

DATE: January 31, 2020 (2/3/20 revision)
TO: Bridge Manual Users
FROM: DTSD – Bureau of Structures
SUBJECT: **January 2020 Bridge Manual Update**

The Bridge Manual revisions to text and standards are now complete and posted online for this six month cycle. Please see the attached sheets for a list, with brief explanation, of the Text and Standards that were revised.

Of particular interest in this edition:

- **Chapter 6:** *Just a reminder to follow the advice on computing concrete quantities in 6.4.3, and not to round up to more than the next cubic yard (e.g. For 117 CY, do not round up to 120 CY).*
- Chapter 39 Chapter (dated January 2019) to remain during the Chapter 39 (LRFD) transition.
- **Chapter 39 (LRFD):** Chapter re-developed to account for the following:
 - **Implementation of LRFD. All contracts with a December 2020 letting or later must use AASHTO LRFDLTS-1 specifications for overhead sign structures.** AASHTO LRFDLTS-1 specifications are optional for all contracts prior to this letting date. **Note: If final design has begun for a project with a December 2020 or later letting, please contact BOS for how best to proceed, as project-by-project exceptions may be granted.**
 - Guidance on standard and non-standard designs
 - Updated sign structure nomenclature and design process
 - FDM references with updated guidance
- **LRFD Standardized Overhead Sign Structure Plans** – See Standard Drawings
 - Lead Sheets (DGN and DWG)
 - Design Drawings (PDF)
- **Chapter 40:** Revised substructure reuse policy for superstructure replacements. Previously, policy required substructure to meet LRFD, which it rarely did. Revised policy aligns with Department asset management philosophy, while not compromising safety.

Most other changes are fairly minor. Please use the example calculations with care (follow along in AASHTO). A vertical black bar in the left margin notes all text changes.

The user's feedback regarding the Bridge Manual is important to us as that is where we get many ideas for corrections, clarification and new ideas for enhancement.

January 2020 Bridge Manual Text Update Summary

<u>Chapter</u>	<u>Page Number(s)</u>	<u>Change</u>
5	4	Added note to Concrete Slabs for single vs. multi-span slab span economic limits
6	26	Added information to convert to standard elevations from older Milwaukee datum.
	26	Added ", unless specified otherwise." to saw cut note #2
11	15	Clarified language pertaining to minimum pile length.
	50,53	Added minimum drilled shaft spacing requirement of 3D and provided updated guidance on group effects.
	50,57	Updated the FHWA drilled shaft reference from 2010 to 2018 edition
	52,53	Corrected section headings: 11.3.2.3.1, 11.3.2.3.2, and 11.3.2.3.3
12	19	Added abutment drainage and high normal water guidance
17	73	Minor change: "Epoxy...and deck sealers "are" preferred by WisDOT"
19	10-11	Removed criteria for not allowing continuous girder design for span ratios greater than 1.5:1. Added advice regarding variable girder depth and non-aligned girders.
19E -1	4	Updated initial girder spacing assumption from S=8.5ft to S=7.5ft
39	All	Implemented LRFD for overhead sign structures (OSS)
		Added guidance on standard and non-standard designs for OSS
		Updated OSS nomenclature and design process
		Updated FDM references and guidance
40	6	Changed pin inspection to 72-month
	9	Removed 10 year criteria to be considered for rehabilitation
	33	Renamed Section 40.9 to "Superstructure Replacement" and provided updated guidance. Added WisDOT policy item for superstructure replacements.
	34, 71	Added reference: Foundation Reuse for Highway Bridges (FWHA)
	34-36	Renamed Section 40.10 to "Substructure Reuse and Replacement" and provided updated guidance on substructure reuse and replacement. Approval is required from BOS for all substructure reuse projects.
	36	Renamed Section 40.11 to "Other Considerations". Moved existing section 40.10 (Replacement of Impacted Girders) to 40.11.1 and 40.11 (New Bridge Adjacent to Existing Bridge) to 40.11.2.
	43	Updated substructure inspection guidance. Moved "Hammerhead Pier Rehabilitation" and "Bearings" sections to Section 40.10.

45	42	Changed the recommendation on rating of prestressed girder bridges with variable girder spacing. No longer allowed to be considered continuous at the pier where the girder spacing changes.
	42	Add guidance for allowing the Simplified Procedure for shear ratings on existing bridges.

January 2020 Standard Details Update Summary

Chapter 4

- Std 4.01 ■ No revisions.
- Std 4.02 ■ No revisions.
- Std 4.03 ■ No revisions.
- Std 4.04 ■ No revisions.
- Std 4.05 ■ No revisions.

