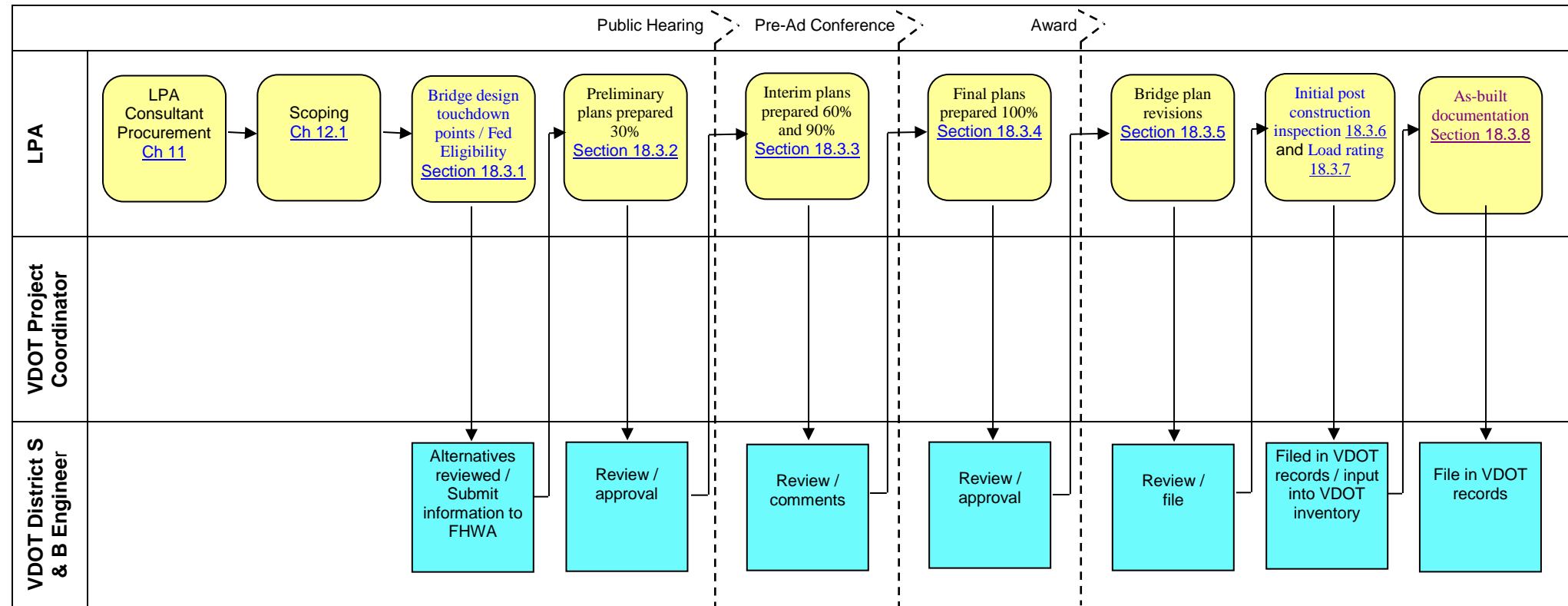


**PART 3**  
Standards and  
practices for LAP  
**Chapter 18**  
Structure and Bridge

# Locally Administered Projects (LAP) Manual

# CHAPTER 18 – STRUCTURE AND BRIDGE



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## 18.1 INTRODUCTION

The chapter sets out the processes and responsibilities associated with determining funding eligibility and touchdown points for bridges, submitting bridge plans for review at various stages of the plan development, performing the initial inspection of the bridge and performing the structure load ratings and submitting the as-built documentation. This chapter also identifies VDOT's role in review for bridge plans and other documents. Many of the details associated with project development are not repeated in this chapter as the focus is on those additional activities required when a project includes a bridge. **The term bridge when used in this chapter will apply to any structure not defined as a culvert and typically has a deck, superstructure and substructure components.**

There are federal and state funds specifically designated to be used on qualifying deficient bridges. It is very important that all bridges that qualify for these federal and state bridge funds are evaluated to determine eligibility and the bridge project limits based on approach touchdown points for the use of federal and state bridge funds. On December 4, 2015, the Fixing America's Surface Transportation Act, or "FAST Act" was signed into law to provide long-term funding certainty for surface transportation. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2020 and includes an off-system bridge requirement similar to the requirement in MAP-21. FAST Act also allows bridge funding under other program areas like the National Highway Freight Program and the Surface Transportation Program Block Grant.

