



1-29 STRUCTURE TYPE SELECTION

Bridge Site Data Submittal (BSDS) and General Plan Distribution are the fundamental milestones in the DES structure design approval process. The Structure Type Selection is an internal DES project development and design approval process used to convert the information from a complete BSDS to an approved General Plan that can be distributed to all stake holders. The Structure Type Selection process consists of evaluating and selecting the structure type(s), conducting a constructability review, preparing and distributing the Structure Type Selection Report, and conducting a Structure Type Selection Meeting to obtain approval of the General Plan. As such, it is important that structure type selection/General Plan approval be obtained as early in the design process as possible. There should be no appreciable detailed design effort without the Office Chief approval. Distribution of the proposed General Plan outside the Division shall not proceed until the Structure Type Selection process is complete.

The Structure Type Selection Meeting is intended as a critical mechanism of the Structure Type Selection process for involving essential units in the project development and constructability review process prior to General Plan distribution. The meeting's primary objective is to obtain consensus on and approval for, a structure type proposed for each structure presented before starting detailed design. The meeting's general objectives and desired outcomes are part of the project development process. Among these objectives and outcomes are to:

- (1) Identify issues early on instead of at later and more critical project stages (i.e., issues with falsework clearance, traffic handling, access for construction operations, etc.)
- (2) Identify issues that impact project programming related to scope, schedule, and cost
- (3) Identify fatal flaws and risks
- (4) Update the project risk register
- (5) Evaluate foundation recommendations
- (6) Evaluate aesthetic issues
- (7) Identify potential Value Engineering Change Proposals (VECP)
- (8) Identify proprietary systems or specification issues
- (9) Check material availability
- (10) Consider Accelerated Bridge Construction (ABC) implementation.

A field review and site visit is recommended prior to the Structure Type Selection Meeting. For more information refer to Memo To Designers 1-31 "Constructability Reviews for Structures Projects".

A preliminary Constructability Review meeting between the Structure Design Team, Geotechnical Services, and Structure Construction should be held sufficiently in advance of the Structure Type Selection Meeting. A meeting at this time will help ensure that the proposed structure and foundation types are examined for feasibility and cost efficiency by the functional units most involved in their design and construction. As a result, the Structure Type Selection Meeting participants should be more focused and capable of arriving at the final selection of structure type for the project.



A Structure Type Selection meeting needs to be held for all bridges, earth retaining systems that require special designs, and other highway structures on the State Highway System except as noted in this memo. The meeting needs to be scheduled after a completed BSDS, risk register, and other appropriate information have been gathered. The Design Engineer or his/her staff must present the pertinent factors affecting the proposed structure at the meeting. The Design Engineer or staff is responsible to ensure that representatives from all functional units that may have a concern are invited. The meeting is generally comprised of the pertinent functional unit managers or their designees and should include, at a minimum, the following:

- Bridge/Structure Design Office Chiefs
- Special Funded Project Office Chief (as appropriate)
- DES Technical Specialist (as appropriate)
- Specifications Engineer and Estimator
- Project Aesthetics Architect
- Structure Maintenance Engineer
- Structure Construction Engineer
- Geotechnical Engineer
- Structure Hydraulics Engineer (as appropriate)
- District Design Manager and District Project Engineer
- DES Technical Committee Representatives (as appropriate)
- Structure Quality Management Specialist (if ABC alternative is developed)

The Structure Type Selection Memo and Report will address all pertinent issues related to the development of the General Plan. The Structure Type Selection Meeting provides a forum to discuss these issues and to reach a consensus on the design approach. For Projects involving seismic retrofit of existing bridges, the "Seismic Retrofit Assessment Form" (which can be found at the Office of Earthquake Engineering [OEE] website) needs to be completed based on an initial inspection of the As-built plans and included as part of the Structure Type Selection Report. After determining the need to retrofit based on the outcome of the Structure Type Selection Meeting and/or a Strategy meeting (refer to Memo to Designers 20-4) and final completion of the form, a copy of this form must be sent to OEE at the P&Q stage for the inclusion in their Bridge Records. In addition, deviations to the *Seismic Design Criteria* and LRFD Bridge Design Specifications shall be documented and discussed during the Structure Type Selection Meeting in accordance with Memo to Designers 20-11.

Accelerated Bridge Construction (ABC) methods are considered during the Advance Planning phase and should be explored further at the Type Selection phase. The Project Engineer needs to follow the process listed in the ABC Decision Flowchart from the ABC Decision Guidance posted on the Structure Policy and Innovations (SP&I) intranet, uses the outcome to select a recommended structure type, prepares and includes the decision making documents in the Structure Type Selection Report, and present the completed decision-making materials to the stakeholders at the Structure Type Selection Meeting. For ABC information/guidance, refer to MTD 1-8 and the ABC Decision Making Guidance.

When the proposed General Plan(s) and cost estimates have been prepared, submit a Request for Structure Type Selection Meeting (see Attachment 1) to the Design Office Technician two weeks before the Structure Type Selection Meeting to schedule the meeting. Also, distribute the Structure Type Selection Memo and Report, the proposed General Plan(s), and cost estimates to the invitees two weeks before the meeting. Electronic submittals in .pdf format are preferred with hard copies available upon



request with limited copies at the Structure Type Selection Meeting. If the two-week deadline cannot be met, the Design Branch shall deliver copies to the review panel at least three business days before the meeting.

After the meeting, the meeting minutes are prepared and follow-up actions are performed to address and resolve comments raised at the meeting. All relevant documents, including the meeting minutes, Structure Type Selection Memo and Report, and the proposed General Plans, are updated to reflect the review comment resolutions and distributed for final comments. When all comments are satisfactorily addressed, the Structure Project Engineer will obtain the approval from the Bridge Design Office Chiefs (two required), whose approval signatures are then recorded on the Structure Type Selection Memo. After the approval signatures from the office chiefs are recorded, Structure Project Engineer will proceed to transmit the General Plan to all stakeholders.

The Constructability Review process at the General Plan checkpoint is outlined in Memo to Designers (MTD) 1-31 Constructability Reviews for Structures Projects. The Functional Reviewers (FR) listed in MTD 1-31 should be the same representatives of the various functional units for the Type Selection Meeting.

For assistance in producing the documents for the Structure Type Selection Meeting, refer to Attachments 1 thru 5.

Original signed by Michael D. Keever

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