Summary Minutes Of The
AASHTO Virtis Opis Task Force Meeting

June 13 - 14, 2012   Montgomery, AL

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Date: Wednesday, June 13, 2012

Participants:

AASHTO	Jan Edwards	Project Director	
	Judy Skeen	Project Manager	BridgeWare Products
SCOJD	Dan Buhler	Manitoba T&GS	
	Bruce Johnson	Oregon DOT	
T-19	Scot Becker	Wisconsin DOT	T-19 Chair
V/O Task Force	Tim Armbrecht	Illinois DOT	Chair
	Bryan Silvis	Virginia DOT	Opis
	Joshua Sletten	Utah DOT	Virtis
	Dean Teal	Kansas DOT	Opis
	Amjad Waheed	Ohio DOT	Virtis
	Tom Saad	FHWA Liaison Midwest Resource Center	
Pontis Task Force	Mark Faulhaber	Kentucky Transp. Cabinet	
	Ralph Phillips	Connecticut DOT	
Contractor	Jeff Campbell	Baker	
	Jim Duray	Baker	
	Herman Lee	Baker	
Alabama DOT	Daniel Jones		

Notes Taker: Joshua Sletten

General Discussion
The meeting began at 8:15 AM Wednesday.

Review Agenda / Assign minutes recorder
No additional items were added to the agenda at the start of the meeting.
Joshua Sletten was assigned as the minutes recorder.

Prior business
1a.   Review April meeting minutes
The April meeting minutes were approved as written.

Financial overview and work plan summary
2a.   Update on Phase 15 (FY 2011)
The Contractor summarized the Phase 15 report.

2b.   Update on Phase 16 (FY 2012)
The Contractor summarized the Phase 16 report.

Update on Virtis/Opis Licensees (FY 11)

3a.   Product Report

The Contractor reviewed the Product Report. Currently, there are 237 consultant licenses for Virtis and 20 for Opis. Additionally, Michigan sponsors 111 consultant licenses for Virtis and Virginia sponsors 88 consultant licenses for Virtis and 6 for Opis.

Where the product report shows 'Washington', it is indicating the District of Columbia.

3b.   Service Unit report

Training and Enhancement service units will be combined and reported as one total going forward. The carry-forward total will be constant for the entire year.

Service units for training will be billed differently moving forward. Previously, 2-day training has always cost one service unit, regardless of actual cost. This will be changed to bill the actual cost of the training even if it is a fractional service unit.

3c.   Consultant licensing options

The Task Force discussed the possibility of analyzing and reviewing Virtis/Opis licensing options over the next year. Opportunities for lessening the administrative overhead of tracking the DOT sponsorship for the V/O Special Consultant/Agency/County Option will be evaluated. Alternate licensing options may also be considered, including:

- Consultant license for the Virtis/Opis (workstation) package.
- State option to license the Virtis/Opis package for less than the licenses paid for both unlimited licenses.
- Unlimited consultant license option.

In the following discussion it was noted that the number of support hours differs drastically for the two consultant licensing options. Special Consultant Workstation License ($2700) includes four hours of consultant support while the regular Single Workstation License ($8500) license includes 120 hours of contractor support.

It was decided that an ongoing agenda item (3c – Consultant licensing options) will be added to future meeting agendas.

Judy Skeen followed up with agencies discussed during the April Task Force meeting to confirm their intent regarding Virtis licensing.

Support and Maintenance report

4a.   Incident and support summary

The Contractor reviewed the defect history report. Thirteen bugs were reported between April 2012 and June 2012 and the number of unresolved bugs increased from 24 to 25 in the same period. Only one of the 25 unresolved bugs is critical.

Bugs tracked under the 'not reproducible' and 'info needed' categories can be dropped from the report after sending a monthly request for information to the bug reporter for 3 months if no response is provided.

4b.   Progress on bug resolution

The Contractor reviewed the handouts for releases 6.4 and 6.5.

4c.   Enhancement list update

The Contractor reviewed the Buckets and List handouts. Beta TAG Enhancement Buckets are used to group similar enhancements as a sub-set of the master list of requested enhancements.