It is very important that bridge plans are reviewed at several different stages of project development to ensure any issues are addressed at the earliest point possible and that all bridges are being designed in accordance with applicable standards. All bridges, except as noted below, must be designed and maintained in accordance with all applicable AASHTO design specifications as well as appropriate VDOT [Structure and Bridge Manuals, Guides and Instructional and Informational Memoranda](#). Applicable references are noted in the Regulatory and Other References/Links section of this

chapter. Most of the applicable VDOT manuals are available through VDOT’s external Web page at [Structure and Bridge Manuals](#).



LPA administered and maintained bridge projects shall be designed in accordance with AASHTO LRFD Design Specifications, latest edition or seek a design exception.

## 18.2 APPLICABILITY

This chapter is applicable whenever a locally administered project includes any bridge(s).

## 18.3 PROCEDURES AND PROCESSES

### 18.3.1 Establishing Bridge Project Limits (Touchdown Points)

<b><i>Bridge Project Limits (Touchdown Points)</i></b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X

Bridge Project Limits (touchdown points) must be established for bridges that may be eligible for state funding and/or federal bridge funding to include any old Highway Bridge Program funding (formerly known as the Highway Bridge Replacement/Rehabilitation Project Program). This section provides guidance on determining project eligibility, establishing project limits and requesting funding approval from the Federal Highway Administration (FHWA) for such projects in accordance with the current [IIM-S&B-83](#) Bridge Touchdown Points.

Upon request from the LPA, VDOT will determine the eligibility of federal and state funding for those structures classified as Structurally Deficient or Functionally Obsolete in the Department’s Bridge Inventory Records and will rely on the LPA to provide the

necessary information to accomplish this. Every year the Central Office Structure and Bridge's dedicated bridge fund coordinator provides a list of eligible candidate bridges to the District Structure and Bridge Engineers, and it is the responsibility of the District Structure and Bridge Engineers to submit their final districtwide candidates for federal and state funds. They will coordinate with District Residencies and Localities when submitting their annual priority lists.

When requesting funding for federal-aid and/or state-aid projects, the LPA Project Manager will submit the scoping report and the current bridge inspection report (for bridges maintained by the LPA) to the VDOT Project Coordinator, along with a request for determination of funding eligibility and a completed form SB107 (Bridge Funding Program Determination of Bridge Project Limits (Touchdown Points)). The VDOT Project Coordinator will then submit the data to the District Structure and Bridge Engineer.

VDOT will then respond to the LPA Project Manager and indicate whether the structure is eligible for federal or state funding. VDOT's actions are described below:

- *Once the candidate bridge is selected the District Structure and Bridge Engineer will submit the LPA's scoping report, current Structural Inventory and Appraisal (SI&A) record and the current inspection report to the Assistant State Structure and Bridge Engineer for Inspection of Structures. The report should include the front sheet from the road and bridge plans, if available.*
- *In addition to providing the above information, the District Structure and Bridge Engineer should:*
  - *Determine the eligibility and establish the project limits, if applicable, in accordance with [IIM-S&B-83](#). If the project is eligible, the VDOT Project Coordinator should specifically say so. If the project is not eligible it should not be sent to the Central Office for review.*
  - *Submit completed Form SB107 (Bridge Funding Program Determination of Bridge Project Limits (Touchdown Points))*

- *The Assistant State Structure and Bridge Engineer for Inspection of Structures will review and approve or reject the request and, if necessary, submit to FHWA for funding approval.*
- *The Assistant State Structure and Bridge Engineer for Inspection of Structures will advise the VDOT Project Coordinator and Central Office dedicated bridge fund coordinator of the eligibility of the approach work for federal and/or state funds for the subject project.*
- *The VDOT Project Coordinator will notify the LPA Project Manager of the VDOT/FHWA determination and availability of federal and/or state funds for the project.*

### 18.3.2 Preliminary Bridge Plans

<b>Preliminary Bridge Plans</b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X*

\*LPA administered and maintained bridge projects shall be designed in accordance with AASHTO LRFD Design Specifications, latest edition. VDOT oversight to these designs is limited to technical assistance as requested by the LPA.

Preliminary bridge plans (also referred to as TS&L or Stage I plans) are submitted to the VDOT Project Coordinator prior to the Public Hearing, posting of a willingness to hold a public hearing or the Right of Way Authorization. In addition to applicable AASHTO and VDOT Structure and Bridge Manuals, Guides and Instructional and Informational Memoranda, plan development will also conform to the plan requirements in the [Manual of the Structure and Bridge Division](#) Volume V – Part 2 Design Aids/Typical Details. If the preliminary bridge plans require a design exception or waiver, it must be submitted in accordance with the current [IIM-S&B-70.7](#) Design Exceptions/Waivers.



