

Progress Report

September 28, 2006

PROPOSAL TO THE FEDERAL HIGHWAY ADMINISTRATION

TASK ORDER DTFH61-06-T-70006

FOR THE DEVELOPMENT OF
GUIDE SPECIFICATIONS FOR BRIDGES VULNERABLE TO COASTAL STORMS
AND
HANDBOOK OF RETROFIT OPTIONS FOR BRIDGES VULNERABLE TO
COASTAL STORMS

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by

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with

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INTRODUCTION

We received Notice to Proceed on this Work Order on August 14, 2006.

TASK 1 – MEETINGS

One of the important first steps was to have a combined meeting between the Task Force and the Project Team as soon as possible. Unfortunately, there were many false starts in trying to organize this meeting mainly due to concerns about availability of funding as one federal fiscal year ends and another one starts. This delay resulted in some loss of progress. It was eventually decided that the joint meeting couldn't be held until early December, so the Project Team held its own meeting for two days on September 18 and 19, 2006. The agenda for that meeting is attached. One of the primary results of the meeting was the project Work Plan which incorporated some of the Project Team's thoughts as they have evolved during the early weeks of the project. The Work Plan has been submitted to the Chairman of the Task Force and the FHWA Technical Representative. This Work Plan and other aspects of the project will be discussed at a meeting on October 20, 2006 among the PI, the Chairman of the Task Force and the FHWA.

A draft proposed agenda for the joint meeting in December is attached and is subject to change. Task Force input is requested.

TASK 2 – REVIEW, SUMMARIZE, AND AUGMENT LITERATURE

A request for information was sent to all of the coastal states and to a variety of other agencies identified by the Project Team. A list of all those who received the request is attached. To-date, we have received responses from 19 states and 23 other agencies. The total amount of information collected so far has been quite small. At the Project Team meeting earlier this month, we decided that it is time to make personal contacts in order to expedite collection of some of this information.

Also at the Project Team meeting, a list of bridges in the ASCE Monograph No. 29, *Hurricane Katrina Performance of Transportation Systems*, was reviewed. We determined that by culling the list of structures identified in that report to remove the movable bridges and structures hit by debris the remaining bridges would represent a comprehensive list of the wave and surge damaged structures known by the Project Team.

A list of reports to be reviewed to augment the literature survey currently underway by Texas DOT was compiled, and reports are being collected and placed on an FTP site for team members to review.

TASK 3 – REVIEW AND SUPPLEMENT ONGOING FORCE STUDIES

During the September meeting, the Project Team discussed laboratory work underway at various locations and briefly discussed alternative wave force equations. We concluded that the work of primary interest to this project is that being done at the University of Florida by Dr. Sheppard, and recent work by others to modify coefficients used in the Wallingford method.

The Project Team continues to believe that modified Kaplan and “Wallingford” methods are the methods to concentrate on. In order to make use of previous work, comparisons will be made to some or all the structures comprising the US 90 bridges at Biloxi, Mississippi, and Bay St. Louis, Mississippi, and the I-10 bridges across Escambia Bay, Florida, and across Lake Pontchartrain, Louisiana.

TASK 4 – COMPILE AND CATALOG RETROFIT OPTIONS

We have received the unpublished new Seismic Retrofit Manual from the FHWA and will review that for potential details of interest. We had hoped that by now we would have more information from some of the Gulf Coast states on the types of retrofits that they are employing, and while we know some of these anecdotally, we will try to expedite receipt of this information through personal contacts.

TASK 5 – PERFORM ANALYTICAL STUDY OF RETROFIT OPTIONS

No progress to-date.

TASK 6 – DEVELOP A GUIDE SPECIFICATION AND A RETROFIT HANDBOOK FOR ADOPTION BY AASHTO

TASK 6A - GUIDE SPECIFICATION

At the September Team Meeting, considerable progress was made in establishing a design philosophy for the Guide Specification. This was discussed briefly in the Work Plan, but the importance of the decisions made then far exceeds the few words devoted to it in the Work Plan. Basically, it appears that we should be able to develop a set of load combinations and load and resistance factors similar to the approach taken in the API Specification and in ASCE-7. This represents a considerable joint understanding by the coastal and structural elements of the Project Team.

TASK 6B - RETROFIT HANDBOOK

A starting outline for this document was prepared prior to the September Project Team meeting and was reviewed in detail at the September meeting. After some modification, the starting outline attached to the Work Plan was agreed to. It was included with the Work Plan.

Dr. Sheppard presented the latest information on the screening approach being proposed for Florida DOT. After some discussion, the Project Team agreed that this information could be utilized almost completely in the Retrofit Manual with the following additions and possible changes:

- One of the criteria in establishing a priority should be programmatic in nature, i.e., will this structure be replaced soon, what other maintenance activities have been programmed for it? In fact, Dr. Sheppard thought this was significant enough that he may add that to the Florida screening process.
- Some of the weighing factors and scoring ranges in the proposed Florida method will be subject to review and consideration by various members of the Project Team.