Enhancements to be implemented in Version 6.4 are highlighted in the master list report. The TAG short listed enhancements during the May 2012 TAG meeting.

4d.   Maintenance issues

Decisions on how to address maintenance items need to be made in the long range plan. One idea is to address them similar to enhancements. Discussion was deferred to agenda item 9b – future work plans.

Update on 6.4

5a.   Progress and schedule review

The Contractor plans to deliver beta 2 during the week of 6/21/12. The Contractor is having trouble with the finite element engine; therefore, it will be included in beta 3 (mid-July). Beta 2 will include resolution of the bugs identified in alpha and beta 1 testing. 38 of 72 beta 1 bugs have been resolved; 15 alpha issues are still unresolved.

The drilled shaft specification checking enhancement involves a non-linear analysis. The Contractor is having trouble getting the solver to converge. The non-linear solver is not strong enough to resolve analysis where p values have multiple y's. The RIIKS solver has been added to help resolve the convergence problems. This solver will be incorporated into the product within a week.

The delay in getting the drilled shaft specification checking enhancement incorporated will affect the release schedule given the one month delay in making it available for beta testing. Agencies are counting on the delivery of the culvert enhancement in order to get their culverts rated by the end of the calendar year. The Task Force decided to delay the delivery of the drilled shaft analysis component for one month in order to stay on schedule with the August release of 6.4. All other enhancements scheduled for 6.4 release are already in beta testing.

The Task Force would like the ability to enter reinforcement for the culverts in square-inches per foot to capture culverts with welded wire reinforcement. Culvert is referred to as the AASHTO-WisDOT Culvert program in the application. This needs to be modified to ensure it is referred to as the 'AASHTO Culvert' program.

5b.   Beta Testing:

The Contractor presented an overview and provided a color-coded handout to illustrate the status of beta 1 testing tasks.

- Eight beta testers started testing at the Contractor's offices two weeks ago. The Contractor presented them with their alpha test plan to provide information on the status of the Contractor's alpha testing. 72 incidents +/- were reported during the three day testing period. 38 of the incidents are resolved and a list of the remaining was provided.
- Due to time constraints, a roundtable session was not conducted at the end of testing; however, Dean Teal solicited feedback after the completion of all testing from the testers via email. Overall, feedback was positive. The Contractor was responsive to questions asked. The checklist was a welcomed addition. Testers would have liked to have received the product DVD ahead of time to allow additional time to test the installations tasks.
- Unfortunately the alpha testing was not complete prior to the beta build. The testers suggested better scheduling of Contractor and Task Force testing activities in the future to ensure alpha testing is complete prior to beta testing. The testers also commented that it seems that the Contractor needs to have more capacity to keep up with the work plan tasks.
- Culvert comments – The testers were disappointed to find the culvert module accepts only single rebar. This limitation is significant due to the fact that a large number of culverts use welded wire fabric. The ability to analyze square inches per foot would solve the issues.
- The testers were pleased with the results of the 3D analysis.
- The testers are very interested in seeing the improvements that will be made available in Beta 2. It is felt that most TAG testers are waiting on Beta 2 to respond with their proposed level of testing. The level of testing proposed by the TAG will be tracked on the 46-page beta testing checklist; this allows the

Task Force to measure the completeness of the beta testing.

- Tim Armbrecht thanked Dean Teal for his support in leading the test TAG activities.

Enhancements

6a.   Engine properties length limitation

For the engine properties strings that are stored in the Virtis database, there is a length limitation of 2000 bytes. BRASS engine properties are expanding and WYDOT would like V/O to change from string to BLOB format so more BRASS specific engine options are available to Virtis Users. Data stored in a BLOB format cannot be queried or sorted. However, every third party developer has unique engine properties which are specific to their engine and this is not the type of data that Users would want to query and sort. BLOB format allows more opportunity for disparate third party file formats and will not impact current third parties.

The data types for the engine properties will be changed to a BLOB data type to make more engine properties available for third party engine providers (including BRASS).

