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Subject: WSDOT/ACEC Structures Team Process Change Recommendation  
Short Term No. 4: "Expectations for Design Reviews for Projects with Structures"

Dear Sponsors:

The Washington/Washington State Department of Transportation/ American Council of Engineering Companies of (WSDOT/ACEC) Structures Team has identified an opportunity for process improvement that will result in more efficient use of WSDOT and consultant workforces. Specifically, our team has determined that there are opportunities to create a better definition of submittal requirements for projects with structures. The lack of a common understanding of the purpose and content of each submittal contributes to confusion and inefficiencies in the sequence and production of design work.

Attached is a formal Process Change Recommendation that defines submittal requirements for projects with structures. The recommendation includes a discussion of the issues that are addressed by the recommendation. One of the key issues that our team encountered in preparing the attached recommendation is the labeling of submittals. Our team came to the conclusion that there are opportunities for improvement in the titles to be used to identify the individual submittals.

The use of completion percentages does not accurately describe the goal of the submittal and does not accurately reflect the actual percentage of the total effort to complete a particular submittal, particularly for what is commonly referred to as the 30 percent submittal. Structures projects with significant environmental impacts, and/or complex maintenance of traffic issues, and/or difficult right-of-way constraints can take more upfront effort than projects that don't. In order for the detailed design to proceed in an efficient manner, and be completed within a predictable time frame, the above project

elements need to be completed first, carefully reviewed, revised if necessary and then not altered again unless absolutely necessary.

A key objective of the proposal is to improve the structural design team input to, and support of, the project team design and permitting processes. To that end, members of our team have recently participated in a meeting of the WSDOT/ACEC Project Delivery Team. The project delivery team is currently working on defining submittal requirements that are consistent with the WSDOT Managing Project Delivery (MPD) Master Deliverable List (MDL.)

It was apparent at this meeting, that there is a great opportunity for the WSDOT/ACEC Structures Team to work with the Project Delivery Team to integrate our information into the master matrix that is being developed by the Project Delivery Team. We have provided initial input to the Project Delivery Team and expect further coordination will be required during the implementation phase of our proposal.

Our team recommends the WSDOT Bridge and Structures Office, WSDOT Regions, WSDOT Highways & Local Programs, Local Agencies, and the consulting engineering community adopt the attached "Expectations for Design Reviews for Projects with Structures" as a tool for project delivery.

We ask for your support and guidance to move this recommendation forward to become standard practice. To facilitate implementation, we suggest an instructional letter be included in the WSDOT Design Manual, Local Agency Guidelines, Consultant Procedures Manual, and other manuals as appropriate.

Sincerely,

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Attachments

**Process Change Recommendation**  
**Short Term Issue #4**  
***Expectations for Design Reviews for Projects with***  
***Structures***  
*WSDOT/ACEC Structures Team*

## **Problem Statement**

The content for in-progress submittals of design plans, specifications, and estimates (PS&E) are not clearly defined. “What’s turned in” does not always match “what’s expected.” In some instances the design and review cycle for the structural elements of a project may not correspond as well as they could with the design and review cycle for the entire project, taking into consideration other project concerns such as permitting, traffic control and right-of-way plan development, as all of these items may be affected by access for construction of the structures.

Lack of well-defined expectations for in-progress submittals can lead to inefficiencies in the completion of contract documents. Inefficiencies can result from any of the following:

1. Review time may be spent addressing the wrong issues (given the level of completion) and, as a result, the designer may not receive input on key design decisions at appropriate progress points.
2. Structural design work and submittal process may not support the work of other project design elements.
3. Staff assignments can change during the course of the project. If submittal expectations are not clearly defined, expectations for progress submittals can vary between reviewers with results including conflicting and confusing expectations and rework.

All of the above can result in inefficient plan completion leading to cost and schedule impacts.

## **Current Process**

Most large projects are scheduled to have plan sets printed and distributed for review at the 30, 60, and 90 percent stages of project development, without definition of what these reviews are intended to address. Plans are usually distributed to various reviewers without standards for the reviewers to follow or an accompanying design document or presentation that covers the design issues and solutions being proposed in the submittal. In addition, describing the submittals with percent complete labels inaccurately defines the design information required for the specific stages of the project design. This leads to difficulties in project deliveries.

## Desired Outcomes

Reviews are scheduled when appropriate, based on the nature of a project; the review schedule is defined at the time of project initiation. The design team and the reviewers share a common, universally understood set of expectations for each agreed-upon review, as well as the process for submission and resolution of comments.

Reviews earlier in the development of the project are given a more formal aspect to ensure that the key early decisions, on which so much future effort will be based, are acceptable to all team members and incorporate the concerns of permitting, maintenance of traffic, and/or right-of-way for construction access.