The LPA will submit the following for each bridge:

- Electronic files (.dgn and single page .pdf) of the Type, Size & Location Plans (to include Grade, Profile and Elevation (GP&E), Typical Section and Typical Substructure Unit Type).
- Stage I Report
- Estimated preliminary bridge cost for each bridge alternative.
- The LPA Project Manager should also submit supporting documentation to facilitate the review of the preliminary bridge plans. This may include, but not limited to the following: road plans, hydrologic and hydraulic analysis (when applicable), geotechnical report and boring logs (if available) and bridge situation plans (when necessary).

After the approval of these plans by VDOT, the LPA Project Manager will be given a written Notice to Proceed (NTP) to continue with the final bridge design (Stage II) for each bridge on the project. VDOT will archive the approved preliminary bridge plans in VDOT's FALCON plan system.

*VDOT Responsibilities:*

- *The Project Coordinator will submit the Preliminary Bridge Plans and supportive documentation to the District Structure and Bridge Engineer for review and approval actions.*
- *VDOT will review the preliminary bridge plan submittals within 15 business days upon receipt by the VDOT Project Coordinator.*
- *The District Structure and Bridge Engineer or the Assistant State Structure and Bridge Engineer (Design Engineering Program Area) on Tier 2 projects will review and approve the Preliminary Bridge Plans and document approval in accordance with SB102 – Preliminary Bridge Plan Approval. Any structures requiring the Federal Highway Administration (FHWA) approval will be submitted as outlined in SB101 – Preliminary Plan Distribution to FHWA.*



- *The District Structure and Bridge office will be responsible for uploading the files to VDOT’s FALCON plan system.*
- *The Project Coordinator will authorize the LPA Project Manager to proceed with final bridge design (Stage II) upon approval of the Preliminary Bridge Plans by the District Structure and Bridge Engineer or the Assistant State Structure and Bridge Engineer (Design Engineering Program Area) on Tier 2 projects and FHWA, when applicable.*

### 18.3.3 Interim Bridge Plans

<b><i>Interim Bridge Plans</i></b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	N/A

The interim bridge plans are typically submitted at the 60 percent and 90 percent completion stages or as requested by VDOT. During the review of interim (in-progress) bridge plans (referred to as Stage II plans), VDOT provides input regarding the conformance of bridge plans and/or contract documents with AASHTO specifications and VDOT’s specifications and standards to include plan requirements in the [Manual of the Structure and Bridge Division](#) Volume V – Part 2 Design Aids/Typical Details. Bridge plans completed to the 60 percent stage are submitted to the VDOT Project Coordinator for review prior to the scheduled Field Inspection (FI). Bridge plans completed to the 90 percent stage are to be submitted to the VDOT Project Coordinator for review prior to the scheduled Pre-Advertisement Conference (PAC).



The LPA will submit the following for each bridge:

- Two sets of half-size prints and single page .pdf files of the interim bridge plans
- Current estimated construction cost for each bridge

*VDOT Responsibilities:*

- *The Project Coordinator will submit the interim bridge plans to the District Structure and Bridge Engineer for review.*
- *VDOT will review the bridge plan submittals within 15 business days upon receipt by the VDOT Project Coordinator.*
- *The Project Coordinator will advise the LPA Project Manager of VDOT's written review comments on the interim plan submittals.*

### 18.3.4 Final Bridge Plans

<b><i>Final Bridge Plans</i></b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X*

\*LPA administered and maintained bridge projects shall be designed in accordance with AASHTO LRFD Design Specifications, latest edition. VDOT oversight to these designs is limited to technical assistance as requested by the LPA.

Final bridge plans are to be submitted at the PS&E review, along with final contract documents as described in Chapter 12.6. Final bridge plans shall be developed in accordance with AASHTO Specifications and VDOT Structure and Bridge Manuals, Guides and Instructional and Informational Memoranda. Plan development will also conform to the plan requirements in the [Manual of the Structure and Bridge Division Volume V – Part 2 - Design Aids/Typical Details](#).

Final bridge plans are to be sealed and signed in accordance with the current [IIM-S&B-IIM79.3](#) – Sealing and Signing of Plans and Documents.



