety of the facility are acceptable, compared to the impacts and added benefits of meeting the criteria.

All Design Exceptions shall include documentation sufficient to justify the request and independently evaluate the operational and safety impacts. Design Exceptions must address the following issues unless otherwise agreed upon during conceptual concurrence:

1. Description
   a. Project description (general project information, typical section, begin/end milepost, county section number, etc.).
   b. Description of the Design Exception (specific project conditions related to Design Exception, Critical Design Element, acceptable AASHTO and Department value and proposed value for project).
   c. The compatibility of the design and operation with the adjacent sections.
2. Operational Impacts
   a. Amount and character of traffic using the facility.
   b. Effect on capacity of the deviation (proposed criteria vs. AASHTO using an acceptable capacity analysis procedure and calculate reduction for design year, level of service).
3. Safety Impacts
   a. Most recent five (5) year Crash History and Analysis (location, type, severity, relation to the Design Exception element). Crash locations must be identified on copies of the plans or straight line diagrams if plans are not available.
   b. Impacts associated with proposed criteria (annualized value of expected economic loss associated with crashes).
4. Benefit/Cost Analysis

   Calculate a benefit/cost analysis that estimates the cost effectiveness of correcting or mitigating a substandard design feature. The benefit is the expected reduction in future crash costs and the cost is the direct right of way, construction and maintenance costs associated with the design. These costs are calculated and annualized so a direct comparison of alternate designs can be made.

   A benefit/cost ratio indicates the cost effectiveness of implementing a particular

design. However, the final decision is a management decision that considers all factors important to the successful implementation of the Department's mission.

a. The key factors considered in the analysis are:

1) Evaluation of crashes by type and cause,

2) Estimate of crash costs,

3) Selection of a crash reduction factor,

4) Utilization of a discount rate of 5%,

5) Estimate of construction and maintenance costs,

6) Selection of life of the improvements,

7) Period of time over which the benefits will be realized.

b. Two acceptable methods for calculating a benefit/cost analysis are:

1) Historical Crash Method

This method can be used for sites with a crash history. It is basically the ratio (benefit/cost) of the estimated reduction in crash costs to the estimated increase in construction and maintenance cost. The annualized conversion will show whether the estimated expenditure of funds for the benefit will exceed the direct cost, thereby lending support as to whether the improvement should be done or not.

The following table of ***Highway Safety Improvement Program Guideline*** (***HSIPG***) cost per crash by facility type is used for this method:

*COST/CRASH BY FACILITY TYPE				
FACILITY TYPE	DIVIDED		UNDIVIDED	
	URBAN	RURAL	URBAN	RURAL
<3 Lanes	$68,800	$152,200	$78,000	$218,900
3 Lanes	$47,100	$152,200	$52,000	$218,900
4 Lanes	$74,500	$181,200	$53,500	$76,400
5 Lanes	$52,400	$181,200	$53,500	$76,400
6 Lanes	$63,300	$181,200	$53,500	$76,400
Interstate	$83,600	$195,700	$83,600	$195,700
Turnpike	$99,700	$228,800	$99,700	$228,800

All State Roads Average Cost/Crash: $83,070

*The above values were derived from 1994, 1995, and 1996 traffic crash and injury severity data for crashes on state roads in Florida, using the formulation described in ***FHWA Technical Advisory*** "***Motor Vehicle Accident Costs***", ***T 7570.1***, dated June 30, 1988 and updated injury costs provided in the companion ***FHWA Technical Advisory***, ***T 7570.2***, dated October 31, 1994.

2) ***ROADSIDE 5.0*** computer program

This program complements the ***Roadside Design Guide*** dated January 1996. The program computer disks are normally furnished with the text.

This method can be used where clear zone applies. Based on the input (offsets, traffic, slopes, crash history, traffic accident severity levels, etc.) of information available to the user, the program will offer results which can be used in comparing courses of action. The current ***Roadside Design Guide*** and the ***FHWA Technical Advisory*** titled ***Motor Vehicle Accident Costs*** and dated October 31, 1994 provides guidance for the benefit/cost analysis.

