Summary Minutes Of The

AASHTO Virtis Opis Task Force Meeting

April 10, 2012   Santa Monica, CA

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General Information – Meeting of the BRIDGEWare Task Force

Date: Tuesday, April 10, 2012

Participants:

BRIDGEWare Task Force			
AASHTO	Jan Edwards	Project Director	
AASHTO	Judy Skeen	Project Manager	BRIDGEWare
SCOJD	Dan Buhler	Manitoba T&GS	
T&AA	Wally Ballou	Kansas DOT	
T-18	Matt Farrar	Idaho DOT	Chair, T-18
V/O Task Force	Tim Armbrecht	Illinois DOT	Chair
	Dean Teal	Kansas DOT	
	Bryan Silvis	Virginia DOT	
	Joshua Sletten	Utah DOT	
	Amjad Waheed	Ohio DOT	
	Tom Saad	FHWA Liaison	
		Midwest Resource Center	
PONTIS Task Force	Ralph Phillips	Connecticut DOT	
Contractor	Jim Duray	Baker	
	Herman Lee	Baker	

Notes Taker: Bryan Silvis

General Discussion

The meeting began at 8:20 AM Tuesday. Tim introduced Matt Farrar, IDOT State Bridge Engineer and T-18 Chair. Tim also formally welcomed Judy Skeen, the new BRIDGEWare Project Manager.

Review Agenda / Assign minutes recorder

No additional items were added to the meeting at the start of the meeting. During the meeting, VOBUG President Invitations to June TF Meeting was added to the agenda as Item 8c).

Bryan Silvis was assigned as the minute's recorder.

Prior business

1a.   Review January meeting minutes
The January meeting minutes were approved.

1b.   Review Action Items
Bryan led the review of outstanding action items.

The estimate for the two-part approach (2011-VO-34) will focus on describing the truss in 3D. The Task Force wishes to load multiple lanes to model the load effects on long-span truss bridges. Gusset plate analysis needs to be considered to be able to determine the maximum stresses. This includes stringers and floor beams. The current truss evaluation is based on a line analysis. Cross-members that connect the trusses are currently missing and the User enters a distribution factor. The loading information is well-documented in the Virtis/Opis manual. The Virtis/Opis manual should not be released to non-licensed Users without the execution of an evaluation license agreement to ensure the intellectual property rights are protected. Consideration should be given to placing information regarding the availability of the Virtis/Opis manual either in the AASHTOWare Catalog or online on the AASHTOWare website. The Contractor has not yet prepared the estimate.

The Contractor advised that Caltrans indicated the possibility of providing funding for the interaction equation / adjacent vehicles enhancement (2011-VO-36). However, the enhancement would not yield much benefit without the availability of the 3D analysis.

Bryan will add whether or not Users are licensing BRASS to the survey (2012-VO-03).

Judy will monitor whether or not Wyoming DOT and vendors (BridgeTech) continue to license the developers license (brought up during discussion of 2012-VO-05).

The Contractor is working with Michigan DOT on migrating from Sybase to SQL Server (2012-VO-12).

As a 'test' bed, Judy will contact Texas Tech and Texas A&M civil engineering departments to make them aware of the opportunity to take advantage of the educational licensing.

Financial overview and work plan summary

2a.   Update on Phase 15 (FY 2011)

The Contractor summarized the report. Four tasks from the FY 2011 Work Plan are still active.

- FP6, Detailed LRFR Report, and FP22, Floor Truss Boundary Conditions, are both 70% complete.
- FP27, Drilled Shaft, is 60% complete.
- FP28, RC Culvert, is 50% complete.

70% corresponds to completion of development, 80% to completion of Alpha testing and 90% to completion of Beta testing.

2b.   Update on Phase 16 (FY 2012)

The Contractor summarized the report. The following items were called to the attention of the Task Force:

- FP1, User Requested Improvements, is 30% complete, but consists of small tasks and will not take a substantial number of hours to complete development.
- FP20, Revise Computation of De, Dv and JD, was released in the 6.3 Service Pack.

Alpha testing is being conducted as components are completed. The Contractor remains approximately two weeks behind schedule in development due to issues with 3D modeling. However, the Contractor anticipates the Beta will be available for the TAG meeting.

The Contractor projects that Time and Materials (T&M) tasks will come in under budget and indicated that significant time was spent on the development of the work plan and amendments. The Contractor will develop a projection and recommendations on final tasks to be performed under this year's T&M contract for discussion during the June Task Force meeting.