The LPA Project Manager will submit the following for each bridge:

- Electronic files (.dgn and single page .pdf) of the Contract Bridge plans
- Reproducible drawing of the sealed and signed title sheet. The title block and consultant seal will conform to Chapter 1, Section 16 (Sealing and Signing of Plans) in Volume V – Part 2 - Design Aids/Typical Details of the [Manual of the Structure and Bridge Division](#).
- Special Provisions and Copied Notes (if required)
- Estimated construction cost for each bridge, to include estimated quantities along with associated unit costs for all standard and non-standard items in the final plan submittal

*VDOT Responsibilities:*

- *VDOT will review ALL final bridge plans, special provisions and cost estimates within 15 business days prior to the advertisement of the project.*
- *The Project Coordinator will submit the title sheet to the Chief Engineer for approval (unless state funded and the LPA will maintain bridge).  
The Project Coordinator will advise the LPA Project Manager, in writing of the date that the plans have been approved for Construction*
- *The Project Coordinator will submit electronic files (.dgn and single page .pdf files) of the Approved for Construction (AFC) plans to the District Structure and Bridge Engineer for archiving. The District Structure and Bridge office will be responsible for uploading the files into the FALCON plan system.*

**18.3.5 Bridge Plan Revisions**

<b>Bridge Plan Revisions</b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	N/A

At times, bridge plans may be revised after the final bridge plan review/approval. These “field revisions” must be submitted to VDOT for review/approval in accordance with the procedures outlined in [IIM-CD-2013-12.01](#) and the [Manual of the Structure and Bridge Division Volume V](#) – Part 2 Design Aids/Typical Details, Chapter 1, Section 14 (Revisions).



The LPA Project Manager must submit the electronic files (.dgn and single page .pdf) of the plan revision to the VDOT Construction Project Monitor and distribute plan revision to the District Structure and Bridge Engineer. The LPA Project Manager will ensure that ALL required plan revisions are submitted to VDOT prior to the work being executed by the Contractor. If the field revision requires a design exception or waiver, it must be submitted in accordance with the current [IIM-S&B-70.7](#) Design Exceptions.

*VDOT Responsibilities:*

- *The Project Coordinator will submit electronic files (.dgn and single page .pdf files) for each plan revision to the District Structure and Bridge Engineer for archiving.*
- *The District Structure and Bridge office will be responsible for uploading the files of the revised plans into VDOT’s FALCON plan system.*

### 18.3.6 Initial Inspections and Inventory

<b><i>Initial Inspections and Inventory</i></b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X

Before a structure is accepted into the system of state highways, an initial inspection must be performed. Each structure, whether VDOT owned or LPA owned, will be inspected in accordance with [National Bridge Inspection Standards \(NBIS\)](#) requirements for initial and subsequent inspections. Beginning October 1, 2014,

localities/municipalities with National Highway System (NHS) bridges were required to collect Element Level Bridge Inspection Data aligned with the AASHTO Manual for Bridge Element Inspection. The AASHTO Manual identifies 3 types of elements. They are National Bridge Elements (NBEs), Bridge Management Elements (BMEs) and Agency-Developed Elements (ADEs). The District Bridge Safety Inspection Engineers (DBSIEs) will provide the LPA the format for submitting the element level bridge inspection data to VDOT for initial and subsequent inspections. Coordination for the element inspection issues will be with the DBSIEs. The initial inspection is the first inspection of a structure before it becomes a part of the highway system.

The LPA will be responsible for the performance of the initial inspection if the structure is owned by the LPA and they will submit the results to VDOT.

The results of the initial inspection and inventory are to be submitted for each bridge on the project. The LPA Project Manager will ensure the initial inspections and findings are documented in accordance with [IIM-S&B-27.7](#) – Bridge Safety Inspections.



The LPA Project Manager submits the following for each bridge:

- Initial inspection report
- Structure inventory and appraisal (SI&A) data

For structures to be maintained or owned by VDOT, the LPA Project Manager must request an initial inspection prior to project close-out.

VDOT will enter the results of ALL initial inspections and inventory into VDOT's inventory database.

*VDOT Responsibilities:*

- *If the subject bridge will be owned and maintained by VDOT, the VDOT Project Coordinator will coordinate with the District Structure and Bridge Engineer to perform the initial inspections.*

- *The Project Coordinator will confirm that the initial inspection reports are submitted to the District Structure and Bridge Engineer on **ALL** bridges before the bridges are opened to traffic.*

### 18.3.7 Structure Load Ratings

<b>Structure Load Ratings</b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X

There are very specific requirements in [23 CFR 650 Subpart C](#) of the Code of Federal Regulations that requires that all structures be load rated in accordance with the [National Bridge Inspection Standards \(NBIS\)](#). This load rating analysis shall be completed in accordance with the current [IIM-S&B-IIM-86](#)– Load Rating and Posting of Structures (Bridges and Culverts). The LPA Project Manager will ensure the “Load Rating Summary Form” is completed for each structure and that this form for all load ratings is sealed and signed by a licensed Professional Engineer (PE) registered in the Commonwealth of Virginia. VDOT will be responsible for filing the load rating reports and entering the data into the inventory database.