TASK 7 – DEVELOP FINAL REPORT AND RECOMMENDATIONS FOR FURTHER STUDIES

No progress

TASK 8 – PREPARE EXECUTIVE SUMMARY AND PRESENTATION MATERIALS

No progress

FUTURE WORK – NEXT MONTH

1. We will continue with the literature review and the associated collecting of retrofit concepts and information on damaged bridges.
2. We will continue to monitor Dr. Sheppard's experimental work as it is pivotal to selection of a method to calculate wave forces.
3. The decision to base the specification on load combinations similar to AASHTO LRFD requires a lot of thought as to how the design event will be defined. The Team will continue to work on this for months to come.

4. Various items on the Retrofit Manual outline have been assigned to Team Members for further development. These were identified in the copy attached to the Work Plan.
5. We will meet with Mr. Nickas and Dr. Ibrahim on October 20th. Other Task Force and Team Members will participate by telephone.

Agenda for September 18-19 Team Meeting

Monday Noon -5:30 (w/working lunch)

- Tentative contract terms (30 min)
- How to invoice for work done (30 min)
- Comment on the partial payment schedule sent recently which we need to offer to FHWA. (15 min) Any comments as far??
- Results to date from request for information. (15 min)
- Mike Knott – cost assessment, other thoughts (30 min)
- Max Sheppard – review of current related projects and how they will feed into this project (45 min)
- Presentations on Kaplan, Wallingford, FDOT screening, discussion of Douglas report (60 min to 90 min))
- Prepare a list of current thinking on the types of information necessary to get to bridge loadings and where we think it might come from---e.g. winds, fetch, tides, surge height, wave height etc. (Do MN or OEA already have this from other work?) (30 to 45 min)

From OEA's wave and surge vulnerability report March 2006

The six steps in the procedure are as follows:

1. identify potential bridges
 2. establish the 100-year water surface elevation at each bridge – FEMA flood maps or local data
 3. determine the fetch length and the average water depth over the fetch for each bridge - mapping
 4. determine the 100-year wind speed and direction for each bridge - NOAA
 5. determine the maximum design wave height at each bridge – USACoE??
 6. determine the elevation and configuration of the superstructure for each bridge. - Plans
- Free discussion on where we think this is going---what might the deliverables look like.

Tuesday 8:30 – 5:00 (w/working lunch)

- Free discussion continues
- Expand our revised tech proposal, which you all have, into a “work plan”. Need more specificity. Any premeeting work on this would be good. Most of us have more that 2 days (16 hours??) for a type 1B meeting so there is some time available to work on this. For that matter, time could be charged to the actual tasks on the basis that we are defining and planning the work.
- Start to list major headings for spec and handbook
- List topics for OCT 20 meeting.
 1. Work Plan
 2. Table of values
 3. Lump sum by Task
 4. Receipts?
 5. Formats for invoices.
- Review agenda for Dec meeting, attendance list (to Linda ASAP), lab tour time requirements.

Tentative Schedule for Dec. Kickoff Meeting

8-17-06

When: Dec 4, 5 & 6– to be finalized next week

Where: Gainesville – FDOT will supply vans and meeting room for one day

Contact person in Wm's office: Linda Ryan (Linda.ryan@dot.state.fl.us)

Dec 4 – Team meeting

1:30 – 5:30 PT Meets

- Scope adjustments
- Discussion of K and W methods
- Other candidates?
- Basis for a choice
- Further define roles and responsibilities

Dec 5 – Joint Meeting

8 - 9 Separate meetings of Task Force (TF) and Project Team (PT)

9 -12 Combined meeting

- Introductions
- How does project fit in big picture? What is already available?
- What other work is underway at state and federal level?
- Summary of work to date – review of progress reports
- Philosophy

12 -1 Lunch

1PM Leave for U of F wave tank

3:30 Return to meeting

- More on progress
- Expectations
- Products

5:30 Adjourn

Dec 6 – Joint Meeting

8-5 Meet with TF

- TF feed back and direction
- Scope/Work Plan
- Set date for next combined meeting