The TF approved the enhancement and assigned it to TM1. The enhancement will be incorporated into version 6.4, beta 3.

6b.   Allow plastic analysis for beam with cover plate estimate

Add a control option to activate plastic analysis for compression and/or cover plates. The enhancement will be incorporated into version 6.4 (or 6.4.1).

6c.   LRFR Distribution Factors: Multi-Lane vs. Single Lane

The Task Force approved the enhancement as proposed and assigned it to TM1. This enhancement will be included in 6.4.1.

Miscellaneous Topics

7a.   Rebranding estimate

The Contractor provided an overview of the rebranding tasks identified for incorporation into release 6.4 and release 6.5. The User Interface for 6.4 will not incorporate the new product names and logos.

7b.   TAG members

Current TAG members are listed in Appendix A of the meeting minutes and no update is required.

7c.   VI 11154 Support Access Definition

End users need access to information on how to secure support. It would be helpful to have instructions on how to get support, steps to take, what to expect, first contact, etc. (Help pulldown – add one item – Support)

7d.   VI 10776 Adjacent Vehicle Rating

Caltrans is very interested in having this enhancement incorporated into version 6.4 (or 6.4.1). Caltrans has reviewed and approved the mock-ups.

Defer discussion on this enhancement to agenda item 9b – future work plans. If this enhancement is added into either 6.4.1 or 6.5, something of equal value needs to be removed from one of those versions. The Task Force will plan this work at a later date.

7e.   VI 11544 Analysis Template Export

This enhancement was requested by Michigan at the May 2012 beta testing. The Task Force believes the enhancement has merit and will defer to the next meeting for discussion on what version it may be included in.

7f.   VI 11397 Bridge Exchange Enhancement

This enhancement was requested by Illinois DOT during May 2012 beta testing. No action required at this time – Tim will take back to IDOT for evaluation.

7g.   VI 11388 Rolled Beam Section Properties

This enhancement addresses the way section properties (Ix, Iy and A) are handled by AASHTO LRFR. This enhancement maintains a function that BRASS had but the current AASHTO engine does not.

The Task Force supports incorporation into 6.4 or 6.4.1 if the work involved is a relatively small effort.

7h. VI 11529 SD DOT Sybase to SQL Server Migration

The Contractor suggested handling support for agency database migrations on a case by case basis. The Task Force concurred with this approach. This will generally be easy to handle under support and a very limited number of agencies will require this support.

7i. VI 11152 Support Lump Sum Loss Method in AASHTO LRFR

This enhancement is actually a 'maintenance item' that incorporates functionality that was provided by BRASS but not included in the AASHTO analysis engine. The Task Force supports including this functionality in version 6.4 or 6.4.1.

7j. VI 11243 Moment Capacity Calculation Issue

The software calculates conservative results; however, Michigan DOT considers the bug fix to be critical given the fact that the results generated are incorrect. The solution is iterative with the reported results equal to the least value of the last three iterations.

7k. VI 8994 LFR/ASR Legal Train with Adjacent Vehicle

Also see VI 9965. This enhancement is addressed under agenda item 7d – VI 10776 because it is one of the TBD items listed on the estimate. The Task Force directed the Contractor to develop estimates for all the TBD items on that estimate.

User Group
8a. Summary Minutes from Santa Monica

8b. Agenda and other matters
Paul Campisi (NYDOT) joins the Task Force via teleconference.

The majority of the user group agenda is complete with a few slots to fill. Paul would like the Contractor to have a discussion on limitations of the product, common User errors and review of control options. Todd Thomson is going to fill a slot with topic unknown at this time. Brian McCaffrey can give a presentation on gusset plate analysis. Chad Clancy from Modjeski and Masters may provide a discussion on the relationship between legal loads and design loads.

The Task Force brainstorming session will be used for follow-up on last years voting and classification of priorities.