The LPA Project Manager will submit the following to the VDOT Project Coordinator for each bridge:

- Load rating report which includes the “Load Rating Summary Form”.
- Compact disk (CD) containing the load rating’s input files for Virtis, DESCUS or other computer program approved by VDOT.

#### *VDOT Responsibilities:*

- *The Project Coordinator will provide the LPA Project Manager with a copy of the latest safety inspection report if the LPA is required to perform a load rating on an existing structure.*

- *The Project Coordinator will submit load rating reports and supportive documentation for each bridge to the District Structure and Bridge Engineer for filing with the bridge safety inspection records.*
- *The District Structure and Bridge Engineer will confirm that load rating reports are submitted to VDOT before the bridges are opened to traffic.*
- *The District Structure and Bridge Engineer will confirm the appropriate data is submitted so that it can be entered into the inventory database by VDOT within sixty (60) days of opening the structure to traffic.*

### 18.3.8 As-Built Documentation

<b><i>As-Built Documentation</i></b>		
<i>Federal aid</i>	<i>State aid/VDOT</i>	<i>State aid/LPA</i>
	<i>Maintained</i>	<i>Maintained</i>
X	X	X*

\*The LPA must retain and make the As-Built documentation available to VDOT upon request. As-Built finals and documentation should reasonably conform to the requirements outlined in Appendix 18-A, the VDOT Post Construction Manual, and the Manual of the Structure and Bridge Division listed below.

Upon completion of the project, the LPA Project Manager will be responsible for the development and submittal of “As-Built” documents for each bridge as outlined in Appendix 18-A. The posting of finals and documentation will conform to the requirements of the [VDOT Post Construction Manual](#) and in accordance with the [Manual of the Structure and Bridge Division](#) Volume V – Part 2 Design Aids Typical Details, Chapter 1 Section 15 (As-Built Plans). The as-built documentation including plans, shop drawings and bridge situation plans (when applicable) will be submitted to the VDOT Construction Project Monitor prior to project close and acceptance.

The LPA Project Manager will ensure that the Engineer of Record (EOR) certifies that the as-built plans accurately represent field conditions; see Appendix 18-B.

The VDOT Construction Project Monitor will be responsible for placement of as-built documentation in VDOT's FALCON system. As-Built Documentation, including as-built plans, approved shop/working drawings and Bridge Situation Plans when applicable (as required in the [VDOT Survey Manual](#)) are to be submitted for each bridge on the project.



The LPA Project Manager will submit to VDOT the following for each structure:

- Electronic format of As-Built bridge plans.
- Approved Shop and Working Drawings
- Bridge Situation Plans (when applicable)

*VDOT Responsibilities:*

- *The Project Coordinator will ensure that as-built documentation for ALL bridges has been received by VDOT prior to project Close and Acceptance.*
- *The Project Coordinator will submit as-built documentation for each bridge to the District Structure and Bridge Engineer.*
- *The District Structure and Bridge Engineer will confirm the as-built documentation is tiffed/scanned and placed in VDOT's FALCON system.*