5:00 PM - Leave

ADDRESSEES – AUG. 18, 2006 FHWA TASK ORDER DTFH6-1-06-T-70006 LETTER

Received Response	Title	First Name	Last Name	Company Name	Address Line 1	Address Line 2	City	State	ZIP Code
	Mr.	Kevin	Thompson	State Bridge Engineer	California Department of Transportation	P.O. Box 168041	Sacramento	CA	95816-8041
	Mr.	Bruce V.	Johnson	State Bridge Engineer	Oregon Department of Transportation	Transportation Building, Room 301	355 Capitol Street, NE	Salem, OR	97301-3871
X	Mr.	Jugesh	Kapur	State Bridge and Structures Engineer	Washington State Department of Transportation	P.O. Box 47340	Olympia	WA	98504-7300
	Mr.	Richard A.	Pratt	Chief Bridge Engineer	Alaska Department of Transportation & Public Facilities	P.O. Box 112500	Juneau	AK	99801-7898
	Mr.	James A.	Moore	Director of Project Development	New Hampshire Department of Transportation	P.O. Box 483	Concord	NH	03302-0483
X	Mr.	Barry W.	Bowers	Assistant State Bridge Design Engineer	South Carolina Department of Transportation	P.O. Box 191	Columbia	SC	29202-0191
	Mr.	William R.	Cox	Director, Bridge	Texas Department of Transportation	Dewitt C. Greer State Highway Building	125 East 11th Street	Austin, TX	78701-2483
	Mr.	Richard W.	Dunne	State Bridge Engineer	New Jersey Department of Transportation	P.O. Box 600	Trenton	NJ	08625-0600

ADDRESSEES – SEPT. 6, 2006 FHWA TASK ORDER DTFH6-1-06-T-70006 LETTER

Received Response	Title	First Name	Last Name	Company Name	Address Line 1	Address Line 2
	Mr. Jeff Sciaudone	Applied Research Associates	8540 Colonnade Center Drive, Suite 307	Raleigh, NC 27615		
	Mr. Roger Grenier	AIR Worldwide Corporation	131 Dartmouth Street	Boston, MA 02116		
	Mr. Neil Blais	ABS Consulting	300 Commerce Drive, Suite 200	Irvine, CA 92602		
	Mr. Michael Young	Risk Management Solutions, Inc.	7015 Gateway Boulevard	Newark, CA 94560		
	Ms. Gwynne Schultz, Director	Maryland Department of Natural Resources	Coastal Zone Management Program	Tawes State Office Building, E-2	580 Taylor Avenue	Annapolis, MD 21401
	Ms. Laura McKay, Program Manager	Virginia Coastal Zone Management Program	Department of Environmental Quality	Division of Environmental Enhancement	629 East Main Street	Richmond, VA 23219
	Mr. Charles Jones, Director	Morehead City Office	400 Commerce Avenue	Morehead City, NC 28557		
X	Ms. Carolyn Boltin, Deputy Commissioner	Ocean & Coastal Resource Management	1362 McMillan Avenue, Suite 400	Charleston, SC 29405		
X	Ms. Susan Shipman, Director	Coastal Resources Division	One Conservation Way	Brunswick, GA 31520		
	Ms. Lynn Griffin	Coastal Program Administrator	3900 Commonwealth Boulevard, MS47	Tallahassee, FL 32399-2400		
X	ADEM	Attn: Coastal Program	4171 Commanders Drive	Mobile, AL 36615-1421		
	Mississippi Office of Ecology	Department of Marine Resources	1141 Bayview Avenue, Suite 101	Biloxi, MS 39530		
	Mr. Christopher P. Knott, P.E., Director	Coastal Engineering Division	Office of Coastal Restoration & Management	P. O. Box 44027	Baton Rouge, LA 70804-4027	
X	Mr. Sam Webb, Deputy Commissioner	Coastal Resources Program	P. O. Box 12873	Austin, TX 78711-2873		
X	Mr. Todd Davison, Director	Federal Emergency Management Agency	3003 Chamblee Tucker Road	Atlanta, GA 30341		

ADDRESSEES – SEPT. 6, 2006 FHWA TASK ORDER DTFH6-1-06-T-70006 LETTER

Received Response	Title	First Name	Last Name	Company Name	Address Line 1	Address Line 2
	Dr. Todd Walton	Beaches and Shores Center	2035 East Paul Dirac Drive	203 Morgan Building, Box 5	Tallahassee, FL 32310	
	Dr. Vijay Panchang	Texas A&M University-Galveston	P. O. Box 1675	Galveston, TX 77553		
	Dr. Douglas Jones	Coastline Engineering	5900 Lynkerry Circle	Anchorage, AK 99504		
	Dr. William McAnally	Mississippi State University	235 Walker Engineering Building	P.O. Box 9546	Mississippi State, MS 39762	
	Dr. Robert Hudspeth	Ocean Engineering	Oregon State University	220 Owen Hall	Corvallis, OR 97331-3212	
	Dr. Steve Hughes	U.S. Army Corps of Engineers	Waterways Experiment Station	Vicksburg, MS 39181-0631		
	Dr. Harley S. Weiner	U.S. Army Corps of Engineers	Hydraulics & Hydrologic Engineering Branch	New Orleans District	950 Picheloup Place	New Orleans, LA 70119
	Mr. Michael Barnett, Bureau Chief	Beaches and Coastal Systems	3900 Commonwealth Boulevard	Mail Station 300	Tallahassee, FL 32399-3000	