

VIRGINIA DEPARTMENT OF TRANSPORTATION

# STRUCTURE AND BRIDGE DIVISION

## INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: Bridge Project/Plan Authorization and Approval Authority	NUMBER: IIM-S&B-19.10
SPECIFIC SUBJECT:	Date: October 24, 2011
	SUPERSEDES: IIM-S&B-19.9
DIVISION ADMINISTRATOR APPROVAL:  /original signed/ Kendal R. Walus, P.E. State Structure and Bridge Engineer Approved: October 24, 2011	

Changes are shaded.

### EFFECTIVE DATE

This memorandum is effective for bridge projects advertised after July 1, 2011.

### PURPOSE

This IIM is to provide guidance on the design and plan authorization authority based on the two tiered project development which is being implemented on July 1, 2011. The two tiers are as follows:

Tier 1 = All projects < \$5M (UPC) Construction Cost and that are not Federal Oversight. Non-federal oversight bridge maintenance projects that are limited to the following activities may exceed the \$5M level:

- Bridge painting
- Bridge deck patching
- Bridge deck overlays and sealing
- Bridge Joints
- Bridge deck cleaning and washing

For other bridge maintenance projects with a Construction Cost above \$5M (UPC), the District Bridge Engineer may request that the project be designated Tier 1 thru the District Project Development Engineer.

Tier 2 = all projects > \$5M (UPC) Construction Cost (except as noted above), all projects designated as Design Build at the Scoping Stage, and any project that has Federal Oversight

### Tier 1 Bridge Projects (No Central Office Oversight)

- Project will be developed in the District following established VDOT policies, guidelines, procedures and standards to ensure consistency throughout the Commonwealth.
- The Districts will have full approval authority for these projects, with the oversight authority being determined at the project scoping, except that Federal authorizations and funding verifications must be obtained from Central Office Programming Division by the District Planning and Investment Manager (PIM).
- There will be no Central Office involvement in the project approval process except when there are deviations from AASHTO minimum standards, VDOT S&B modifications to AASHTO, VDOT S&B geometrics as shown in the Manual of the Structure and Bridge Division; environmental issues, R/W authorization; and submissions to the Commonwealth Transportation Board. AASHTO Bridge and VDOT S&B deviations shall be resolved by following established S&B design exception or waiver policies.

### Tier 2 Bridge Projects (Central Office Oversight)

- Projects shall follow all existing policies, procedures and processes, and shall include Central Office reviews and approvals during the various stages of the project development process.

## **PROJECT ASSIGNMENT AUTHORIZATION**

Tier 1 bridge project assignments will be the responsibility of the District Structure and Bridge Engineer.

Tier 2 bridge project assignments will be the responsibility of the Assistant State Structure and Bridge Engineer responsible for the Design Engineering Program in coordination with the District Structure and Bridge Engineer in which the project resides.

Close coordination of project assignments shall occur between the Central Office and District Bridge Staff to ensure that a defined office is assigned responsibility for each project.

## PRELIMINARY PLAN APPROVAL

The S&B Division Central Office/District will perform reviews and provide approval of all Stage I Preliminary Plan submissions developed by in-house staff and consultants. The preliminary plan approval authority is as shown in the following table:

<b>Preliminary Plan – Approval Authority</b>	
<b>Plan Type</b>	<b>Approval Authority</b>
Tier 1 Projects	District Structure & Bridge Engineer
Tier 2 Projects	Assistant State Structure & Bridge Engineer (Design Engineering Program Area) and FHWA where required, with input from District Structure and Bridge Engineer
Non-conventional designs and/or Bridge construction costs > \$25M (bridge cost only)	State Structure & Bridge Engineer and FHWA where required
Design Build Projects, PPP Projects and Locally Administered Projects	As indicated in the Design-Build Manual, the PPTA Implementation Manual and Guidelines, and the Locally Administered Projects (LAP) Manual

Preliminary plans for new construction and total bridge replacements shall show the layout, substructure type, superstructure typical section, any unusual or distinctive feature(s) and sequence of construction (where required). The format should consist of a bridge plan title sheet and interior bridge plan sheets as needed. Preliminary plans must be accompanied by comparative estimates for the proposed layout as well as for any alternative layouts that were considered.

