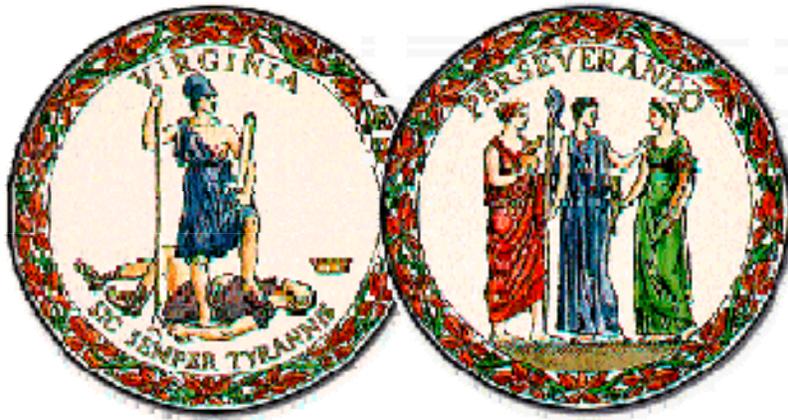


MANUAL OF THE STRUCTURE AND BRIDGE DIVISION

PART 1

PREFACE – MANUAL OVERVIEW AND USE



VIRGINIA DEPARTMENT OF
TRANSPORTATION

VOID

VDOT GOVERNANCE DOCUMENT

**VDOT Manual of the Structure and Bridge Division: Part 01: Preface –
Manual Overview and Use**

OWNING DIVISION: Structure and Bridge

DATE OF ISSUANCE: 10/30/2014



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, 23219-2000

Charles A. Kilpatrick, P.E.
COMMISSIONER

October 30, 2014

SUBJECT: Manual of the Structure and Bridge Division
Volume V – Part 1
Preface – Manual Overview and Use

MEMORANDUM

TO: Holders of Manual

NEW ISSUE:

Manual of the Structure and Bridge Division, Volume V – Part 1 – Preface – Manual Overview and Use provides information on the structure and content of this manual, defines terms and references used throughout this manual and contains Structure and Bridge Division update requirements when changes are made to this manual. A comprehensive section on design exception, design waiver and design approval requirements is included covering approval authority, form use and specific policies for deviation from design geometrics, VDOT Structure and Bridge practices and specific requirements and modifications to VDOT Structure and Bridge standard sheets.

RETAIN THIS MEMO IN FRONT OF INDEX TO VOLUME V – PART 1

/original signed/
Prasad Nallapaneni, P.E.
Assistant State Structure and Bridge Engineer

For: Kendal R. Walus, P.E.
State Structure and Bridge Engineer

**VOLUME V – PART 1
 PREFACE – MANUAL OVERVIEW AND USE
 TABLE OF CONTENTS**

FILE NO.	TITLE	DATE
TABLE OF CONTENTS – PREFACE		
Pre.TOC-1	Table of Contents	30Oct2014

MANUAL OVERVIEW

Pre.01-1	General Information.....	30Oct2014
Pre.01-2	Manual Structure and Release Letters.....	30Oct2014
Pre.01-3	Part 2 and Support / Help.....	30Oct2014

DESIGN EXCEPTIONS / DESIGN WAIVERS / DESIGN APPROVALS

Pre.02-1	General Design Exception / Waiver/Approval Information and Design Exceptions.....	30Oct2014
Pre.02-2	Design Exceptions.....	30Oct2014
Pre.02-3	Design Exceptions and Waivers/Approvals	30Oct2014
Pre.02-4	Design Waivers and Design Approvals.....	30Oct2014
Pre.02-5	Design Waivers and Design Approvals.....	30Oct2014
Pre.02-6	Design Waivers and Design Approvals.....	30Oct2014
Pre.02-7	Design Waivers and Design Approvals.....	30Oct2014
Pre.02-8	Summary Table	30Oct2014

GENERAL INFORMATION:

VDOT's *Manual of the Structure and Bridge Division*, Volume V is divided into several parts that establish the practices and specific requirements of the Structure and Bridge Division and/or provide standards for use in bridge plans. The practices and specific requirements contained in this manual have been established based on the Structure and Bridge Division's experience, industry standards, recommendations and technological advancements made over the years.