Work Plan
9a. .NET discussion
The Contractor distributed a Migration to .Net – Conceptual Planning document and led a discussion of the plan with the Task Force.
- Discussion with the Beta Test TAG – the members seemed to be open to the migration to .Net
  o Evaluate the risks
  o Cost-Benefit
  o Need for continued releases with new features (tie in portion of upgrade to enhancements)
  o TAG must see benefit – short and long term
- Considerations for the Migration – Contractor suggestions regarding what should be considered:
  o Identify user-requested enhancements
  o Database changes (re-design or frozen?)
  o New user interface of user interface similar to existing with improvements

(condense tree to hide what is not needed)
- o Identify potential multithreading activities
- o Intermediate annual releases (released more often than annually)
- o Separating the Configuration and System Defaults from the remainder of the system
- Potential Improvements
  - o FE engine
  - o Truss user interface (go away from command line)
  - o Truss spec-check
  - o Reports
  - o "Easy" button for the user interface
  - o More graphics (overlay moments/shears and capacity)
  - o Interactive graphics (make changes from sketch)
  - o Construction staging
- Scenarios
  - o Straight conversion (no improvements, just transferred to C# as fast as possible) – the focus of this scenario is to migrate as quickly as possible to C#.
  - o Migration with enhancements – the focus of this scenario is to migrate as quickly as possible to C# but with improvements to the system. This approach takes advantage of the opportunity to improve the system.
  - o Modular migration – the focus of this scenario is to migrate based on V/O capabilities. Perhaps multiple modules could be accomplished each year. Migration of the "Base" system will accompany the first two modules. The "Base" system consists of the library, configuration, system defaults and bridge explorer.
- Architecture Considerations
- Notes
  - o Assume implementation of any new features in the C++ code will be migrated at a cost of 70% of the C++

implementation (programming) cost plus the cost of any additional design (new mockups if necessary).
- o Assume all existing code is to be migrated to C#. The resulting code will not include any COM. The existing COM API will be abandoned. A new C# API will be provided for third-parties.

The Carnegie Mellon Quality Attribute Workshop (two day workshop) involving all stakeholders (Carnegie Mellon, Contractor, Task Force, TA&A, and TAG) will be pursued to begin the architecture review/ evaluation process. The workshop will identify important items, provide recommendations on architecture, and provide a suggested implementation plan. The workshop is the first step in initiating the architectural review (expected to be completed by 4 people in two weeks). The Task Force is interested in pursuing this approach to perform due diligence in determining how to move the product forward (with regard to software architecture).

Capitalization funds are available to support this initiative (Carnegie Mellon costs and associated AASHTO member agency travel).

9b.   Future work plans
This agenda item is combined with item 9c – Long-term plan.

9c.   Long-term plan
The importance of long-term planning is to help SCOBS, SCOJD, the Task Force and the Contractor understand where the product is going over the next 5 years.

As a point of reference, the top 10 ideas from the 2011 User Group Meeting are:
1. Frame analysis
2. Multiple ways to sort Bridge Explorer
3. Concrete Arches
4. Truss GUI
5. Reports compatibility with Excel
6. LRFR Gusset Plate Analysis

7. Improved GUI with less input
8. PT I-beams and tub girders
9. Truss LRFR
10. Non-standard gauge LRFR

The following items are identified as part of the Task Force vision and objectives to guide development over the next few years. These items will guide decisions and work plan prioritization for the foreseeable future.

- Maintenance Bucket – The Task Force will consider setting aside funding for the maintenance bucket to ensure the functionality promised is in the product (cross reference to agenda item 4d – maintenance issues).
- State Service Unit Enhancements – Set aside an item in the work plan and budget to support service unit enhancement work.
- Additional modules for full LRFR capabilities
- Opis as a design tool (Iterative design)
- Permitting & routing capabilities
- Frame analysis – clarification from users is needed. Contractor will develop an estimate for frame analysis after the VOBUG meeting.

The Task Force will meet again after the VOBUG meeting to set some direction before the November Task Force meeting.