The following were discussed in response to questions asked by Matt Farrar:

- The Task Force directs work from User input and Service Unit requests. The Contractor develops estimates and the Task Force piece together Work Plans beginning at the October/November meeting each year. There is a new release in July/August each year and new features are presented at the User Group meeting.
- SCOBS ballot items are forwarded to the Contractor for estimates. If passed, they are incorporated in the next release. Funding is set aside in each Work Plan in TM-12 for Specification-Related Updates. This year's ballot items for culvert are incorporated in the new module anticipating that they will pass.
- Virtis and Opis are solvent. Consultant fees are sufficient to not require raising agency fees at this time. Contractor capacity matches the current revenue and minor Service Unit enhancement work, but is not sufficient for moderate to extensive Service Unit enhancement requests not incorporated into a Work Plan.
- Matt would like to put Tim on the T-18 agenda to discuss current enhancement work, goals and Task Force efforts to determine ways that T-18 can support this group more.
- Marketing efforts in Florida, Texas and other states were discussed. The Task Force will offer free registration to surrounding non-licensing states for the VOBUG meeting.

Update on Virtis/Opis Licensees (FY 11)

3a.   Product Report

The Contractor reviewed the Product Report.

A process to follow-up with users of the demo/evaluation software licenses should be developed to obtain feedback on the User's opinion of the software possibly in the format of a follow-up survey.

During the review of the Consultant licenses, some licenses did not show a sponsor, it was unclear how license totals broke down between states and where the work was performed for a particular state and the total reported licenses for some Consultants were questioned. Consultants with licenses from an Agency Sponsor cannot use those licenses to complete work for another Agency. The information in the End User Designee Lists is pulled from AASHTOWare Manager and sent to the Contractor.

The possibility of interactive reports (e.g., by DOT, Consultant, etc.) on SharePoint, but the AASHTO SharePoint license is limited and a database change may be required. Consultants only appear on the End User List after AASHTO receives signed agreements and payment.

The Contractor shall continue to prepare the Product Reports in the current format while AASHTO reviews the content.

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

<u>3b.   Service Unit report</u>
Judy Skeen researched Service Unit transactions over the past sixteen months, including a review of the following:
- Service Unit (SU) summary reports (January 2011 through December 2011),
- V/O SU purchases in FY12,
- Ala Mohseni's summary of enhancement tasks slated to be funded by state SU donations,
- Ala Mohseni's email conversations regarding service unit donations and related activities,

The corrected/updated V/O SU Report accurately reflects the number of SU's currently available. The revised summary was forwarded to the Contractor for inclusion in the BWTF meeting packet on 04/03/12. Previously, SU carry forward totals changed per quarterly meeting as SU's were purchased or deducted during the reporting period. Moving forward, care should be taken to ensure the SU summary accurately reflects the SU carry forward counts from the previous FY (July 1, 2012 counts) and summarizes SU's purchased and used during the FY. The carry forward total will not change from report to report.

Enhancement SU's and training SU's can be used interchangeably given that the cost of both of these is the same. The Task Force has decided to move forward with tracking agency SU totals as a single count. Judy will research the purchase of these units to determine whether all training SU's currently on the books were purchased at the same value.

Matt Farrar asked a few questions that precipitated general discussion on areas where clarifying SU details would benefit Users. SU's may be transferred between BRIDGEWare products, or between AASHTOWare products, with written request, but would be subject to exchange rates based on their original purchase price. SU's do not come with a BRIDGEWare license unlike the Transport evaluation license which causes some confusion to the User community.

Some agencies purchase the exact number of SU's estimated for a particular enhancement in a single year while others make purchases over a few years to obtain the number required. Some states purchase SU's to store for future needs when funding is available, but may be lost or unavailable in subsequent years.

The Task Force discussed and decided that Consultants should not be allowed to purchase Service Units. A

request from the Agency to the Task Force and Task Force approval will be required to receive a special exemption. Exemption requests are typically made to resolve budget and contract issues.

Support and Maintenance report
<u>4a.   Incident and support summary</u>
The Contractor reviewed the report of incremental defects reported since Version 2.0. 24 incremental bugs were reported in the last period and the number of unresolved bugs dropped from 28 to 24. Only one critical bug is unresolved compared to 5 critical bugs reported at the last meeting.

Alpha and Beta testing is performed in a limited amount of time with a small group, but is very rigorous leading to a low number of defects being reported once the product is moved to production. The low number of unresolved defects in each reporting period indicates the Contractor is responsive. With code updates and new modules added in each annual software release, the defect history slope will never be flat. The Task Force needs to continue to convey their focus on QC/QA.