Using this method for Department projects, the accident severity level costs to be used, noted in the ***Roadside Design Guide*** are revised as follows:

*** Estimated Costs for Various Traffic Accident Severity Levels**	
Fatal Accident	$2,600,000
Severe Injury Accident	$505,000
Moderate Injury Accident	$165,000
Slight Injury Accident	$36,167
Property Damage Only Accident Level 2	$10,469
Property Damage Only Accident Level 1	$2,000

*The above values were derived from the ***FHWA Technical Advisory*** "***Motor Vehicle Accident Costs***", ***T 7570.1***, dated June 30, 1988 and updated injury costs provided in the companion ***FHWA Technical Advisory***, ***T 7570.2***, dated October 31, 1994.

5. Conclusions and Recommendations

a. The cumulative effect of other deviations from design criteria,

b. Safety mitigating measures considered and provided,

c. Summarize specific course of action (Include conditional requirements such as projects in the work program that will fix deficiency).

23.2.3 Approval and Concurrence

Design Exceptions on projects having full federal oversight (see ***Chapter 24*** of this volume) and involvement are recommended by the District Design Engineer for approval by the FHWA Division Administrator.

Any Design Exception that reduces vertical clearance over an interstate roadway to less than 16 feet requires FHWA to coordinate with Military Traffic Management Command (MTMC) before the District Design Engineer can recommend the Design Exception.

Any Design Exception for design speed on the FIHS system shall require concurrence from the State Highway Engineer. All other Design Exceptions require concurrence from the State Roadway Design Engineer.

Design Exceptions impacting a structure require concurrence from the State Structures Design Engineer and the State Roadway Design Engineer.

All other projects are recommended by the Responsible Professional Engineer for approval by the District Design Engineer and concurrence by the State Roadway Design Engineer.

23.2.4 Sealing

All Design Exceptions are to be sealed in accordance with ***Chapter 19*** of this volume.

23.2.5 Concurrence Review

After the documentation justifying the Design Exception is forwarded to the appropriate Area Design Engineer, the Design Exception will be reviewed for completeness and adherence to the requirements of this chapter.

If the Design Exception complies with all requirements, it will be signed by the appropriate engineer(s), signifying concurrence. When necessary, the Design Exception will be forwarded by the appropriate Area Design Engineer to FHWA for approval.

23.2.6 Copies and Distribution

One (1) original is required by the State Roadway Design Engineer's Office (appropriate Area Design Engineer). Subsequent to obtaining all appropriate signatures for concurrence the following distribution is made:

1. The State Roadway Design Engineer's Office will return one (1) signed original to the District Design Engineer for files.
2. State Roadway Design Engineer's Office will return one (1) copy of the signed original to the District Design Engineer for submission to the Engineer of Record.
3. State Roadway Design Engineer's Office will retain one (1) copy of the signed original.
4. State Structures Design Engineer's Office will retain one (1) copy of the signed original for structure related Design Exceptions.

23.3 Design Variations

Design Variations are required when deviations from the Department's criteria occur. However, when both AASHTO and Department criteria for any of the 13 Critical Design Elements are not met, a Design Exception will be processed in lieu of a Design Variation.

A Design Variation request must address the following items:

1. Design criteria versus proposed criteria.
2. Reason the design criteria are not appropriate.
3. Justification for the proposed criteria.
4. Any background information which documents or justifies the request.

Requests begin with the Responsible Professional Engineer and are submitted to the District Design Engineer for approval. This approval shall be documented in the project file as per the sample request letter ***Exhibit 23-B***.

Any Design Variation for design speed on the FIHS system shall require concurrence from the State Highway Engineer.

Issues impacting a structure require final concurrence from the District Structures Design Engineer for Category 1 structures or the State Structures Design Engineer for all other structures.

