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MS 47323

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Subject: WSDOT/ACEC Structures Team Process Change Recommendation
Long-Term Issue No. 4: "Determination of Bridge Project Environmental Requirements
Proposal No. 1 of 6: "Implement a Performance-Based Environmental and Engineering
Approval Process"

Dear Sponsors:

The Washington State Department of Transportation/American Council of Engineering Companies (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 improve the process for obtaining environmental approvals for projects.

Currently, designs may be advanced beyond the preliminary stage before the cost and constructability ramifications of specific environmental objectives and requirements are fully understood. This late involvement of structural engineers, as well as regulatory agencies, can cause a "design and defend" response by WSDOT. In addition, permit conditions are not easily coordinated between the different agencies and, in some instances, may even have conflicting requirements. Often, the permit conditions are too prescriptive and, therefore, inhibit the use of common and cost-effective construction techniques.

Our team has identified six actions that can be taken to improve the current process. The six proposals, listed in order of our team's perception of relative importance, are as follows:

Proposal No. 1: Adopt a performance-based environmental approval system and use it as much as practical.

Proposal No. 2: Establish process for utilizing WSDOT standard specifications in environmental documents and permits.

Proposal No. 3: Document and track environmentally-related structural design decisions in order to establish precedents for design of future projects.

Proposal No. 4: Establish a program to monitor and influence potential changes to environmental/permitting rules and regulations at the local level resulting from modifications to GMA/SMA planning.

Proposal No. 5: Provide cross training of environmental and engineering design staff.

Proposal No. 6: Prepare a new chapter for the Bridge Design Manual (BDM) dealing with construction methods.

A detailed description of the first of these six recommendations is attached. Detailed descriptions of the other five recommendations will be developed and submitted separately. In most cases, the scope of the six recommended actions is beyond our committee's ability to implement directly. These recommendations are offered for improvements to be implemented by WSDOT on a broader scale. A key objective of the proposals is to improve the structural design team input to, and support of, the project team design and permitting processes.

We ask for your support and guidance to move these recommendations forward to become standard practice.

Sincerely,



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Attachments

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Process Change Recommendation Proposal No. 1

“Implement a Performance Based Environmental and Engineering Approval Process”

Proposal Description:

This process change recommendation addresses how the current process could be improved with the implementation of a system that uses environmental performance standards that may simplify obtaining environmental approvals on some projects.

What are performance standards?

A performance standard is an integrated, consistent set of terms and conditions that meet the regulatory requirements and is agreed upon in advance by the permitting agencies and the owner. Performance standards are goal-oriented, and offer flexibility in implementing context-sensitive environmental protection measures. Rather than prescribe how an activity must be done, performance standards set the thresholds for that activity’s effects, leaving room for flexibility and creativity in how the standards are met. For example:

- **Fluvial.** At the highest level, this performance standard states: “Allow normative physical processes within the stream-floodplain corridor.” The standard then outlines high-level requirements, including criteria for the design and location of bridge support structures. The design team will use these requirements, along with conditions at the specific site, to determine optimum span lengths and bridge support locations.
- **Habitat Avoidance.** This performance standard deals with stream bank protection and limits actions to those “not expected to have long-term adverse effects on aquatic habitats.” It then lists a variety of approved protection techniques, leaving project personnel to choose the most effective and economical measures for a particular site.

Performance standards define the acceptable level of effect that a project activity may have upon the environment. Impacts to the environment are limited or avoided through the use of proper design, construction, and construction-related practices. To meet the goals of the performance standards, projects will be restricted to the terms and conditions specified in the relevant performance standards. Collectively, they address all phases of a bridge project: program administration, bridge design, bridge construction, maintenance, and monitoring of mitigation.

By defining environmental compliance requirements *before* bridges are designed, performance standards allow the bridge design team to integrate these requirements into the bridge design. This enables bridge design teams and construction engineers to focus on creative approaches to design and construction challenges. Time-consuming “design and defend” scenarios are avoided. As a result, permitting and approval processes are dramatically faster and more efficient.

Why are performance standards important?

Performance standards integrate and coordinate environmental protection objectives and requirements for multiple regulatory agencies, thereby minimizing individual consultations and greatly decreasing the duration of the bridge permitting process. This method facilitates

standards that all agencies involved accept. Performance standards highlight the main pathways of exposure so each regulatory agency can know what to expect up front.

Performance standards are a way of ensuring that environmental regulatory requirements are met for a variety of design and construction alternatives. It is critical that project personnel read, understand, and agree to all performance standards before proceeding with bridge design or construction activities. Region design teams will need to work closely with bridge design and environmental professionals to develop, agree upon, understand and apply the performance standards.

Pros:

This performance standards approach has several advantages over permitting on a bridge-by-bridge basis:

- By using performance standards as the guiding principles behind bridge design and construction, *design teams, which includes environmental and construction engineers can focus on creative solutions* to design, construction, and mitigation challenges.
- Because the performance-based “process” approach meets the requirements of many regulatory agencies, it actually *ensures greater, more comprehensive environmental protection* than the traditional design and defend approach usually found on permitting individual bridges. The performance-based approach lends itself to programmatic approvals as well. (Performance based is the Process; Programmatic Permits are the approvals for a group or multiple activities across a given area.)
- *Performance standards are more efficient than traditional permitting methods.* Because much of the permitting groundwork has been done up-front, permitting for each bridge will be faster, easier, and more efficient than the traditional method. Performance standards are more efficient for both the design team and the regulatory agency.
- “Permit limbo” is avoided, and facilitates predictable project delivery.
- *Performance standards are context-sensitive.* Because environmental resources and issues are assessed *before* the design phase, the bridge designer can integrate these conditions and concerns into the bridge design. The result is a bridge design that reflects the unique blend of environmental conditions at that particular site.

Cons:

- A potential negative is the owner accepting responsibility for the long-term environmental performance of the project. It is likely that this can be overcome by how the standards are defined and implemented.
- Design teams will need to make sure that a particular project is suitable for applying a performance standard approach. Much time and effort can be wasted by not realizing that a particular project needs to follow the more traditional permitting approach.

Implementation Challenges:

- Establishing a trust relationship between WSDOT and the permitting agencies.
- Overcoming a lack of common understanding of the nature of performance specifications.
- Establishing quality performance measures for determining the effectiveness of the proposal.

Testing:

The ACEC Structures Committee proposes that three trial WSDOT design projects be identified for testing, including one local agency projects. An ODOT Oregon Transportation Investment Act III (OTIA) approach specific to WSDOT processes may prove as a useful strategy.

The projects selected should be progressively more complex to allow the method to be fully tested. Successful completion of the early test projects provides an opportunity to build trust with the various regulatory agencies involved. The final test projects provide an opportunity to tackle more complex projects and advance the benefit of the process. A report with findings and recommendations for full implementation of the recommendations should be prepared upon completion of the testing.

Quality Performance Measures:

None at this time.