Chapter 7

- Std 7.01 ■ No revisions.
- Std 7.02 ■ No revisions.
- Std 7.03 ■ No revisions.
- Std 7.04 ■ No revisions.
- Std 7.05 ■ No revisions.
- Std 7.06 ■ No revisions.
- Std 7.07 ■ No revisions.

Chapter 9

- Std 9.01 ■ No revisions.
- Std 9.02 ■ No revisions.
- Std 9.03 ■ No revisions.

Chapter 11

- Std 11.01 ■ No revisions.

Chapter 12

- Std 12.01 ■ Clarified heavy riprap berm is level
- Std 12.02 ■ No revisions.
- Std 12.03 ■ Corrected "W" bar embedment dimension to reference abutment backwall
 - Clarified heavy riprap berm is level
- Std 12.04 ■ Clarified heavy riprap berm is level
- Std 12.07 ■ No revisions.
- Std 12.08 ■ Clarified heavy riprap berm is level
- Std 12.09 ■ No revisions.
- Std 12.10 ■ No revisions.
- Std 12.11 ■ Moved 1'-2"+/- dimension in Section B-B at MSE walls
- Std 12.12 ■ No revisions.
- Std 12.13 ■ No revisions.

Chapter 13

- Std 13.01 ■ Clarified bearing note on left side of PLAN view
 - Added cap keyway dimension
- Std 13.02 ■ No revisions.
- Std 13.03 ■ No revisions.
- Std 13.04 ■ Added cap keyway dimension
- Std 13.05 ■ Added cap keyway dimension
- Std 13.06 ■ No revisions.
- Std 13.07 ■ Added cap keyway dimension
- Std 13.08 ■ No revisions.
- Std 13.09 ■ Updated underwater inspection bid item from SPV.0060 to 502.9000.S
 - Updated underwater inspection bid item name

- Std 13.10 ■ No revisions.
- Std 13.11 ■ No revisions.

Chapter 14

- Std 14.02 ■ Added 3" CL note for anchor slab bottom mat rebar
- Std 14.03 ■ No revisions.
- Std 14.04 ■ No revisions.
- Std 14.05 ■ No revisions.
- Std 14.11 ■ Corrected spelling for "Manufacturer"
- Std 14.12 ■ No revisions.
- Std 14.13 ■ No revisions.

Chapter 15

- Std 15.01 ■ No revisions.
- Std 15.02 ■ No revisions.
- Std 15.03 ■ No revisions.

Chapter 17

- Std 17.01 ■ Tightened spacing of top transverse sidewalk bars from 6" to 4".
- Std 17.02 ■ No revisions.
- Std 17.03 ■ No revisions.

Chapter 18

- Std 18.01 ■ No revisions.
- Std 18.02 ■ No revisions.

Chapter 19

- Std 19.01 ■ No revisions.
- Std 19.02 ■ No revisions.
- Std 19.03 ■ No revisions.
- Std 19.04 ■ No revisions.
- Std 19.11 ■ No revisions.
- Std 19.12 ■ No revisions.
- Std 19.13 ■ No revisions.
- Std 19.14 ■ No revisions.
- Std 19.15 ■ No revisions.
- Std 19.16 ■ No revisions.
- Std 19.17 ■ No revisions.
- Std 19.18 ■ No revisions.
- Std 19.19 ■ No revisions.
- Std 19.20 ■ No revisions.
- Std 19.31 ■ Updated entire standard - redrawn to scale and clarified several details
- Std 19.32 ■ No revisions.
- Std 19.33 ■ No revisions.
- Std 19.34 ■ No revisions.
- Std 19.35 ■ No revisions.
- Std 19.36 ■ No revisions.
- Std 19.37 ■ No revisions.
- Std 19.38 ■ No revisions.
- Std 19.50 ■ No revisions.
- Std 19.51 ■ No revisions.
- Std 19.52 ■ No revisions.

- Std 19.53 ■ No revisions.
- Std 19.54 ■ No revisions.
- Std 19.55 ■ No revisions.
- Std 19.56 ■ No revisions.

Chapter 23

- Std 23.01 ■ No revisions.
- Std 23.02 ■ No revisions.
- Std 23.03 ■ No revisions.

Chapter 24

- Std 24.02 ■ No revisions.
- Std 24.03 ■ No revisions.
- Std 24.04 ■ No revisions.
- Std 24.06 ■ No revisions.
- Std 24.08 ■ No revisions.
- Std 24.09 ■ No revisions.
- Std 24.10 ■ No revisions.
- Std 24.11 ■ No revisions.
- Std 24.12 ■ No revisions.