Increased efficiency by the design team and review team members working on a project will result. “What’s turned in” will more closely match “what’s expected.” Increased efficiencies will also result as the process is repeated and staff learns what is required at each step in the project development process. Project team relations will be enhanced because expectations are clearly defined and met.

## Proposal

It is proposed that submittal review requirements be defined in sufficient detail for designers, reviewers and other project stakeholders to share a common understanding of the project elements that are to be completed at any particular stage of the project. The proposed submittal reviews are as follows:

1. Permitting Submittal Review
2. Intermediate PS&E Submittal Review(s)
3. PS&E Presubmittal Review
4. Final PS&E Submittal Review(s)

The goal of each submittal review is described below. The first three represent internal design team reviews, which culminate in the completion of an “ad-ready” submittal to the WSDOT Region Plans Office for distribution to the contract review team. The final reviews are performed by the contract review team and supported by the design team as required. Guidelines for the specific content of each submittal review are provided in the attached table.

***Permitting Submittal Review*** – The Permitting Submittal is intended to present a bridge design to regulatory agencies and internal WSDOT reviewers. The Permitting Submittal shall include all bridge related information required to complete the environmental documentation for the project, as determined by the Region, in consultation with the Bridge and Structures Office, and the regulatory agencies. It will also be used to initiate the permit approval process. The completion of the Permitting Submittal is also intended to be coincident with the completion of the Bridge Preliminary Plan.

Preliminary Recommendations will be prepared in accordance with Section 2.1 of the Bridge Design Manual as part of the Permitting Submittal/Bridge Preliminary Plan design development

process. Preliminary Recommendations will document the rationale for selection of the preferred structural alternative, based on the project objectives and criteria. For major structures, this may require the preparation of a complete Bridge Type, Size, and Location Report.

Considerations include:

1. Construction Method
2. Construction Sequence and Schedule
3. Temporary Structures
4. Cost Estimate

To facilitate the Permitting Submittal review process, the items identified in the accompanying table shall be completed for the preferred structural alternative and be included with the Bridge Preliminary Plan.

***Intermediate PS&E Submittal Review(s)*** – The completion of the Intermediate PS&E Submittal(s) is intended to finalize all remaining major structural decisions required to complete the detailing of the bridge as described in the accompanying table.

***PS&E Presubmittal Review*** – The completion of the PS&E Presubmittal is intended to provide the detailed construction documents for the bridge and includes Special Provisions and cost estimate as well as all plans. Completion of the presubmittal review is required to ensure that the PS&E submittal is complete in all respects so that a thorough review of all aspects of the project’s design, not just the structures, can be completed in a coordinated manner by the contract review team. Review, correction, and completion of the presubmittal should ensure that all design team review comments have been incorporated prior to submitting documents to the Region Plans Office. In essence, the PS&E Submittal to the Region Plans Office shall be “ad ready.”

***Final PS&E Submittal Review(s)*** – The completion of the Final PS&E Submittal(s) addresses all comments on the Final PS&E Submittal provided by the contract review team.

***Ad Copy*** – The final product of the submittal review process is to be the ad copy.

The submittals described above are intended to closely match the project development process of the Northwest region. Other WSDOT Regions may have slightly different or less detailed project development guidelines. It is also recognized that projects can vary in complexity and require more or less detailed project development guidelines. However, it is anticipated that the proposed structural review process can be adapted to differing project development scenarios with a small effort. At the onset of any project, appropriate review stages, key decision points, and content for submittals may be altered as required to meet the needs of a specific project.

## **Pros**

The direct benefits are:

- Understanding of the review process.
- Clear expectations for both designers and reviewers.
- Improved project implementation in the reduction of changed conditions during construction or rework during the design phase.
- Better project team relations through improved communication and commonly understood expectations.

## **Cons**

There are no significant disadvantages to implementing the recommended process other than the labor costs associated with additional team meetings for submittal presentation or discussion of review comments. This cost is thought to be offset by improvements in project implementation.

## **Estimated Schedule for Implementation**

Upon approval of the process by WSDOT/ACEC Executive Committee, it is anticipated that it will take approximately one year to implement these recommendations on the web and in hard copy for distribution in the appropriate manuals such as the WSDOT Design Manual, Local Agency Guidelines, and other manuals as appropriate.

## **Testing**

Direct implementation of this process is recommended as it simply clarifies existing processes. Adjustments can be made as described below under quality performance measures.

## **Quality Performance Measures**

Establish regular opportunities for project managers to provide input to the WSDOT/ACEC Bridge and Structures team and recommend adjustments to the process.