## 18.4 KEY SUBMITTALS/REQUIREMENTS

<b>Task/Submittal/File Documentation</b>	<b>LPA Responsibility</b>	<b>VDOT PC Responsibility</b>	<b>Submittal Timing/Recordkeeping Requirements</b>
<b>Establishing Bridge Project Limits</b>			
Submit preliminary information to initiate funding eligibility in accordance with IIM-S&B-83 – Bridge Project Limits (Touchdown Points)	LPA PM submits the following to VDOT PC for each bridge: <ul style="list-style-type: none"> <li>• Scoping report</li> <li>• Current bridge inspection report</li> <li>• Completed Form SB-107 – Federal Highway Bridge Program Determination of Touchdown Reports</li> </ul>	VDOT PC submits scoping report, completed Form SB-107 and current inspection report to the District Structure and Bridge Engineer  District Structure and Bridge Engineer submits scoping report, current inspection report, form SB-107 and the current Structural and Appraisal (SI&A) record to the Assistant State Structure and Bridge Engineer for Inspection of Structures  VDOT PC will communicate approval of federal funds	If VDOT determines bridge is eligible for federal bridge funds, the Form SB-107 FEDERAL HIGHWAY BRIDGE FUNDING PROGRAM DETERMINATION OF TOUCHDOWN POINTS is submitted to FHWA for funding approval.
Authorization of federal bridge funds	LPA PM will verify federal funds are authorized before expenditures	VDOT PC will notify LPA PM when funds are authorized	N/A
<b>Reviewing Bridge Plans</b>			
Submit preliminary bridge plans (TS&L)	LPA PM submits the following to VDOT PC for each bridge:  Electronic files (.dgn and .pdf) of the Preliminary bridge plans (TS&L-Type, Size & Location) Plans Stage I Report	VDOT PC submits the Preliminary Bridge Plans and supportive documentation to the District Structure and Bridge Engineer for review and approval actions.  Preliminary bridge plans	Preliminary bridge plans are to be submitted to VDOT to allow review prior to the scheduled Design Public Hearing.  VDOT will review the preliminary bridge plan submittals within fifteen (15)

	<p>Estimated cost for each bridge alternative. Supportive documentation to facilitate the review of the plans</p>	<p>(TS&amp;L) on Tier 2 projects will be sent to the Assistant State Structure and Bridge Engineer (Design Engineering Program Area) for his review and approval.</p> <p>VDOT PC advises the LPA PM to proceed with final bridge design (Stage II) upon approval of the preliminary Bridge Plans by the District Structure and Bridge Engineer or the Assistant State Structure and Bridge Engineer (Design Engineering Program Area) on Tier 2 projects.</p>	<p>business days upon receipt by the VDOT Project Coordinator.</p>
<p>Submit Stage II (60 percent and 90 percent) bridge plans; estimates.</p>	<p>LPA PM submits interim (in-progress) plans at the 60 percent and 90 percent completion stages for review and comments</p> <p>LPA PM incorporates appropriate changes in the final bridge plans.</p>	<p><u>VDOT PC submits the interim (in-progress) plans to the District Structure and Bridge Engineer for review and comments</u></p> <p><u>VDOT PC advises the LPA PM of VDOT's review comments on plan submittal</u></p>	<p>Stage II bridge plans are to be submitted to VDOT to allow review prior to the field inspection (60 percent) and pre-advertisement conference (90 percent).</p> <p>VDOT will review the Stage II bridge plan submittals within 15 business days upon receipt by the VDOT Project Coordinator.</p>

Submit final bridge plans	<p>LPA PM submits the following to the VDOT PC for each bridge:</p> <ul style="list-style-type: none"> <li>• Electronic files (.dgn and .pdf) of the contract bridge plans.</li> <li>• Reproducible drawing of the sealed and signed title sheet.</li> <li>• Special Provisions and Copied Notes (if applicable).</li> <li>• Estimated construction cost for each bridge</li> </ul>	<p>VDOT PC submits the final contract assembly to the District Structure and Bridge Engineer for review and approval</p> <p>VDOT PC submits the signed title sheet to the Chief Engineer for execution by VDOT</p> <p>VDOT PC advises the LPA PM the date the plans were “Approved for Construction”.</p> <p>VDOT PC submits electronic files (.dgn and .pdf) of the Approved for Construction plans to the District Structure and Bridge Engineer for archiving in VDOT’s FALCON plan system</p>	<p>Final bridge plans are to be submitted to VDOT to allow review prior to advertisement.</p> <p>VDOT will review the final bridge plan submittals within 15 business days upon receipt by the VDOT Project Coordinator.</p>
<b>Bridge Plan Revisions</b>			
Bridge Plan Revisions	<p>LPA PM Submits the following to the VDOT PC:</p> <ul style="list-style-type: none"> <li>• Electronic files (.dgn and .pdf) of the revised plan sheets</li> </ul>	<p>VDOT PC submits the revised plan to the District Structure and Bridge Engineer for archiving in VDOT’s FALCON plan system</p>	<p>Prior to the work being executed by the contractor</p>
Initial bridge inspection, required documentation in accordance with IIM-	<p>LPA PM submits the following to the VDOT PC for each bridge if the subject bridge is owned and maintained by the</p>	<p>VDOT PC will coordinate with the District Structure and Bridge Engineer to perform the initial inspection if the</p>	<p>Prior to the bridge being opened to traffic.</p> <p>District Structure and Bridge</p>