As with Design Exceptions, it is critical that Design Variations be identified early in the process in order to allow time to research alternatives and begin the analysis and documentation activities. This is preferably done during the PD&E process for major projects and the scope development process for minor projects. It is required that approval be obtained no later than the initial engineering phase.

All Design Variations are to be sealed in accordance with ***Chapter 19*** of this volume.

The District Design Engineer will retain the original and distribute one (1) signed copy to the Engineer of Record.

23.4 AASHTO Criteria for Critical Design Elements

As an aid to the designer, the following tables may be used as a reference for determining when a Design Exception is required based on AASHTO criteria, but are in no way intended to replace Department design criteria. The page numbers referenced are to AASHTO's ***A Policy on Geometric Design of Highways and Streets 2001*** and are a starting point for researching project criteria.

Criteria Tables Cross Reference

NOTE: AASHTO's ***A Policy on Geometric Design of Highways and Streets 2004*** may be used instead of the 2001 edition. The 2004 edition is in substantial conformance with the criteria in the 2001 edition, so use of either edition is acceptable. The major change in the 2004 edition is a revision of the superelevation section which resulted in minor differences in superelevation rates. The AASHTO page numbers referenced in this chapter only apply to the 2001 edition and may not correspond to the correct page numbers in the 2004 edition.

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Table 23.4.1 AASHTO Design Speed (Minimum)

Type Facility	Other Factors	Design Speed (mph)	AASHTO
Freeways	Urban Rural	50 70	pg. 507
Urban Arterials	Major Other	30 30	pg. 72
Rural Arterials	Rolling terrain Level terrain	50 60	pg. 448
Urban Collectors		30	pg. 434
Rural Collectors	Level ADT < 400 ADT 400 - 2000 ADT > 2000 Rolling ADT < 400 ADT 400 - 2000 ADT > 2000	40 50 60 30 40 50	pg. 426, Exh. 6-2
CBD	Major or Minor	30	pg. 434
Ramps	Highway Design Speeds (mph) 30 35 40 45 50 55 60 65 70	 15 18 20 23 25 28 30 30 35	pg. 830
Loop Ramps	150 ft. radius	25	pg. 829
Connections	Direct Semi-Direct	40 30	pg. 829

Table 23.4.2 AASHTO Lane Widths (Minimum)

Type Facility	Lane Width (feet)	AASHTO
Freeways	12	pg. 508
Rural Arterials	11	pg. 452, Exh. 7-3
Urban Arterials	10	pg. 476
Urban Collectors	10	pg. 437
Rural Collectors	10	pg. 429, Exh. 6-6
Low Speed	10	pg. 316
Residential	9	pg. 316
Auxiliary	10	pp. 316, 437
Continuous TWLTL	10	pg. 316

Table 23.4.3 AASHTO Shoulder Widths (Minimum)

Type Facility	Other Factors	Right (feet)	Median (feet)	AASHTO
Freeways	4 lanes	10	4	pg. 509
	≥ 6 lanes	10	10	pg. 509
Rural Arterial	ADT > 2000	8		pg. 452, Exh. 7-3
	ADT 400-2000	6		
	ADT < 400	4		
	Divided highway 4 lanes	8	4 paved	pg. 459
	Divided highway 6 lanes	8	8	pg. 460
Urban Arterial	Low Type	2		pg. 318
	High Type	10		pg. 318
Heavily Traveled	High Speed (≥ 50 mph)	10		pg. 318
Rural & Urban Collectors	ADT > 2000	8		pg. 429, Exh. 6-5
	ADT 1500-2000	6		
	ADT 400-1500	5		
	ADT < 400	2		

Table 23.4.4 AASHTO Bridge Widths (Minimum)