Chapter 27

- Std 27.02 ■ No revisions.
- Std 27.05 ■ No revisions.
- Std 27.06 ■ No revisions.
- Std 27.07 ■ No revisions.
- Std 27.08 ■ No revisions.
- Std 27.09 ■ No revisions.
- Std 27.10 ■ No revisions.

Chapter 28

- Std 28.01 ■ No revisions.
- Std 28.02 ■ No revisions.
- Std 28.03 ■ No revisions.
- Std 28.04 ■ No revisions.
- Std 28.05 ■ No revisions.
- Std 28.06 ■ No revisions.
- Std 28.07 ■ Added rehab portion of "Designer Notes" from Std 28.02
- Std 28.08 ■ No revisions.

Chapter 29

- Std 29.01 ■ Clarified drain and downspout payment limits
- Std 29.02 ■ Clarified drain and downspout payment limits
- Std 29.03 ■ Clarified drain and downspout payment limits

Chapter 30

- Std 30.02 ■ No revisions.
- Std 30.04 ■ No revisions.
- Std 30.05 ■ No revisions.
- Std 30.07 ■ No revisions.
- Std 30.08 ■ No revisions.
- Std 30.09 ■ Added "and 502.3.14" to alternate adhesive anchor note

- Std 30.10 ■ Added "and 502.3.14" to alternate adhesive anchor note
- Std 30.11 ■ Added "and 502.3.14" to alternate adhesive anchor note
- Std 30.14 ■ Corrected S406 bar dimensions and bar details
 - Updated conduit size requirement. Updated several minor details for clarity.
- Std 30.15 ■ Added "and 502.3.14" to alternate adhesive anchor note
- Std 30.16 ■ No revisions.
- Std 30.17 ■ No revisions.
- Std 30.18 ■ Added "and 502.3.14" to alternate adhesive anchor note
- Std 30.19 ■ No revisions.
- Std 30.20 ■ No revisions.
- Std 30.21 ■ No revisions.
- Std 30.22 ■ No revisions.
- Std 30.24 ■ No revisions.
- Std 30.25 ■ No revisions.
- Std 30.26 ■ No revisions.
- Std 30.27 ■ No revisions.
- Std 30.28 ■ No revisions.
- Std 30.29 ■ No revisions.
- Std 30.30 ■ No revisions.
- Std 30.31 ■ No revisions.
- Std 30.32 ■ No revisions.
- Std 30.33 ■ No revisions.
- Std 30.34 ■ No revisions.
- Std 30.35 ■ No revisions.
- Std 30.36 ■ No revisions.
- Std 30.37 ■ No revisions.

Chapter 36

- Std 36.01 ■ No revisions.
- Std 36.02 ■ No revisions.
- Std 36.03 ■ No revisions.
- Std 36.04 ■ No revisions.
- Std 36.05 ■ No revisions.
- Std 36.06 ■ No revisions.
- Std 36.07 ■ No revisions.
- Std 36.08 ■ No revisions.
- Std 36.10 ■ No revisions.
- Std 36.11 ■ No revisions.
- Std 36.12 ■ No revisions.
- Std 36.13 ■ No revisions.
- Std 36.14 ■ No revisions.
- Std 36.15 ■ No revisions.
- Std 36.16 ■ No revisions.

Chapter 37

- Std 37.01 ■ No revisions.
- Std 37.02 ■ No revisions.

Chapter 38

- Std 38.01 ■ No revisions.

Chapter 39

- Std 39.02 ■ No revisions.
- Std 39.03 ■ No revisions.
- Std 39.09 ■ No revisions.
- Std 39.10 ■ No revisions.
- Std 39.11 ■ No revisions.
- Std 39.12 ■ No revisions.
- Std 39.13 ■ No revisions.

Chapter 40

- Std 40.01 ■ No revisions.
- Std 40.02 ■ No revisions.
- Std 40.03 ■ No revisions.
- Std 40.04 ■ No revisions.
- Std 40.05 ■ No revisions.
- Std 40.06 ■ No revisions.
- Std 40.07 ■ No revisions.
- Std 40.08 ■ Updated Designer Notes with 3/4" min. steel top plate thickness
■ Added "Steel Plates ASTM A1011..." note to PS girder section detail
- Std 40.09 ■ No revisions.
- Std 40.10 ■ No revisions.
- Std 40.11 ■ No revisions.
- Std 40.12 ■ No revisions.
- Std 40.13 ■ No revisions.
- Std 40.14 ■ No revisions.
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- Std 40.31 ■ No revisions.
- Std 40.32 ■ No revisions.
- Std 40.33 ■ No revisions.
- Std 40.34 ■ No revisions.
- Std 40.40 ■ No revisions.
- Std 40.41 ■ No revisions.