

SPR-3(083) FIXS-Fabrication error Indexed eXamples and Solutions

Final Report

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The purpose of this final report is to document the status of the project at closeout since final deliverables were not produced according to the original agreement. The original agreement was made with the University of Kansas in May, 2000. However, when Kim Roddis, the Principal Investigator, transferred from the University of Kansas to George Washington University in mid-2004, all remaining work, including the submission of any required program and final reports, was also transferred to GWU and Kim Roddis.

The objectives of this transportation pooled fund (TPF) project were to make results of the previous Kansas DOT funded FIXS project (an expert system on bridge steel fabrication errors and solutions) more widely available to the partner states and industry through the National Steel Bridge Alliance. This work was to include enhancement of the repair database for the needs of multiple DOT's and to develop a web-based version of FIXS that would be readily available to multiple DOT's and industry. A tutorial introducing bridge engineers to issues necessary for good resolutions of fabrication error situations would be produced. Validation and long term continuity of the knowledge base contents was planned by involvement of the AASHTO/National Steel Bridge Alliance (NSBA) Collaboration membership for review and comment during the project and hand off after its completion.

The two major deliverables for the project were to be a "Guidelines for Resolution of Steel Bridge Fabrication Errors" document (Task 1) and an operational FIXS website that would enhance availability of the expert system to fabricators and practitioners (Task 2).

Funding partners for this pooled fund project were: Idaho, Illinois, Kansas, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, Nevada, Pennsylvania, Texas, and Wyoming. The total budget for project was \$230,000.00; total cost was \$218,944.61. The last two invoices totaling \$11,055.39 were not paid because final deliverables were not provided as agreed.

The progress report for period ending March 31, 2007 stated:

"TASK 1

The most significant deliverable remaining is the complete "Guidelines for Resolution of Steel Bridge Fabrication Errors" document. The current (March 30, 2007) status of the "Guidelines for Resolution of Steel Bridge Fabrication Errors" document is that it is essentially complete from section 1 up to section 4.8. Merger of comments is required to update the September 19, 2005 version to a form suitable for balloting. Since the incorporation of comments is in a partial complete state with Kim Roddis, she should produce a revised version. Paul Kulseth will be asked to provide minor work on figures as well as providing an archive of figure source file documents. Kim Roddis should hand over the revised document with an archive of source files, including archive of figure source file documents, to Heather Gilmer and Bill McEleney. Document can then be balloted by Collaboration, completing the Guidelines.

DATE 1

Handover of files to be completed before next Collaboration meeting in Atlantic City on May 8 & 9, 2007.

TASK 2

The only other deliverable remaining is submission of the complete FIXS website. Kim Roddis will work with Bill McEleney beginning mid May 2007 to get the website completed and shipped in a form suitable for upload to and hosting from steelbridge.org. Delivery of the files is to be made to Bill McEleney by the end of the current reporting quarter, June 30, 2007. This will complete the last deliverable and allow close out of this project."

The last progress report for this project which was for the period from April 1 to September 30, 2007 stated:

"TASK 1

The most significant deliverable remaining is the complete "Guidelines for Resolution of Steel Bridge Fabrication Errors" document. Task Group 2 of the Steel Bridge Collaboration, under the leadership of Heather Gilmer, has stepped in to directly further the progress of the FIXS document. The PI, Kim Roddis, by copy of this Progress Report, commits to provide required information and intends to perform tasks coordinated by Heather Gilmer.

TASK 2

The only other deliverable remaining is submission of the complete FIXS website. Kim Roddis will work with Bill McEleney to get the website completed and shipped in a form suitable for upload to and hosting from steelbridge.org. This will complete the last deliverable and allow close out of this project."

An e-mail from Heather Gilmer, TXDOT to Gregg Frederick and Kenneth Hurst dated December

10, 2007 stated:

*"From: Heather Gilmer [mailto:HGILMER@dot.state.tx.us]
Sent: Monday, December 10, 2007 1:36 PM
To: Gregg Fredrick; Kenneth Hurst
Cc: Ronnie Medlock; Paul Kulseth; McEleney@nsbaweb.org
Subject: RE: 8.4 FIXS: Fabrication error indexed Examples and Solutions, SPR-3(083)*

*For the research project, there was a thesis generated (which one could take as a deliverable if one wanted to close one's books, I suppose), and significant steps toward turning that thesis into an industry consensus document. I'm not sure what exactly would satisfy your research people (mine have given up), but I'm sure the thesis is available, and I can get you the 2005 draft, which was the last one Kim Roddis really had anything to do with. At this point, it's no longer a research project, but an AASHTO/NSBA Steel Bridge Collaboration document draft. **TG2 on Fabrication has taken over the function of TG5 on Repair. We even have a document number all picked out: G2.2!***

This thing is pretty much out of Kim Roddis's hands now, and I don't want to put it back into them. I decided about a year ago that I have no interest in wasting any more time waiting for Kim, and that it's time for us to get moving without her. Standing on principle might satisfy our respective research departments in terms of bang for buck, but it won't get us to the real goal, which is getting some good information out into the world.