Type Facility	Other Factors	Bridge Widths	AASHTO
Freeways	New Bridges	Approach Roadway Width	pg. 510
Rural Arterials	New Bridges (Short)	Approach Roadway Width	pg. 451
	New Long Bridges (> 200 ft.)	Travel Lanes + 4 ft. each side	pg. 451
	Remain in Place	Travel Lanes + 2 ft. each side	pg. 451
Urban Arterials	Long (> 200 ft.), where shoulders or parking lanes are provided on the arterial	Travel Lanes + 4 ft. each side	pg. 485
	All new bridges	Curb to curb width of street	pg. 485

		Bridge Widths		
Type Facility	Other Factors	New or Reconstruction	To Remain	AASHTO
Rural and Urban Collectors	Under 400 ADT	Traveled Way + 2 ft. each side (1)	22 ft. (2)	pp. 430, 431
	ADT 400-1500	Traveled Way + 3 ft. each side (1)	22 ft. (2)	pp. 430, 431
	ADT 1500-2000	Traveled Way + 4 ft. each side(1),(3)	24 ft. (2)	pp. 430, 431
	ADT > 2000	Approach Roadway Width (1),(3)	28 ft. (2)	pp. 430, 431

1. If the approach roadway has paved shoulders, then the surfaced width shall be carried across the bridge.
2. Bridges longer than 100 ft. are to be analyzed individually.
3. For bridges > 100 ft. in length, the minimum bridge width of traveled way plus 3 ft. on each side is acceptable.

Table 23.4.5 AASHTO Structural Capacity (Minimum Loadings)

Type Facility	Other Factors	Loading	AASHTO
Freeways	---	HS-20	pg. 510
Rural Arterials	---	HS-20	pg. 451
Urban Arterials	---	HS-20	pg. 451
Local Roads	New & Reconstruction Bridges	HS-20	pg. 390, Exh. 5-6
	Existing Bridges	H 15	pg. 390, Exh. 5-7
Collectors	New & Reconstruction Bridges	HS-20	pg. 430, Exh. 6-6
	Existing Bridges	H 15	pg. 431, Exh. 6-7

Table 23.4.6 AASHTO Vertical Clearance (Minimum)

Type Facility		Vertical Clearance (feet)	AASHTO
Freeways		16 (1),(2)	pp. 510, 511, 767, 768
Arterials:	Rural	16 (1),(2)	pp. 451, 767, 768
	Urban	16 (1),(2)	476, 767, 768
Other Highways		14 (2)	pp. 389, 511
Sign Trusses		17 (2)	pg. 511
Pedestrian Overpass		17 (2)	pg. 511
Tunnels:	Freeways	16 (2)	pg. 359
	Other Highways	14 (2)	pg. 359
Railroads		23 (2)	pg. 526

1. 14 feet allowed in highly developed urban areas if alternate route has 16 feet.
2. Minimum value that can be used without a Design Exception. An allowance of 6 inches should be added to vertical clearance to accommodate future resurfacing.

Table 23.4.7 AASHTO Grades (Minimum and Maximum)

Maximum Grades

Type Facility	Type Terrain	Grades (%) For Design Speed (mph)									AASHTO
		30	35	40	45	50	55	60	65	70	
Freeway [1]	Level	---	---	---	---	4	4	3	3	3	pg. 510,
	Rolling	---	---	---	---	5	5	4	4	4	Exh. 8-1
Rural Arterial	Level	---	---	5	5	4	4	3	3	3	pg. 450,
	Rolling	---	---	6	6	5	5	4	4	4	Exh. 7-2
Urban Arterial:	Level	8	7	7	6	6	5	5	---	---	pg. 476,
	Rolling	9	8	8	7	7	6	6	---	---	Exh. 7-10
Rural Collector[2]	Level	7	7	7	7	6	6	5	---	---	pg. 427,
	Rolling	9	9	8	8	7	7	6	---	---	Exh. 6-4
Urban Collector[2]	Level	9	9	9	8	7	7	6	---	---	pg. 436,
	Rolling	11	10	10	9	8	8	7	---	---	Exh. 6-8

1. Grades one percent steeper than the values shown may be used for extreme cases in urban areas where development precludes the use of flatter grades and for one-way downgrades.
2. Short lengths of grade in rural and urban areas, such as grades less than 500 ft. in length, one-way downgrades, and grades on low-volume rural and urban collectors may be up to 2 percent steeper than the grades shown above.