Where details, requirements or other content appear to conflict between sections, chapters and/or parts of this manual or with other Structure and Bridge Guides, Instructional and Informational Memoranda, etc., the Designer should contact the Engineering Services Program Area of the Structure and Bridge Division to determine the intent. Designers shall be required to revise designs, details, etc. where assumptions have been made that are contrary to the actual intent.

VDOT Structure and Bridge Division interprets terms in AASHTO documents such as "should", "recommended", "desired" and "preferred" as indicating the design standards to be used except where specifically shown in this manual. Lesser standards than those required in this manual should only be sought where allowed by AASHTO and where project needs justify their use. Use of such lesser standards requires submittal of a design waiver to the appropriate approval authority except where specifically authorized in this manual. See Part 1, File No. Pre.02-8 of this manual for design exception/ waiver approval authority summary.

References to "AASHTO LRFD specifications" in this manual refer to the current AASHTO *LRFD Bridge Design Specifications*, current Interims and VDOT Modifications (current IIM-S&B-80). References to "AASHTO standard specifications" refer to the AASHTO *Standard Specifications for Highway Bridges*, 16th Edition, 1996, including the 1997 and 1998 Interims and VDOT Modifications.

Users of this manual will adhere to the practices and requirements stated herein. See File Nos. Pre.02-1 thru -8 of this manual for design exception/waiver information.

"CURRENT" DEFINITION AND UPDATE REQUIREMENTS:

"Current," as used in this manual, indicates the adopted version of manuals, specifications, guidelines, etc. by VDOT (design documents) at the time of the preliminary plan approval.

All projects with approved preliminary plans that have not entered the detailed design phase shall be updated to current design documents prior to proceeding.

For projects in detailed or final design phase when changes to design documents occur, the District Structure and Bridge Engineer shall determine whether updating to the newly adopted version is feasible based on possible impacts to the project.

Where changes to bridge design geometrics occur during the detailed or final design phase and the decision is made not to update to the new geometrics, a design exception/waiver is required.

For projects delayed after the Pre-Advertisement Conference (PAC) meeting, when changes to design documents occur, the District Structure and Bridge Engineer, in consultation with other Divisions, shall determine whether updates are warranted.

MANUAL STRUCTURE:

VDOT's *Manual of the Structure and Bridge Division*, Volume V, consists of the following Parts:

- Part 1, Preface – Manual Overview and Use
- Part 2, Design Aids – Typical Details
- Part 3, Current Details
- Part 4, Prestressed Concrete Beam Standards
- Part 5, Prestressed Concrete Slab Standards
- Part 6, Cast-In-Place Concrete Slab Spans
- Part 7, Steel Plate Girder Standards
- Part 8, Steel Beam with Timber Deck Superstructure Standards
- Part 11, Geotechnical Manual for Structures
- Part 12, Sound Walls – Architectural Treatment

Part 1 consists of individual sections providing a manual overview, design exception/waiver information and other general information regarding the manual and its use.

Part 2 consists of individual chapters each covering a particular area.

Part 3 includes standards sheets and Notes to Designer for approach slabs, bearings, joints, parapets, rails and barriers, fencing details, utilities (gas and water lines, lighting and telephone conduits), etc.

Parts 4 through 8 and 12 contain standard sheets and Notes to Designer pertaining to the areas indicated by their titles.

Part 11 consists of individual chapters each covering a particular geotechnical area (e.g., deep foundations, earth retaining structures, etc.).

Notes to Designer in Parts 3 thru 8 and 12 specify use and required information to be completed on each of the standard sheets. Chapters in Parts 2 and 11 that currently do not contain information are denoted as "Under Development."