<p>SB-27 – Safety Inspections</p>	<p>LPA:</p> <ul style="list-style-type: none"> <li>• Initial inspection report</li> <li>• Structure inventory and appraisal (SI&amp;A) data</li> </ul>	<p>subject bridge will be owned and maintained by VDOT.</p> <p>VDOT PC submits initial inspection reports to the District Structure and Bridge Engineer if the subject bridge will be owned and maintained by the LPA.</p>	<p>Engineer ensures that results of ALL initial inspections are entered into the VDOT's inventory database.</p>
<p>Load rating report to include Load Rating Summary Form (sealed and signed)</p>	<p><i>LPA PM</i> submits the following to the VDOT PC for each bridge:</p> <ul style="list-style-type: none"> <li>• Load rating report which includes the "Load Rating Summary Form".</li> <li>• Compact disk (CD) containing the load rating's input files</li> </ul>	<p>VDOT PC submits the load rating reports and supportive documentation for each bridge to the District Structure and Bridge Engineer.</p>	<p>Within 60 days of opening structure to traffic District Structure and Bridge Engineer will be responsible for entering appropriate data in the VDOT's inventory database.</p>
<p>As-Built documentation (Appendix 18A)</p>	<p><i>LPA PM</i> submits the following to the VDOT PC for each bridge:</p> <ul style="list-style-type: none"> <li>• Electronic files of As-Built Bridge plans.</li> <li>• Approved Shop and Working Drawings</li> <li>• Bridge Situation Plans (when applicable)</li> </ul>	<p>VDOT PC submits as-built documentation for each bridge to the District Structure and Bridge Engineer</p> <p>District Structure and Bridge Engineer will be responsible for archiving the as-built documentation in VDOT's FALCON plan system.</p>	<p>Prior to project close and acceptance</p>

## 18.5 REFERENCES

### General

- American Association of State Highway and Transportation Officials (AASHTO) LRFD Design Specifications, 7th Edition, 2014 and VDOT Modifications
- Current IIM-S&B-80 – VDOT Modifications to the AASHTO LRFD Bridge Design Specifications, 7<sup>th</sup> Edition, 2014.
- [Manual of the Structure and Bridge Division](#) Volume V Series
- [VDOT Road and Bridge Specifications](#), current edition, including Special Provisions and Copied Notes
- Current [Road and Bridge Standards](#)

### Bridge Touchdown Points

- [23 CFR 650.405](#) – Eligible Projects
- [IIM-S&B- 83](#) - Bridge Project Limits (Touchdown Points)

### Preliminary Bridge Plans

- Current [IIM-S&B- 19.10](#) – Bridge Project/Plan Authorization and Approval Authority
- Current [IIM-S&B- 70.7](#) – Design Exceptions/Design Waiver

### Interim Bridge Plans

- Current [IIM-S&B- 19.10](#) – Bridge Project/Plan Authorization and Approval Authority

### Final Bridge Plans

- [23 CFR 630B](#) – Preparation of Plans, Specifications and Estimates
- [23 CFR 635](#) – Construction and Maintenance
- Current [IIM-S&B- 19.10](#) – Bridge Project/Plan Authorization and Approval Authority
- Current [IIM-S&B-79.3](#) – Sealing and Signing of Plans and Documents

### Bridge Revisions

- Current [IIM-S&B- 19.10](#) – Bridge Project/Plan Authorization and Approval Authority
- Current [IIM-S&B- 70.7](#) – Design Exceptions/Design Waiver
- Construction Directive Memorandum [IIM-CD-2013-12.01](#)

### **Initial Inspections and Inventory**

- [23 CFR 650 Subpart C](#) - National Bridge Inspection Standards (NBIS)
- Current [IIM-S&B 27.7](#) - Bridge Safety Inspections

### **Structure Load Ratings**

- [23 CFR 650 Subpart C](#) – National Bridge Inspection Standards (NBIS)
- American Association of State Highway and Transportation Officials ([AASHTO](#)) The Manual for Bridge Evaluation, Second Edition, 2011, including current Interims
- Current [IIM-S&B-86](#) – Load Rating and Posting of Structures (Bridges and Culverts)
- Current [IIM-S&B-79.3](#) -Sealing and Signing of Plans and Documents









### **As-Built Documentation**

- [VDOT Post Construction Manual](#), current edition
- Current [VDOT Survey Manual](#)
- American Association of State Highway and Transportation Officials (AASHTO) The Manual for Bridge Evaluation, Second Edition, 2011, including current Interims (refer to Section 2.2)