So on with the new life of this document. Although we had decent attendance at the TG2 meeting, no one had done their homework and come prepared with comments for discussion. (But maybe if I'd done more of my homework and gotten it to them earlier, they might have...) So instead I'll do a bit more cleaning up of the document, with Paul Kulseth's help (he was the main grad student on the project and has all the graphics files, etc.), and send it out for TG ballot. (Anyone who wants to be on my TG can be, so if you're not already on my TG2 mail list, let me know and I'll add you.) Calling something a "ballot" and putting a deadline on it makes people much, much more likely to comment. We will thus have lots of comments to discuss and resolve at the next meeting in conjunction with the IBC in June. I expect a couple cycles of that; it's a HUGE document and a lot of people on my TG2 list (pretty much anyone who wasn't on TG5) hadn't seen it until a few weeks ago. We'll go through the same thing at the main committee level. So it'll still be a couple of years till this is ready for AASHTO ballot and publication, but I expect those to be productive years.

I believe that Kim's responsibility as researcher would have ended with a draft for Collaboration ballot anyway. At that point, she would have continued to address the comments, etc., but more in the role of Collaboration TG5 chair rather than PI on a research project. So yes, it was very close, as a research project, to completion, and the next couple of years of committee gnashing and wailing would have been outside the scope of the project.

I hope all this is of some help."

We have waited 18 months since the last progress report for the final deliverables which have not been forthcoming. The thesis by Paul Kulseth has now become the final posted deliverable for Task 1. It is posted on the TPF website at: http://www.pooledfund.org/documents/SPR-3_083/NSBA_SBC-FIXS_Sent1-24-03.pdf. Between 2003 and 2007, changes were made to this document by Dr. Roddis and Mr. Kulseth working in collaboration with the Technical Advisory Committee (TAC) and AASHTO/NSBA Steel Bridge Collaboration Task Group 5 and later Task Group 2 (TG2) on Fabrication Specification members but these remained as draft documents. While the intent was to create a final document incorporating changes from comments made to a 2005 draft prior to a May 2007 meeting in Atlantic City, this was not accomplished. Thus the last “completed” document was the September 19, 2005 draft “Guidelines for Resolution of Steel Bridge Fabrication” file copy provided to the TAC and the TG2 members. Although not the intent at the time, it became the last “finished” document provided by Dr. Roddis. This draft effectively became a TG2 working document of the same title that was later assigned document number G2.2. TG 2 is chaired by Heather Gilmer, Texas DOT (hgilmer@dot.state.tx.us).

Task 2 also was not completed. Inquiries made to the programmer and PI in March and May 2008 respectively did not yield any working software or source code that might be used as a foundation for others to build on. The files for the final version have apparently been lost. Since final versions were not available, software source code, a thesis and related PowerPoint presentation from earlier work done have also been posted on the TPF website at: http://www.pooledfund.org/documents/SPR-3_083/Web-FIXS_Thesis12-2001.doc http://www.pooledfund.org/documents/SPR-3_083/Web-FIXS_Slideshow.ppt and http://www.pooledfund.org/documents/SPR-3_083/Web-FIXS_source_code_and_HTML.zip

After repeated inquiries, a decision was made to close out the project because of inactivity and failure to produce final deliverables. While the project was not as successful as anticipated, a thesis was completed related to each task as well as an early version of the source code. Subsequent work on the thesis document related to task 1 led to further enhancements to the “Guidelines for Resolution of Steel Bridge Fabrication” document that while not “published” have resulted in a NSBA working document. Most troubling is the loss of the final version of the website and expert system software that was apparently coded yet not delivered because of “lost files”. While not the product expected, an earlier version of the source code has been placed on the TPF website as a resource for future researchers who may wish to use it.

Website for the NSBA is at: <http://www.steelbridges.org/>. Website for the TPF project is at: <http://www.pooledfund.org/projectdetails.asp?id=231&status=6>.