Minimum Grades for Urban Curb & Gutter

Type Facility	Minimum %	AASHTO
Arterials	as required for adequate drainage	pg. 475
Collector Roads & Streets	0.30	pg. 435
Local Roads & Streets	0.20	pg. 395

Table 23.4.8 AASHTO Cross Slope (Minimum and Maximum)

Type Facility	Other Factors	Minimum	Maximum	AASHTO
Freeways	---	0.015	0.025 [1]	pg. 508
Arterials	Rural	0.015	0.02 [1]	pg. 450
	Urban	0.015	0.03	pg. 476
Divided Highways	---	0.015	0.02 [1]	pg. 459
Collectors	Rural	0.015	0.02 [1]	pg. 425
	Urban	0.015	0.03	pg. 435
Shoulders	Paved	0.02	0.06	pg. 320
	Gravel	0.04	0.06	pg. 320
	Turf	0.06[2]	0.08[2]	pg. 320

1. Values given are for up to two lanes in one direction. Additional outside lanes may have cross slopes of 0.03.
2. Shoulder cross slopes which meet FDOT criteria do not require a Design Exception.

Table 23.4.9 AASHTO Superelevation (Maximum)

Type Facility	Superelevation Rate	AASHTO
Highways (Rural)	0.12	pg. 141
Urban	0.06	pg. 142
Low Speed Urban w/severe constraints	None	pg. 142
Ramps and Turning Roadways at Intersections	0.10	pg. 643

Table 23.4.10 AASHTO Horizontal Alignment

Minimum Radius (feet) with Superelevation (page 145, Exh. 3-14)

Type Facility	Super-elevation e-max	Minimum Curve Radius (feet) for Design Speed (mph)											
		15	20	25	30	35	40	45	50	55	60	65	70
Rural Highways and High Speed Urban Streets	0.04	70	125	205	300	420	565	730	930	1190	1505	---	---
	0.06	65	115	185	275	380	510	660	835	1065	1340	1660	2050
	0.08	60	105	170	250	350	465	600	760	965	1205	1485	1820
	0.10	55	100	160	230	320	430	555	695	880	1095	1345	1640
	0.12	50	90	145	215	300	395	510	645	810	1005	1230	1490

Minimum Radius (feet) for Section with Normal Cross Slope (page 168, Exh. 3-26)

Type Facility	Minimum Curve Radius (feet) for Design Speed (mph)											
	15	20	25	30	35	40	45	50	55	60	65	70
All	960	1700	2460	3350	4390	5570	6880	8350	9960	11720	13180	14730

Minimum Radius (feet) for Intersection Curves (page 201, Exh. 3-43)

Design Speed (MPH)	10	15	20	25	30	35	40	45
Minimum Radius (feet)	25	50	90	150	230	310	430	540
Assumed Minimum Superelevation Rate	0.02	0.02	0.02	0.04	0.06	0.08	0.09	0.10

Minimum Passing Sight Distance (feet) (page 124, Exh. 3-7)

Design Speed (mph)	20	25	30	35	40	45	50	55	60	65	70
Passing Sight Distance	710	900	1090	1280	1470	1625	1835	1985	2135	2285	2480

Table 23.4.11 AASHTO Vertical Alignment

(Taken from page 426, Exh. 6-2)

Design Speed (mph)	K Value [1] for Vertical Curves Rounded for Design	
	Crest	Sag
15	3	10
20	7	17
25	12	26
30	19	37
35	29	49
40	44	64
45	61	79
50	84	96
55	114	115
60	151	136

1. Rate of vertical curvature, K, is the length of curve per percent algebraic difference in the intersecting grades.

Table 23.4.12 AASHTO Stopping Sight Distance

(Taken from page 112, Exh. 3-1)