The standards, details, and design aids included in this manual are provided for informational purposes only. VDOT does not warranty any of the information contained therein. It is the responsibility of the designer/engineer to perform their due diligence to ensure that the designs, details, calculations are adequate/appropriate for the specific design with the applicable specifications.

RELEASE LETTERS (MEMORANDA):

Prior to the Table of Contents for each part of VDOT's *Manual of the Structure and Bridge Division*, all the release letters (memoranda) are compiled sequentially with the most recent date appearing in the front. These release letters contain a listing of all voided, new issue and revised sheets. For revisions, a description of changes is included for each File Number.

PART 2, DESIGN AIDS – TYPICAL DETAILS:

Design Aids – Typical Details, typically referred to as “the Office Practice”:

- establishes the specific requirements, practices and/or guidelines of the Structure and Bridge Division for design, detailing and use of specific components;
- establishes the practices for geometric layout of bridges including face-to-face of curb/rail widths, vertical and horizontal clearances, etc.;
- establishes the practices for general drafting provisions for the development of plans;
- establishes the practices for the completion of specific sheets for a plan assembly;
- provides design aids and sample calculations where appropriate;
- provides cross references to other sections, chapters and parts of this manual and other VDOT references.

The practices and requirements are intended to supplement and/or clarify the requirements of the AASHTO LRFD and/or AASHTO standard specifications and to provide additional information to assist the designer. In the event of discrepancies between the practices and the requirements set forth herein and those contained in the AASHTO LRFD and/or AASHTO standard specifications, the more stringent requirement shall govern.

Each developed chapter of Part 2 contains an Introduction. Where a recent release involves a change to past practice including new requirements, those items can be highlighted in the Introduction to raise general awareness. After an appropriate interval, these changes are removed from the list and/or replaced by more recent changes to past practices. To check when these changes occurred, the associated sheet dates can be reviewed followed by the release letters to confirm. Sheet dates are updated each time an update is made and indicates the last time the sheet was revised or issued.

SUPPORT / HELP:

This manual may be found on the Internet at:

<http://www.virginiadot.org/business/bridge-manuals-default.asp>

All parts of the manual are in PDF format. Microstation DGN files are included as attachments to the PDF files for Part 3 thru Part 8 and Part 12. Users of this manual shall check the website regularly for updates.

Refer to the website for individual contact information for specific portions of this manual and other documents maintained by the Structure and Bridge Division. Questions/comments may also be forwarded to the Structure and Bridge Division Engineering Services Program Area using the following email address: SBEngineeringservices@vdot.virginia.gov.

GENERAL DESIGN EXCEPTION / DESIGN WAIVER / DESIGN APPROVAL INFORMATION:

Design geometrics, structural design and other requirements that do not meet AASHTO and/or VDOT practices and specific requirements will require a design exception, design waiver or design approval. Known design exceptions / waivers / approvals shall be obtained prior to preliminary design approval. Designers and contractors shall not assume design exceptions / waivers / approvals will be approved.

The users of this manual are expected to adhere to the General Drafting Procedures provided in Chapter 1 of Part 2 and specific drafting requirements in successive chapters of Part 2. Where VDOT review comments indicate non-conformance to these procedures and requirements, the Designer is required to adhere and shall update the plans prior to final submission.

Concessionaire/Design-Builder shall not submit any proposal containing design exceptions/waivers/approvals unless such design exceptions/waivers/approvals have been authorized or approved by the Department during the procurement process. Also, Concessionaire/Design-Builder shall not submit any new design exceptions/waivers/approvals in the final design for the project unless such design exceptions/waivers/approvals have been authorized and approved by the Department.

Any structures built without Structure and Bridge Division involvement that do not meet AASHTO and/or VDOT practices and specific requirements will not be accepted into VDOT's system for maintenance.

Approval authority for design exceptions, design waivers and design approvals shall be as noted in this manual, Instructional and Informational Memoranda or other VDOT publication and summarized on File No. Pre.02-8.

