

## **2007 – Accomplishments of the LRFD Oversight Committee**

### **Continuation of the Modjeski and Masters, Inc. LRFD Maintenance Contract**

- Technical Assistance for LRFD work done by Technical Committees
- Document preparation and technical review for annual ballot items

### **Support of the Document Preparation for the new *Manual of Bridge Evaluation***

1. Incorporate 2005 balloted agenda items into the Guide Manual.
2. Move Appendix B (Illustrative Examples) of the manual for Condition Evaluation of Bridges, into Section 6 of the new Manual for Bridge Evaluation. Edit to ensure consistency. Update to show ratings for new legal loads.
3. Update the LRFR steel provisions of the new Manual in accordance with the 3<sup>rd</sup> edition of the LRFD Specifications.

Update the Manual's LRFR steel examples in accordance with the 3<sup>rd</sup> edition of the LRFD Specifications.

4. Combine Allowable Stress, Load Factor, and LRFR ratings in the same example for the following three bridges:

	<u>MCE</u> <u>Manual</u>	<u>Guide</u>
○ Steel Stringer Bridge	B1	A1
○ Reinforced Concrete T-Beam Bridge	B2	A2
○ Timber Stringer Bridge	B3	A4

6. Address review comments and submit revised Manual. All deliverables will be ready for submission to AASHTO for pre-publication editing.

### **Development of Seismic Hazard Maps and Software through USGS**

#### **Hard Copy Maps**

1. Calculate spectral accelerations at 0.2 and 1.0 sec periods with 5% probability of exceedance in 50 years (return time of 975 yr) for the contiguous U.S., Alaska, Hawaii, and Puerto Rico/American Virgin Islands. These values for the contiguous U.S. will be calculated on a site grid spacing of 0.05 degrees in latitude and longitude. Calculate spectral accelerations for 5% probability of exceedance in 50 years (5%/50) for Alaska, Hawaii, and Puerto Rico/American Virgin Islands based on the inputs used for the latest USGS hazard maps for these regions.
2. Produce page-sized maps of the 5%/50 ground-motion values similar to the format of the maps used in the NEHRP Provisions, IBC, and the ASCE standards.

These are black and white contour maps. Page-sized maps will be produced for the eastern and western halves of the U.S. and for about 5 regions of the contiguous U.S. Page-sized maps will also be produced for Alaska, Hawaii, and Puerto Rico/American Virgin Islands.

CD-ROM to accompany 5% in 50 yr Maps

Preparation of computer software tools to simplify determination of the seismic design parameters. Features will allow the user to calculate the following basic design ground motion parameters:

1. PGA,  $S_S$ , and  $S_1$  - Determination of the mapped parameters PGA,  $S_S$ , and  $S_1$  by latitude-longitude or zip code from the USGS gridded data.
2. Site Coefficients - Determination of site coefficients for the mapped values of PGA,  $S_S$ , and  $S_1$  - The site factors will be those included as part of the AASHTO design provisions and will require the user to specify a site class.
3. Site-Modified PGA,  $S_S$ , and  $S_1$  - Modification of PGA,  $S_S$ , and  $S_1$  by the site factors to obtain site-modified coefficients. These will be calculated using the mapped parameters and the site coefficients.

In addition to calculation of the basic parameters, the CD will allow the user to obtain the following additional information for a specified site:

1. Calculation of a response spectrum – The user will be able to calculate response spectra for spectral response accelerations and spectral displacements using Site-Modified values of PGA,  $S_S$ , and  $S_1$ . In addition to the numerical data the tools will include graphic displays of the data. Both graphics and data can be saved to files.
2. Maps - The CD will also include the 5% in 50 year maps in PDF format. A map viewer will be included that allows the user to click on a map name from a list and display the map.

**Development of *Seismic Guidelines for 2007 Ballot***

-Contract with Roy Imbsen and Lee March

1. Establish a website – included on the AASHTO bridge website
2. Respond to Users - This task will include the day to day communications and written responses to users conducting the trial designs. It is understood that each state participating in the trial designs will have a single contact person assigned to conduct their communications with the contractor.

3. Review of the Guidelines - The primary focus will be on the Guideline Specification with only cursory review of the Commentary.
4. Revise the guidelines - Revise the guidelines as necessary and reasonable based on the questions and comments from the participating states conducting the trial designs and previous review.

### **Implementation of NCHRP 12-62 findings - Special Study for T-5**

- Contract with Jay Puckett
- 1. Address Outlier Issue, write report, write appendix, incorporate appendix reference and short discussion into the final report
- 2. Address present suggestions for improved commentary in the draft specification. Importance factor and lower bound for rigorous analysis without consent of owner.
- 3. Review the recent (2006) changes in Section 4 and add necessary provisions
- 4. Present issues to T-5 at the annual meeting

### **Mid Year Meeting Support**

Funding was provided for several technical committees to have mid-year meetings, and travel was paid for special speakers at those meetings. The Oversight Committee also funded a separate “working group” meeting for T-3 so that they could finalize the *Seismic Guidelines* and have them ready for Ballot at the 2007 meeting.

Funded Committees include:

- T-5, T-12, T-13, T-15 and T-3