<u>4b.   Progress on bug resolution</u>
The Contractor reviewed the status for releases 6.4 and 6.5.
- 6.4 Release – 15 bugs are currently unresolved. These will be resolved prior to the 6.4 release.
- 6.5 Release – 29 bugs have been reported for the 6.5 release. 19 of those were resolved and will be included in the 6.4 release. 10 bugs are currently unresolved.

<u>4c.   Enhancement list update</u>
The Contractor reviewed the Buckets and List topics

Bucket List discussion:
- The VSE Bucket (9349) was removed since this engine will not be supported any further.

Enhancement List discussion:
- Enhancements to be implemented in Version 6.4 are highlighted in the report. The last five enhancements in the report have been added since the January Task Force meeting. The TAG will short list enhancements during the TAG meeting at the end of May.

Matt Farrar asked whether enhancement emphasis was on Virtis or Opis. Recent major enhancement has focused primarily on Virtis functionality. At the 2010 VOBUG, the Opis User group indicated Substructure Drilled Shaft Specification Checking was their top major enhancement priority and the Task Force was able to advance the schedule to move it into Version 6.4. At the 2011

VOBUG, the Opis User group indicated Opis as a Design Tool was their top major enhancement priority and the Task Force is looking at when it can be incorporated into a Work Plan (currently proposed for 6.6).

Update on 6.4

5a.   Progress and schedule review
The Contractor reviewed the progress and schedule during Agenda Items VO-2a and VO-2b. Completing the Drilled Shaft Specification Checking enhancement in time for the Beta meeting is the main scheduling concern, but all other work is expected to be completed.

5b.   Draft Alpha Test Plan
The Draft 2011-2012 Virtis/Opis Version 6.4 Alpha Test Plan was presented by the Contractor. FP6 (RC Slab System) should be removed as it will be included in the 6.5 release. FP23 (VDOT Multimedia Enhancement) and FP24 (VDOT Pontis Association) should be removed as they were included in the 6.3.1 Service Pack. The 'final' version of the draft Alpha Test Plan will be forwarded to the Task Force for final review within the next week. Comments on the final version should be forwarded back to the Contractor within a week of the date the final draft review is received.

5c.   Beta Testing
The draft VO Beta TAG Meeting Agenda was distributed and presented by Dean Teal. The meeting will be held May 29 – June 1, 2012.

Enhancements

6a.   NSG User-defined library privilege
A user-defined library privilege needs to be established to allow users to save user-defined vehicles from one session to another independent from "Libraries" privileges. The enhancement separates "Libraries" and "User-owned library entries" privileges and the level of effort to incorporate this enhancement should be minimal. The enhancement will be included in TM-1 and will be incorporated into Version 6.4. The enhancement was approved by the Task Force.

6b.   Capacity Override
Tim confirmed with the Michigan DOT that they are OK with delaying their service unit work (splayed girders and cut top strand) in order to incorporate the capacity override enhancement. The Contractor did not start work on the Michigan enhancements per previous Task Force direction.

Both the estimates for design/rating and rating only were updated to include the method to indicate when results are based on a capacity override (override values in separate columns) distributed at the January Task Force meeting. Bryan indicated that the TAG discussed and decided the enhancement should include design/rating at the TAG meeting.

Since the 6.5 contract has not yet been executed, the contract will be updated prior to execution to support this change. The Contractor will provide the details to Judy for balloting with SCOJD for their approval.

6c.   Copy to Excel estimate
This enhancement may be implemented by activating copy in the grid control. However, some grids contain hidden columns and/or read only columns or cells. The Task Force asked whether headers could be added to identify the additional fields and copy in / copy out functions could be separated. The Contractor believed functions could not be separated, but will investigate. Both headers and the function split would prevent Users from copying one bridge to another.

The Task Force authorized using TM-1 to implement copy in and copy out functionality and beta tested to ensure the new functionality does not present problems.

6d.   Engine properties length limitation
String limit is 2000 characters. 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).

6e.   LRFR Distribution Factors – Multi-lane vs. Single Lane
Tim overviewed the background of this issue Missouri DOT and Caltrans believe that the single and multi-lane distribution factors for routine permit factors are not being interpreted correctly. The Contractor believes they are. Tim pursued the subject with the rating spec Contractor and then asked the Contractor to summarize the issues.

Matt Farrar said he discussed the issue with the rating spec Contractor and variability is already incorporated into the distribution factor.

Tim will forward the rating spec Contractor's response to MODOT and Caltrans to determine if they want to

continue pursuing this conservative approach. Specific comments made during discussion included that there is an Engineering aspect to the decision, AASHTO should not prevent Agency decisions and that a conservative approach to a non-conservative modification may put you where you should be. AASHTO does have a general disclaimer, but adding a return to default AASHTO Specifications checkbox in General Preferences was mentioned as a possible means to mitigate liability issues.