DESIGN EXCEPTIONS:

The FHWA has established the following 13 controlling criteria requiring formal approval:

- Design speed
- Lane width
- Shoulder width
- Bridge width
- Structural capacity
- Horizontal alignment
- Vertical alignment
- Grade
- Stopping sight distance
- Cross slope
- Superelevation
- Lateral offset to obstruction (not clear zone)
- Vertical clearance

The FHWA's Virginia Division Office has established access control along the Interstate as the 14th controlling criterion. Per memorandum dated January 15, 2003 between VDOT and FHWA, a design exception must be prepared for FHWA review and approval for any break in access control within:

- Rural areas: 300 feet of a ramp terminal (as defined by the current AASHTO *A Policy on Geometric Design of Highways and Streets*, the Green Book);
- Urban areas: 100 feet of a ramp terminal (as defined by the Green Book).

In addition, the State Structure and Bridge Engineer has identified the following items as requiring a design exception:

- Modifications to VDOT parapet/rail standards except as indicated in Part 2, Chapter 5 of this manual;
- Proposed new crash-tested parapets/rails (other than VDOT).

DESIGN EXCEPTIONS (cont'd.):

The bridge designer, through the District Structure and Bridge Engineer, is required to submit a design exception when:

- The design geometrics do not meet those noted in the current AASHTO *A Policy on Geometric Design of Highways and Streets* or other AASHTO minimums and/or
- The bridge design and/or other requirements do not meet the current AASHTO *LRFD Bridge Design Specifications*, or other AASHTO minimums.

Design exceptions shall be requested for all structures and/or bridges on the Interstate, Primary and Secondary Systems that do not meet AASHTO minimum design standards regardless of who owns or maintains the structure and/or bridge.

Design exceptions for bridge width, structural capacity, horizontal clearance (other than clear zone) and vertical clearance (on and/or under) are typically requested by the bridge designer, through the District Structure and Bridge Engineer, to the State Structure and Bridge Engineer.

Where bridge approach work is involved (road plans may or may not be developed), early coordination between the road designer and bridge designer is required.

Design exceptions for roadway geometrics approved by the State Location and Design Engineer do not necessarily indicate that the bridge geometrics are automatically approved by the State Structure and Bridge Engineer. Present and future costs for bridge widening, sight distance, etc. will need to be considered. Normally, the roadway and bridge designers will make separate requests.

The policy for design exceptions as outlined in the current IIM-LD-227 / IIM-S&B-70 shall be followed. As noted in the joint IIM, design exception requests should have:

- Adequate justification regardless of the funding source;
- Mitigation measures to minimize affects of deviation including future improvements;
- Accident analysis;
- Estimate of the cost to attain full standards to determine safety benefits.

Form LD-440 shall be used and submitted as follows (except as noted on the following sheet for pedestrian and/or bicycle facilities):

To: State Structure and Bridge Engineer

From: District Structure and Bridge Engineer (or Designee)

Submitted/Prepared by: The responsible person for sealing and signing (See current IIM-S&B-79).

Via: The District Structure and Bridge Engineer to the Assistant State Structure and Bridge Engineer.

Recommended for Approval By: Assistant State Structure and Bridge Engineer for the appropriate Program Area.

PREFACE – MANUAL OVERVIEW AND USE DESIGN EXCEPTIONS / WAIVERS / APPROVALS DESIGN EXCEPTIONS

VOL. V - PART 1
DATE: 30Oct2014
SHEET 2 of 8
FILE NO. Pre.02-2

DESIGN EXCEPTIONS (cont'd.):

For all Interstate structures, structures over Interstates and selected Federal Oversight projects, approval from the FHWA will also be required. The approval request will be forwarded to the FHWA once the State Structure and Bridge Engineer approves the design exception. This process will be handled by the individual submitting the request.

Pedestrian and/or bicycle facilities:

Designers are expected to adhere to the typical sections and requirements for structures with pedestrian and/or bicycle facilities found in Part 2, Chapter 6. When it is determined to use pedestrian and/or bicycle facility geometrics on a project that are below AASHTO minimums before, on and after the bridge, a design exception only from the Location and Design Division is required.