For new and total replacement bridge projects, a preliminary Stage I report shall be developed. This report shall be posted in iPM after the Stage I plans have been approved.

No final design shall begin until the preliminary plan layout has been approved by the assigned approval authority. If a hydraulic study is required, the preliminary plan layout shall not be approved until the analysis has been received.

Major revisions to the span layout (i.e. a change from a two span to a three span concept) or design (i.e. a change from a fully integral abutment to a conventional abutment) concepts after preliminary plan approval will require a resubmission for authorization to proceed with the new concepts.

## PREPARATION OF PLANS

Any new bridge requiring a special design superstructure or substructure, or any repair, alteration, deck/superstructure replacement, or widening performed on an existing bridge which, in any way, affects the structural capacity or integrity of the structure must have design and/or detail plans developed showing the proposed work.

Geometrics shown in the Manual of the Structure and Bridge Division, Volume V – Part 2, Chapter 6, shall be used on all structures unless a design exception/waiver from these standards is authorized in writing by the State Structure and Bridge Engineer.

Minimum bridge widths can be exceeded subject to the approval of the assigned approval authority.

All structure plans are to be prepared in accordance with approved AASHTO Bridge Design Specifications, VDOT Modifications and the Manuals of the Structure and Bridge Division.

Plan numbers are assigned by the Central Office Structure and Bridge Division File Room.

All bridge/drainage ("B" and "D" designation) structure plans (and sketches) shall have a plan number assigned and an "As-Built" plan completed and recorded in accordance with S&B Division policy. This also applies to repair plans involving structural modifications.

### Tier 1 Bridge Projects (No Central Office Oversight)

Depending on the type of work being performed, Tier 1 bridge projects may be accomplished by utilizing 8 ½" x 11" detail sheets inserted into the contract assembly or by the use of full size drawings.

Tier 1 Bridge projects utilizing 8 ½" x 11" detail sheets may include, but are not limited to, the following types of structural work:

- a) Small drainage structures or other engineered entities with or without road improvements, such as precast concrete box culverts, structural plate arches, 3-sided concrete rigid frames, retaining walls, sinkhole remediations, etc.
- b) Bridge rail/parapet repairs
- c) Bridge repair/preventative maintenance (Regional/District wide)
- d) Bridge painting operations
- e) Minor bridge structural repairs, e.g. heat straightening beams/girders
- f) Bridge deck overlays and sealing
- g) Bridge deck cleaning and washing
- h) Bridge concrete Guniting repairs
- i) Manufactured superstructure (truss)
- j) Bridge scour countermeasures or remedial measures
- k) Culvert repairs
- l) Bridge debris removal

m) Bridge slope repairs

Tier 1 Bridge projects utilizing full size plans may include, but are not limited to the following types of structural work:

- a) Bridge Only Projects with minimal roadway approach work
- b) Special design bridges and structures
- c) Bridges or structures using standard drawings for superstructure and substructure elements (e.g., Retaining Walls, Steel Beam/Timber Deck (SS-8), C-I-P Slab Spans)

All Tier 2 Bridge projects shall use full size plan sheets.

**FHWA REVIEW/APPROVAL:**

Projects in the following categories are to be sent to FHWA for review:

- Interstate projects estimated to have a construction cost (exclusive of construction engineering and contingencies) > \$1.0 million.
- Interstate Preventive Maintenance Projects estimated to have a construction cost > \$5.0 million. The following bridge activities have been defined as “Preventive Maintenance”:
  - Seal or replace leaking joints reconstruction of joint areas during joint replacement or elimination of deck joints.
  - Deck Overlays: Thin bonded overlays, rigid overlays and asphalt overlays with waterproof membranes.
  - Spot and zone painting/coating of structural steel to include bearings for prestressed concrete members.
  - Painting/coating of structural steel.
  - Cathodic Protection (CP) Systems for Bridge Decks, substructure elements and superstructure elements other than decks.
  - Electrochemical chloride extraction treatment for deck and substructure elements.
  - Scour countermeasures installation
  - Removing large debris from channels
  - Retrofit of fracture critical members
  - Retrofit of fatigue prone details
  - Concrete deck repairs in conjunction with installation of deck overlays, CP systems, or ECE treatment.
  - Substructure concrete repairs in conjunction with installation of CP systems, ECE treatment, or galvanic anodes.
  - Application of sealants, coatings, and membranes for surface protection of the concrete.
  - Bridge cleaning and/or washing services. (Decks, joints, drains, substructure horizontal elements and superstructure)
  - Place concrete mat along the flow line of steel pipe culverts.

Note: When eligible substructure work and/or painting/coating of ends of girders under joint locations that are leaking, it is required to seal the joints. The District may request a waiver from the State Structure and Bridge Engineer to delay sealing the joints for a period not to exceed one year.

- Projects on the National Highway System (other than Interstate) estimated to have a construction cost (exclusive of construction engineering and contingencies) > \$25.0 million.

See the following link for NHS general information:

<http://www.fhwa.dot.gov/planning/nhs/>

See the following FHWA website that defines NHS Routes in Virginia:

<http://www.fhwa.dot.gov/planning/nhs//maps/va/index.htm>

- Projects not meeting the three criteria mentioned above, but have been identified by FHWA as requiring Federal Oversight.

## **USE OF STANDARD PLANS AND STANDARD DETAILS**

Maximum use is to be made of the standards and details in the various Manuals of the Structure and Bridge Division, Volume V-series. These details can easily be modified to fit a particular structure with minimum drafting needed.

## **FINAL PLAN APPROVAL**

The S&B Division/Districts will provide review and recommendation for approval for all final plan submissions developed by both the in-house staff and consultant community in accordance with the table shown on the next page.

<b>Final Plan – Approval Authority</b>	
<b>Plan Type</b>	<b>Approval Authority</b>
Tier 1 Projects	District Structure & Bridge Engineer
Tier 2 Projects	Assistant State Structure & Bridge Engineer (Design Engineering Program Area) and FHWA where required, with input from District Structure and Bridge Engineer
Non-conventional designs and/or Bridge construction costs > \$25M (bridge cost only)	Assistant State Structure & Bridge Engineer (Design Engineering Program Area) and FHWA where required, with input from District Structure and Bridge Engineer
Design Build Projects, PPP Projects and Locally Administered Projects	As indicated in the Design-Build Manual, the PPTA Implementation Manual and Guidelines, and the Locally Administered Projects (LAP) Manual.

## **FINAL PLAN SUBMISSION**

Completed bridge plan drawings in .dgn and .pdf format shall be archived in accordance with established file documentation policy. Separate plan sets shall be completed for each structure, unless the plan set includes an adjacent twin structure.

At Final Plan Submission, the bridge plans are required to be 100% complete.

After plan submission to the Scheduling and Contract Division, no changes relating to plan quality, constructability and bidability shall to be made without the approval of the Scheduling and Contract Division.

## **RECOMMEND FOR APPROVAL AUTHORITY**

For Tier 1 bridge projects, the District Project Development Engineer recommends “For Approval”, and as such, will append his/her signature and date to the title sheet of completed projects per Manual of the Structure and Bridge Division, Volume V – Part 2.

For Tier 2 bridge projects, the State Structure and Bridge Engineer recommends “For Approval” and as such will append his/her signature and date to the title sheet of completed projects per Manual of the Structure and Bridge Division, Volume V – Part 2.

CC: Chief Engineer  
Assistant State Structure and Bridge Engineers  
District Structure and Bridge Engineers  
Central Office Structure and Bridge Program Managers  
FHWA Virginia Bridge Division Engineer  
State Location and Design Engineer