Design Speed (mph)	Stopping Sight Distance (feet) Computed for Design
15	80
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

Table 23.4.13 AASHTO Horizontal Clearance (Minimum)

Feature	Clearance			AASHTO
Bridges	See ***Table 23.4.4***			---
Tunnels	2.5 ft. from edge of traffic lane			pg. 358
Underpasses	2-lane:	Normal shoulder width (to edge of barrier) (1)		pg. 766, Exh. 10-6
	Divided Roadway:	Normal shoulder (outside or median) width (to edge of barrier) (1)		
Barrier Wall & Guardrail	Normal shoulder width			pg. 766, Exh. 10-6
Light Poles (2)	Rural:	Outside clear zone (if non-breakaway)		pg. 295
	Urban:	1.5 ft. from face of curb		pg. 323
Trees greater than 4 inches in diameter measured 6 inches above the ground	Rural	Arterials:	Outside clear zone	pg. 403, 485
		Collectors ≤ 45 mph:	10 ft. from traveled way	pg. 431
		Collectors > 45 mph:	Outside clear zone	pg. 431
	Urban:		1.5 ft. from face of curb	pg. 403,441,485
	Freeways (Rural and Urban):		Outside clear zone	pg. 511
Sign supports	Outside clear zone (if non-breakaway)			pg. 299
Utility Poles (2)	Rural:	Outside clear zone		pg. 298
	Urban:	1.5 ft. from face of curb		pp. 297, 323
Building Line	15 feet from elevated roadway (wall)			pg. 526
Signal Pole and Controller Cabinets	Rural:	As far from the roadway as practicable		pg. 4-13 (3)
	Urban:	1.5 ft. from face of curb		pg. 323

1. For metal guardrail, add deflection distance.
2. Exceptions for utility poles are to be in accordance with the current ***Utility Accommodation Manual*** exceptions procedure for horizontal clearance for utility poles.
3. ***AASHTO Roadside Design Guide***.

Exhibit 23-A Sample Request Letter for Design Exception

To:[1] _____, Date: _____
Subject: **Design Exception**
Financial Project ID: _____
County Section Number: _____ State Road Number: _____
Federal Aid Number: _____
Project Description: _____
Begin Project MP: ____.____ End Project MP: ____.____
New Construction _____ RRR _____
Plans Phase: PD&E ___ I ___ II ___ III ___ IV ___ Federal Oversight: Yes _____ No _____

A design exception is requested for the following element(s):

( ) Design Speed [4] ( ) Lane Widths ( ) Shoulder Widths ( ) Bridge Widths
( ) Structural Capacity ( ) Vertical Clearance ( ) Grades ( ) Cross Slope
( ) Superelevation ( ) Horizontal Alignment ( ) Vertical Alignment ( ) Stopping Sight Distance
( ) Horizontal Clearance

Include a brief statement concerning the project and items of concern.
*Attach all supporting documentation to this exhibit in accordance with **Section 23.2** including crash history and plans identifying crash locations.*

Prepared by [2]:
Recommended by: _____
Responsible Professional Engineer (print or type)

_____
Date _____/_____/_____

_____
Consultant Firm (print or type)

Recommended by [2]:
Approved by [3]: _____ Date _____/_____/_____
District Design Engineer
Concurrence [4]: _____ Date _____/_____/_____
State Roadway Design Engineer
Concurrence [5]: _____ Date _____/_____/_____
State Structures Design Engineer
Approved by [3]: _____ Date _____/_____/_____
FHWA Division Administrator
Concurrence [4]: _____ Date _____/_____/_____
State Highway Engineer

1. Design exceptions on projects having full federal oversight and involvement are addressed to the FHWA Division Administrator. All other design exceptions are addressed to the District Design Engineer.
2. Design exceptions on projects having full federal oversight and involvement are recommended by the District Design Engineer and prepared by the Responsible Professional Engineer. All other design exceptions are recommended by the Responsible Professional Engineer.
3. Design exceptions on projects having full federal oversight and involvement are approved by the FHWA Division Administrator. All other design exceptions are approved by the District Design Engineer.
4. Design exceptions for design speed on the FIHS requires concurrence from the State Highway Engineer following a review with the State Transportation Planner. All other design exceptions require concurrence from the State Roadway Design Engineer.
5. Design exceptions impacting the geometry, vertical clearance, layout of structures, or superstructure cross slope require concurrence from the State Structures Design.