All approved design exceptions shall be noted on the title sheet (sheet 1) of the plans above the GENERAL NOTES. See File No. 02.07-1 for more information.

DESIGN WAIVERS AND DESIGN APPROVALS:

When the design geometrics, structural design and/or other requirements meet or exceed AASHTO minimums, but do not meet the VDOT practices and specific requirements noted in this manual and/or Instructional and Informational Memoranda, the designer is required to submit a design waiver or design approval except for state aid bridge projects administered and maintained by a Local Public Agency (LPA).

State aid bridge projects administered and maintained by the LPA are to be designed in accordance with AASHTO LRFD Specifications, current edition. See Locally Administered Projects (LAP) Manual for additional information.

VDOT Structure and Bridge design waiver policy is broken down into the following subsections:

- Design geometrics (Form LD-448 required);
- VDOT Structure and Bridge Division practices and specific requirements (Form SB109 or emailed approval required);
- Modifications to VDOT Structure and Bridge Division standard sheets (may require emailed approval).

The approval authority and appropriate form (either Form LD-448 or SB109) for a design waiver shall be as indicated in each subsection and summarized on File No. Pre.02-8.

DESIGN WAIVERS AND DESIGN APPROVALS (cont'd.):

Design geometrics:

All geometric design waivers for vertical clearance require approval of the State Structure and Bridge Engineer (SBE) irrespective of System or design year ADT.

All other geometric design waivers for projects on Interstate, Primary and Secondary (where design year ADT > 750) Systems require approval of the SBE. The recommendation for approval shall be by the Assistant SBE for the Design Engineering Program Area.

All other geometric design waivers for projects on the Secondary System where design year ADT \leq 750 require approval of the District Structure and Bridge Engineer (DBE). The recommendation for approval shall be by the Assistant DBE for the Design Engineering Program Area. Use of RRR standards, adhering to the requirements in or referenced in Note O on File No. 06.01-4, do not require a design waiver. A copy of geometric design waivers approved by the DBE shall be forwarded to the SBE.

Use of Very Low-Volume (design year ADT \leq 400) standards require design approval from the DBE by email documented to the project file or by approval of the Stage 1 report for preliminary approval where utilized on a project.

Form LD-448 shall be used and areas noted on the form shall be addressed. Traffic data shall include ADT, design ADT (including year), DHV, D and %T.

Design waivers are not required when design geometrics exceed those noted in Part 2, Chapter 6 of this manual. The following cases are examples of where increases in design geometrics are warranted:

- Increased bridge width due to minimum number of lanes and/or lane width to be maintained during staged construction;
- Increased bridge width for precast voided slab bridges to use standard width box shapes;
- Increased bridge width for horizontal sight distance;
- Increased bridge width to simplify the design and/or construction for structures with flat curve geometrics (i.e., straight in lieu of curved alignment on bridge).

Pedestrian and/or bicycle facilities:

Designers are expected to adhere to the typical sections and requirements for structures with pedestrian and/or bicycle facilities found in Part 2, Chapter 6. When it is determined to use pedestrian and/or bicycle facility geometrics on a project that do not meet those found in Part 2, Chapter 6 of this manual before, on and after the bridge, a design waiver only from the Location and Design Division is required.

One-lane bridges:

VDOT's general policy is not to build one-lane bridges. However, it is recognized that some conditions may warrant a one-lane bridge. New one-lane bridges, including full replacement of one-lane bridges, require a design waiver to be approved by the SBE. In addition to the normal design waiver request, a letter shall be provided from the locality or county requesting the one-lane bridge. Design waivers for new one-lane bridges can only be considered when the design year ADT is less than or equal to 400.

One-lane superstructure or deck replacement projects meeting the criteria found on File No. 06.02-15 do not require a design waiver.