## CH 18 Structure and Bridge – Checklist

CH 18 - Structure & Bridge
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This section outlines the processes and responsibilities associated with determining funding eligibility and touchdown points for bridges, submitting bridge plans for review at various stages of the plan development, performing the initial inspection of the bridge and performing the structure load ratings and submitting the as-built documentation

<b>SUBMIT</b>	<b>COMPL</b>	<b>F</b>	<b>S-V</b>	<b>S-L</b>	<b>T-A</b>	<b>UCI</b>	<b>Requirement</b>	<b>Chapter / Section</b>
	<input type="checkbox"/>	x	--	--			Establish bridge touchdown points - Submit Completed Form SB-107	18.3.1
	<input type="checkbox"/>	x	x	x <sup>1</sup>			Verify federal funds are authorized before proceeding.	18.3.1
	<input type="checkbox"/>	x	x	x <sup>1</sup>			Prepare & submit preliminary bridge plans - Electronic files (.dgn and .pdf)	18.3.2
	<input type="checkbox"/>	x	x				Prepare/submit interim bridge plans	18.3.3
	<input type="checkbox"/>	x	x	x <sup>2</sup>			Prepare/submit final bridge plans - Electronic files (.dgn and .pdf) Tier 2 plans submitted to Ass't State S&B Engineer.	18.3.4
	<input type="checkbox"/>	x	x				Submit bridge plan revisions	18.3.5
	<input type="checkbox"/>	x	x	x			Submit Initial inspection and inventory - Initial inspection report - Structure inventory and appraisal (SI&A) data	18.3.6
	<input type="checkbox"/>	x	x	x			Develop and Submit Structure Load Ratings - Load rating report which includes the "Load Rating Summary Form".	18.3.7
	<input type="checkbox"/>	x	x	x <sup>2</sup>			Submit As-Built Documentation - Electronic files (.dgn and .pdf)	18.3.8

<sup>1</sup> LPA administered and maintained bridge projects shall be designed in accordance with AASHTO LRFD Design Specifications, latest edition. VDOT oversight to these designs is limited to technical assistance as requested by the LPA

<sup>2</sup> For State funded - Locally maintained projects, the LPA must retain and make the As-Built documentation available to VDOT upon request. As-Built finals and documentation should reasonably conform to the requirements outlined in Appendix 18-A, the VDOT Post Construction Manual, and the Manual of the Structure and Bridge Division



## **APPENDIX 18-A**

### **SUBMITTAL OF AS-BUILT BRIDGE DOCUMENTS**

## Archival of Bridge Plans:

The Structure and Bridge Division utilizes the bridge plan number (Ex: 283-38) as the reference basis for the archival of bridge documents. All submittals with same bridge plan numbers should be submitted in the same assembly.

### Procedure:

The following are the general guidelines to be used for the submittal of as-built bridge documents to VDOT:

- Plans submitted in electronic format will have the finals posted in accordance with the [Manual of the Structure and Bridge Division Volume V – Part 2 Design Aids and Typical Details File Number 01.15-1 thru 01.15-11](#).
- Plans for a particular bridge are to be assembled in the following order:
  1. Design plans in electronic format shall not be renumbered.
  2. Shop Plans/Working Drawings (Ex. 21X – 42Z\*)
  3. Bridge Situation Plan (if available) (Ex. 43Y, 44Y, 45Y, 46Z\*)

\* Suffix on last sheet in the set of paper plans, regardless of type, shall be “Z”.

The shop plans should be numbered consecutively and should be shown in pencil in the lower right-hand corner. The bridge plan number should be denoted on ALL drawings.

- Upon completion of the preparation of the “as-built” plans, a CD containing the electronic as-built documents and any paper copies of shop plans shall be transmitted to the Structural project coordinator for archiving.

APPENDIX 18-B

**CERTIFICATION OF AS-BUILT PLANS**

# CERTIFICATION OF AS-BUILT PLANS

Give the name of firm posting the finals

Give date the finals are posted

Give the name and address of who built the bridge

contractor

**As-Built - Finals Posted**

by \_\_\_\_\_ on \_\_\_\_\_

Contractor: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I certify that this set of plans accurately represents the work as constructed.

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_  
*(Title of Engineer of record)*

\_\_\_\_\_ Name of firm

The printed name, signature and name of firm/locality employing the person certifying the finals to be placed here

This block and information shown shall be located on the title sheet of each set of bridge plans certifying that the as-built plans accurately reflect the final product.