Exhibit 23-B Sample Request Letter for Design Variation

To:_____, District Design Engineer Date: _____

Subject: **Design Variation**
Financial Project ID: _____
County Section Number: _____ State Road Number: _____
Federal Aid Number: _____ Federal Oversight: Yes _____ No _____
Project Description: _____
Begin Project MP: ____.____ End Project MP: ____.____
New Construction _____ RRR _____

A design variation is requested for the following element(s):

( ) Design Speed [2] ( ) Lane Widths ( ) Shoulder Widths ( ) Bridge Widths
( ) Structural Capacity ( ) Vertical Clearance ( ) Grades ( ) Cross Slope
( ) Superelevation ( ) Horizontal Alignment ( ) Vertical Alignment ( ) Stopping Sight Distance
( ) Horizontal Clearance ( ) Other

Include a brief statement concerning the project and items of concern.
Indicate the design elements for which the Design Variation is being requested, along with a specific description of the Design Variation.
*Address all issues and each of the Items listed under **Section 23.3**.*
Attach all supporting documentation to this exhibit including crash history and plans identifying crash locations.

Recommended by: _____
Responsible Professional Engineer (print or type)

_____
Date ____/____/____

_____
Consultant Firm (print or type)

Approved by: _____ Date ____/____/____
District Design Engineer

Concurrence [1]: _____ Date ____/____/____
State or District Structures Design Engineer

Concurrence [2]: _____ Date ____/____/____
State Highway Engineer

1. Design variations impacting the geometry, vertical clearance, layout of structures, or superstructure cross slope require concurrence from the District Structures Design Engineer for Category 1 structures and from the State Structures Design Engineer for all other structures.
2. Design speed variations on the FIHS requires concurrence from the State Highway Engineer following a review with the State Transportation Planner.

Exhibit 23-C Design Exceptions Variations and Utility Exceptions Process

GOVERNING CRITERIA

(1) For all new construction, reconstruction and RRR interstate projects, FDOT's standard criteria in ***Chapter 2*** or FIHS criteria in ***Chapter 1*** of this volume governs.

(2) For RRR projects (except interstate), RRR criteria in ***Chapter 25*** of this volume governs*.

(3) For Transportation Designs for Livable Communities (TDLC), ***Chapter 21*** of this volume governs.