DESIGN WAIVERS AND DESIGN APPROVALS (cont'd.):

VDOT Structure and Bridge practices and specific requirements:

Design Waiver categories:

Non-geometric design waivers for Structure and Bridge practices and specific requirements require approval of the State Structure and Bridge Engineer (SBE) using Form SB109 for the design waiver categories designated below:

- LRFD Load Modification (load modifiers, live load, etc);
- Use of Allowable Stress Design on widening and rehabilitation projects;
- Span to depth ratio;
- Deflections;
- Fracture critical structures where design year ADT is greater than 400;
- Use of A709 Grade HPS 50W (except for Fracture Critical members) and HPS70W structural steel and hybrid steel girders;
- Use of A709 Grade 70W structural steel on Fracture Critical elements of steel pier caps and steel box (tub) girders;
- Use of post tensioning in bulb-T and AASHTO girders, pier caps and straddle bents;
- Use of segmental girders;
- PS beam specified concrete strength $f'c > 10$ ksi;
- Prestressed beam debonding;
- Prestressed box beam or voided slab use outside the roadway functional classifications and/or deck/overlay requirements;
- Use of non-VDOT approved sections (i.e., deck bulb-T, double-T, inverted-T and other sections not currently included in this manual) or research projects;
- Corrosion Resistant Reinforcing (CRR) steel substitutions;
- Bridge layouts beyond the limitations set forth in the Abutment Type Selection Criteria and Selection Algorithm;
- Use of conventional abutment with joint;
- When the jointless philosophy cannot be achieved using the Virginia Alternate Abutment (i.e., pier joint required);
- Sign structure parapet mounts and/or use of adhesive anchors beyond the limitations set in current IIM-S&B-76;
- Ancillary structures except as noted in current IIM-S&B-89.

Design Approvals:

Items not adhering to VDOT Structure and Bridge practices and specific requirements found in this manual, Instructional and Informational Memoranda or other VDOT publications not listed specifically above as design waivers require design approval from the District Structure and Bridge Engineer (DBE) unless the approval authority is specifically indicated otherwise. These include, but are not limited to, items where the terms “shall”, “minimum” or “maximum” are indicated or a non-conditional statement is made. The DBE can consult with the SBE where safety of the public is involved.

The DBE (or other approval authority where specifically indicated) can approve such items by email documented to the project file and does not require a design waiver. On projects utilizing a Stage 1 report for preliminary approval, known items requiring approval can be documented in and approved by the DBE. Forwarding a copy of design approvals, approved by the DBE, to the SBE is not required, but forwarding to SBEngineeringServices@vdot.virginia.gov is recommended to assist identifying possible future adjustments to Structure and Bridge Division design practice.

DESIGN WAIVERS AND DESIGN APPROVALS (cont'd.):

Modifications to VDOT Structure and Bridge Standard Sheets:

In Parts 3 thru 8 of this manual, the following is noted:

If a standard sheet is modified by the designer, the letters "MOD." (without quotes) shall be added behind the standard designation in the lower left portion of the border . . . Completing items on the standard that are indicated in the NOTES TO DESIGNER are not considered to be modifications. Minor modifications do not require approval (except for those proposed by Concessionaire/Design-Builder where emailed approval by the District Structure and Bridge Engineer documented to the project design file is required for any modification). See Part 1 of this manual, File No. Pre.02-6 for definition of minor modification.

Modifications not considered minor as defined in File No. Pre.02-6 require email approval by the District Structure and Bridge Engineer documented to the project design file unless a design exception is required.

Modifications are considered minor and do not require approval (except for those proposed by Concessionaire/Design-Builder where emailed approval by the District Structure and Bridge Engineer documented to the project design file is required for any modification) when they:

- Update the standard per specific design requirements for the particular bridge excluding parapet/railing standards (e.g., increase plate thickness, weld size, anchor bolt diameter, etc.);
- Extend the use of a standard past the authorized limits for use by performing calculations to show the standard is still valid (e.g., extend the use of a BWL, water line system, standard to a beam spacing beyond the maximum spacing indicated in the Notes to Designer for that particular standard);
- Adjust details to fit the particular geometry of a project without changing the basic concept or manner in which the standard functions (e.g., adjust bridge conduit system standard for particular abutment type, approach slab and/or sleeper pad details at end of bridge);
- Swap out particular details preferred by and authorized by the District that do not change the basic concept or manner in which the standard functions.