Miscellaneous Topics

7a. OkiePro DLL maintenance update
The following was discussed during review of Action Item 2012-VO-22:

The Contractor talked to OkDOT in March and he indicated OkDOT will finance the dll update to Version 6.3. The Contractor will work directly with OkDOT to make the necessary updates to the dlls. Dll updates beyond 6.3 are not anticipated to be large and the Task Force will assume all future maintenance under TM1 as other states are interested in using this enhancement. OkDOT remains interested in the Gusset Plate enhancement.

7b. TAG members
We will not know until the August 2012 time frame whether or not additional TAG members will need to be recruited. TAG members with post-tension box experience will need to be recruited next year (Colorado, Florida and Arizona) to support testing of the enhancements in this area.

7c. BRASS enhancements/bugs
Problems encountered with the BRASS engine may appear to the end user to be bugs within the Virtis code. All bugs elevated to the Contractor are researched to determine the source of the problem(s). When a similar issue has been reported in BRASS, the Contractor still must investigate to determine whether it is a different from the original. Only a small number of issues reported to the Contractor are determined to be bugs within BRASS.

The Contractor needs to be made aware of BRASS enhancements, but not BRASS bugs. The decision was made to not take any further action on this item.

7d. BRASS – NYSDOT 6.2 license questions
NYSDOT has not converted to Version 6.3 and is requesting that AASHTO continue to provide Version 6.2 to their Consultants in the current licensing year.

The version of BRASS shipped with 6.2 will not work with 6.3. Since the BRASS agreement with WYDOT expired June 30, 2011, BRASS cannot be provided by

AASHTO with Version 6.3, but can be obtained through third party licensing. BRASS cannot be stripped out of 6.2. A new agreement with WYDOT may be required to allow AASHTO to continue to distribute Version 6.2 with BRASS. If possible, the Task Force agrees that NYSDOT's request should be met.

7e. Licenses – NYSDOT, Puerto Rico, Wyoming
See status documented in Agenda Item 3a.

User Group

8a. Summary Minutes from Fort Lauderdale
The Contractor will distribute the Word version for comments.

8b. User Forum (VOBUG.org email from Dave Warner)
The Task Force will reimburse the User Group for the cost of the VOBUG domain.

Dean anticipates reviewing the format of the User Group Forum next week. Once reviewed by the Task Force, timing for moving forward with the forum will be determined and Dean will present on at the VOBUG meeting. Dave Warner was contacted on and supports the initiative.

8c. VOBUG President Invitation to June Meeting
The Task Force agreed that Paul Campisi will be invited to attend the June Task Force meeting in Montgomery, AL to provide the Task Force with an overview of the upcoming VOBUG meeting.

Work Plan

9a. .NET discussion

The re-development effort to move into the .NET environment could be accomplished as a piece-meal initiative. Virtis/Opis C++ to C# .NET Migration cost assumptions included:

- Only minor modifications to the database to optimize the performance of over-utilized areas.
- Assume implementing similar client-server layered software architecture.
- Port all C++ code to C# except for the FE Engine.
- Only minimal changes to the existing C# code are needed.
- Assume minimal UI design, retaining the look, feel and functionality of the existing UI. Only minor UI modifications to increase consistency and usability.
- Existing C++ COM API will be replaced by similar C# API for 3rd-party developers.
- Reuse most of the Help and Manuals.

- Assume improved development efficiency in the form of language features and developer tools in using the .NET framework.

The Task Force needs to set a strategic direction for the next four or five years. Hardware and software continues to be upgraded to support enhanced capabilities. Technological advances in the upgraded code need to be utilized. Code migration will be a multi-year effort and an overall plan is necessary to accomplish it. At this point, it might be a good opportunity to develop a list of items that the Task Force members believe to be priority initiatives for the next few years.

It was suggested that the user community is likely more interested in continuing with functionality enhancements as a higher priority than an effort to upgrade the technology. User buy-in is necessary; however, the Task Force has to take ownership of the future of Virtis/Opis. Increased application performance needs to be focused on in the near term and the user community would expect to see increased performance and interface with the code migration.

Third party review of the code migration from a technology perspective was discussed. On a similar initiative, Pontis sent code to Carnegie Mellon to review. Some of the suggestions returned were incorporated into Virtis Opis. Third party review by a Consultant specializing in code migration was discussed as an alternative, but there was concern over whether the cost would be estimated and recommendations made anticipating that they would perform the work. Capitalization funds are available for an evaluation.

The Carnegie Mellon contract should include actions for them to identify options for overall improvements to the system.