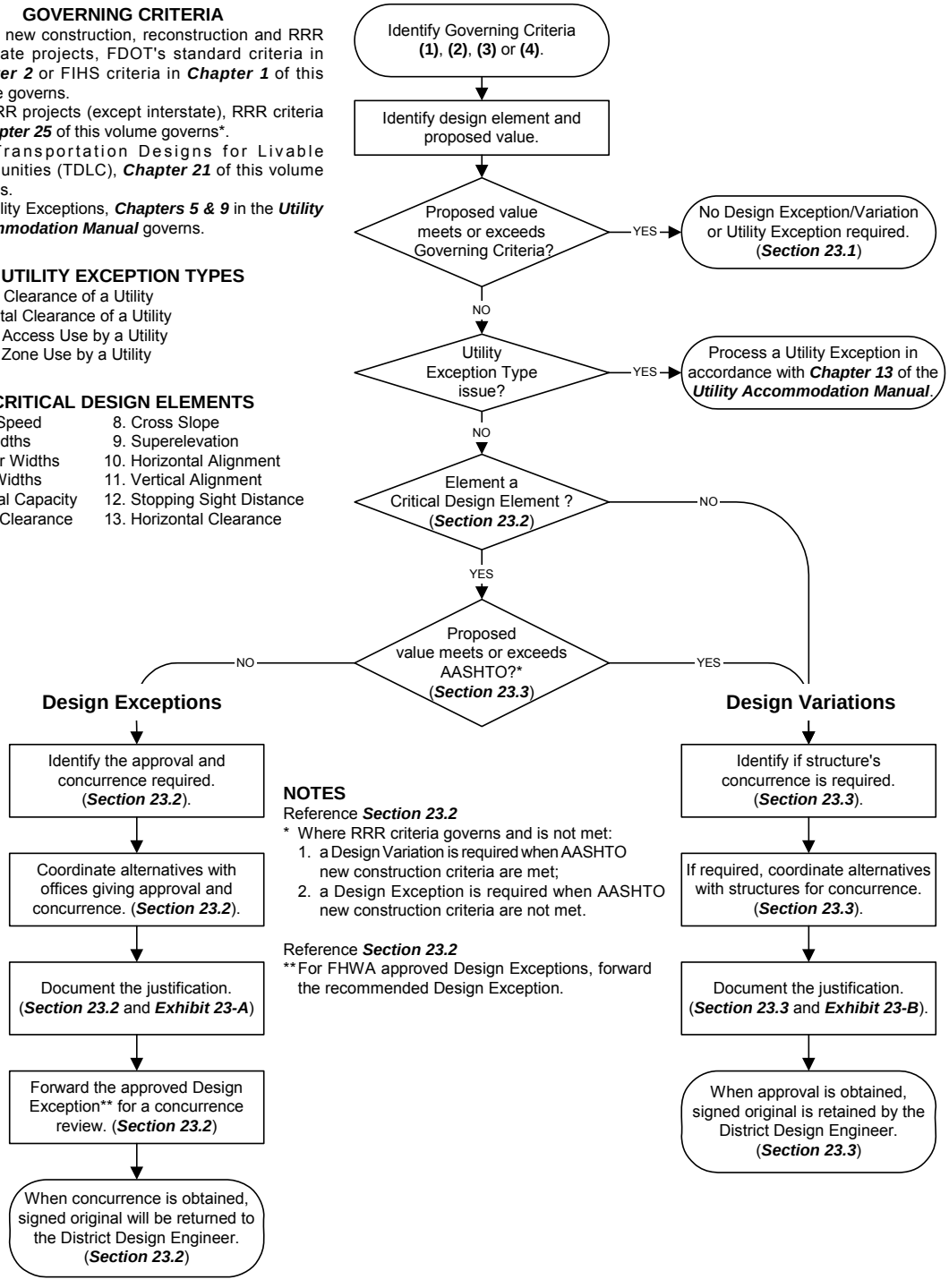
(4) For Utility Exceptions, ***Chapters 5 & 9*** in the ***Utility Accommodation Manual*** governs.

UTILITY EXCEPTION TYPES

1. Vertical Clearance of a Utility
2. Horizontal Clearance of a Utility
3. Limited Access Use by a Utility
4. Control Zone Use by a Utility

CRITICAL DESIGN ELEMENTS

1. Design Speed
2. Lane Widths
3. Shoulder Widths
4. Bridge Widths
5. Structural Capacity
6. Vertical Clearance
7. Grades
8. Cross Slope
9. Superelevation
10. Horizontal Alignment
11. Vertical Alignment
12. Stopping Sight Distance
13. Horizontal Clearance



NOTES

Reference ***Section 23.2***

* Where RRR criteria governs and is not met:
1. a Design Variation is required when AASHTO new construction criteria are met;
2. a Design Exception is required when AASHTO new construction criteria are not met.

Reference ***Section 23.2***

** For FHWA approved Design Exceptions, forward the recommended Design Exception.

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