9d.   Reports TAG Update
Six people have agreed to serve as members of the Reports TAG (RTAG). The group will be lead by Amjad Waheed and also includes the following Task Force approved members, Paul Campisi (NYSDOT), Beckie Curtis (MIDOT), Arthur D'Andrea (LADOTD), Jeff Olsen (MTDOT), Todd Thompson (SDDOT), and Cindy Wang (OHDOT).

All members have bridge design and/or bridge rating backgrounds. The RTAG will begin their efforts with a review of the enhancement list to identify the requests for report enhancements. In addition, the team will brainstorm additional

ideas and present recommendations to the Task Force.

The goal is to have the RTAG recommendations to the Task Force by the end of the calendar year. Once verbal approval is secured by the Task Force, they will request estimates from the Contractor.

The RTAG will present a short presentation during the VOBUG meeting. A face-to-face meeting of the RTAG will be held (one this year and a final meeting next year). 90% of the members are expected to attend the VOBUG. Amjad is optimistic that recommendations will be presented to the Task Force prior to the development of the FY14 work plan.

FHWA Update
Load Rating Training Update – The 4-day NHI LRFR course, 1300892, will be delivered in Columbia, SC, August 21-24, 2012. MNDOT hosted the 2-day load rating training in May. Both States license Virtis software. FHWA will forward any questions participants may have regarding Virtis to the TF.

FHWA published a guide entitled Framework for Improving Resilience of Bridge Design (.pdf) in January 2011. The publication draws on the invaluable lessons from past bridge failures for improving the resilience of bridge designs by using the "fault-tree analysis" methodology to identify potential events that could lead to a bridge failure, and designs that prevent such failure. A webinar on this publication and methodology will be delivered on June 21, 2012 between 2:30 – 4:00 EDT. AASHTO has provided information for registering for the webinar to State Bridge Engineers. Bridges are an integral and important part of the highway infrastructure system and need to be designed to provide the necessary safety and resiliency for the traveling public. Performing a failure analysis during design, coupled with the review of past bridge failures, can help to enhance the resilience of

bridge design for safety, reliability, efficiency and sustainability of highway bridges.

FHWA hosted a webinar on May 2 to discuss the results of the joint FHWA/AASHTO National Bridge Inspection Task Force efforts, summarize experiences and results of the first year of the new FHWA oversight process using the 23 metrics, and highlighted changes in the metrics for Performance Year 2013 assessments.   The webinar was well attended and a recording of the webinar is available for those who could not attend. FHWA/AASHTO has distributed an e-mail with the Task Force's final report, an updated copy of the NBIS compliance assessment metrics, and a link to the website to view the taped session to State Bridge Engineers. Some questions that were posted on the webinar chat pod could not be addressed due to time constraints. Responses to all of the questions were subsequently answered and forwarded to the States in a 'Q&A' sheet.

Based on experiences and feedback from stakeholders over the past few years, FHWA recognizes that it may be time to update the National Bridge Inspection Standards regulations. FHWA has requested assistance from SCOBS in gathering information on suggested updates to the NBIS. The request was open between May 7 and 25, 2012.   The questions posed included: 1.) Do you see a need to update the NBIS regulation at this time? 2) If so, what updates or revisions do you think are needed? 3) Current NBIS regulations permit certain bridges that satisfy approved criteria to be inspected at intervals not exceeding 48 months. If your State has employed this provision of the regulation, what experiences have you had with using available resources in a more efficient manner in comparison to the typical interval of 24 months, i.e. resources targeted to bridges in greatest need of monitoring and attention? Is there any data available, anecdotal or other, regarding the more efficient use of resources under this provision?

Marketing / Training
Judy Skeen contacted agencies discussed during the April Task Force meeting to determine their level of interest in attending a presentation/demonstration at the November Task Force meeting in Boston and to offer free VOBUG registration for a representative from their agencies.

The Task Force asked Dan Buhler to assist in securing placement on the IHEEP agenda for a Virtis/Opis presentation during the September 2012 IHEEP meeting.

Review Action Item list from this meeting
Joshua Sletten read the action items recorded during the meeting.

TF Executive Session as needed
A brief executive session was held at the conclusion of the general session.

The meeting was adjourned at 5:10 P.M.