Modifications are **not** considered minor and require email approval by the District Structure and Bridge Engineer documented to the project design file (except when designated as a design exception) when they:

- Do not adhere to the AASHTO *LRFD Bridge Design Specifications*, or other AASHTO requirements (design exception approval required);
- Do not meet VDOT standard practices and specific requirements noted in this manual;
- Replace the standard details with another system or non-VDOT shape;
- Alter the basic concept or manner in which the standard functions;
- Modifications to VDOT parapet/rail standards require design exception approval except as indicated in Part 2, Chapter 5 of this manual.

DESIGN WAIVERS AND DESIGN APPROVALS (cont'd.):

Modifications to VDOT Structure and Bridge Standard Sheets (cont'd.):

The examples provided above cover most, but not all, criteria for determining whether a proposed modification is considered minor. When a designer is unclear whether the proposed modification is considered minor, the designer shall contact the Structure and Bridge Engineering Services Program Area for a determination using the email address below.

When a designer determines a modification to a standard may be required due to industry changes (product availability, common practice, etc.), the designer shall contact the Structure and Bridge Engineering Services Program Area to assist identifying necessary standard changes and for confirmation/ approval using the following email address:

SBEengineeringervices@vdot.virginia.gov.

Use of a VDOT Structure and Bridge standard sheet requires sealing and signing by the responsible person in addition to the existing seal and signature. Modification(s) not considered to be minor require removal of the existing seal and signature from the standard sheet and the sheet to be sealed and signed by the responsible person.

SUMMARY TABLE:

DESIGN EXCEPTIONS:			
Area	Criteria	Form	Approval Authority
All (except noted below)	-----	LD-440	SBE
Pedestrian and/or Bicycle Facilities	Geometrics below AASHTO minimums before, on and after the bridge	LD-440	Location and Design Division

DESIGN WAIVERS AND APPROVALS:			
Area	Criteria	Form	Approval Authority
Design Geometrics	Interstate, Primary and Secondary (where design year ADT > 750) Systems. Vertical clearance for all systems.	LD-448	SBE
	Secondary System where design year ADT ≤ 750 excluding vertical clearance. Approved LD-448 to be forwarded to SBE.	LD-448	DBE
	Pedestrian and/or bicycle facility geometrics that do not meet those found in Part 2, Chapter 6 of this manual before, on and after the bridge	LD-448	Location and Design Division
	New one-lane bridges, including full replacement of one-lane bridge, when design year ADT ≤ 400 with Locality or County letter requesting one-lane bridge	LD-448	SBE
VDOT Structure and Bridge Practices and/or Specific Requirements	Categories requiring design waiver as listed in File No. Pre. 02-5	SB109	SBE
	Items requiring design approval as defined in File No. Pre.02-5 unless specified elsewhere	Email response approving item	DBE
	Items where approval authority specifically noted elsewhere	Email response approving item	As noted
Modifications to VDOT Structure and Bridge Standard Sheets	Changes not considered minor (as defined in File No. Pre.02-6)	Email response approving change	DBE
	All modifications proposed by Concessionaire/Design-Builder	Email response approving change	DBE

The following acronyms are used above for approval authority:

SBE = State Structure and Bridge Engineer

DBE = District Structure and Bridge Engineer

**PREFACE – MANUAL OVERVIEW AND USE
DESIGN EXCEPTIONS / WAIVERS / APPROVALS
SUMMARY TABLE**

VOL. V - PART 1
DATE: 30Oct2014
SHEET 8 of 8
FILE NO. Pre.02-8