9b.   2-year project development
Consideration should be given to tackling enhancements as two year projects: Year one to perform preliminary work on the enhancement; Year two to address modifications that would have an impact on the schedule and add significant cost. Preliminary work should be usable in the first year.

Larger efforts should be addressed as a two phase approach: Phase 1) Design, TAG Review and Changes; Phase 2) Development.

9c.   Future work plans
Deferred to April meeting.

9c.   Long-term plan
The following list was compiled of possible directions for long-term planning:

- Continue adding major bridge types
- Enhance existing bridge types (e.g. additional culvert types, expand finite element capabilities, etc.)
- Additional modules (e.g. LRFR for trusses, LRFR for floorbeam floor system, AASHTO timber engine, etc.)
- Upgrade C++ coding to C# (potential to increase software performance and reduce cost of future enhancement)
- Report writing
- Design tools and revamp design interface
- Agency Service Unit work

SHRP2 results should be monitored to evaluate possible functionality enhancement needs. There is an effort underway to rewrite Section 5 (Concrete Structures). There is also a lot of research underway in Gusset Plate analysis to incorporate finite element analysis software. Oklahoma DOT is interested in incorporating Gusset Plate analysis into Virtis/Opis. The Contractor is currently working on the scope and estimate for this effort. The Task Force has agreed to fund ongoing support for the Oklahoma Gusset Plate analysis enhancement. T-18 is currently reviewing the results of studies performed by Oklahoma, Oregon and California). Should the Oklahoma solution not follow AASHTO code, Virtis/Opis will support both the Oklahoma solution and the AASHTO code version.

T-18 is interested in obtaining AASHTO guidance for bridge evaluation. NCHRP and FHWA have proposed code language.

Additional discussion deferred until the June Meeting.

FHWA Update

NHI LRFR Training Course 130092 was hosted by Utah in March. South Carolina DOT has scheduled the 4-day course for August and MnDOT is hosting the 2-day course in May.

On April 19, FHWA HIBT will be hosting the 4th webinar in a series to aid States with the implementation of LRFR. The webinar, 'State Specific LRFR Load Rating Guidelines', will showcase key criteria within two State DOT's load rating programs and guidelines. Please contact Lubin Gao, lubin.gao@dot.gov, to register for the webinar.

Congressional update on new highway legislation: The U.S. House of Representatives continues to work on drafting a 5-year transportation bill, while the Senate is still advancing MAP-21, a two-year bill. A 90 day extension of SAFETEA-LU was passed and signed by the President in March, 2012, while Congress continues to establish a consensus on a new transportation bill.

FHWA Division offices have completed the initial baseline assessment of NBIS Oversight metrics. FHWA will require a few more months to prepare a summary report for the FHWA Administrator, and it appears that there is little or no "non-compliance" within the 23 metrics. Many States are 'conditionally compliant' with various metrics and FHWA will focus this year's oversight efforts on improving uniformity by Division offices in evaluating metrics.

FHWA has completed and distributed a report of 'Critical Review Findings for the NBI Program'. The report documents best practices for identifying and tracking critical findings and provides recommendations for State DOTs to implement comprehensive procedures to track and follow-up safety-critical bridge inspection findings.

FHWA has developed an internal reporting mechanism to communicate bridge safety findings, as a result of the fracture of a diaphragm plate that allowed a stay cable on the Sabo pedestrian bridge in MN, and a bridge canopy on a bridge in GA to fall on active roadways. The 'Event Reports' are not intended to be technically detailed, only provide enough information to convey the technical issue at a level that will create a common understanding. If a resolution of an event does result in a technical report of significance, those will be prepared and forwarded separately. The reports provide information to the Division Office so that the Bridge Engineer can share safety issues with their respective State bridge safety personnel.

Update on the National Tunnel Inspection Standards (NTIS) regulation and the Tunnel Operations, Maintenance, Inspection and Evaluation (TOMIE) Manual: FHWA published an Advance Notice of Proposed Rule Making (ANPRM) in 2008. FHWA received comments to the ANPRM and prepared a Notice of Proposed Rule Making (NPRM) taking into consideration the comments received. The NPRM was published in 2010. FHWA received comments to the NPRM and has prepared a Final Rule considering the comments received. The final rule is being reviewed by the Office of the Secretary of Transportation (OST) and the Office of Management and Budget (OMB). Until the final rule is published, FHWA cannot provide information or confirmation about the details in the final version of NTIS. The TOMIE manual is intended to be one of the articles of implementation of NTIS. It will need to be revised to be aligned with the language and details of the final regulation. FHWA cannot be certain about the timeframe for the implementation of NTIS, however, once the regulation is in place, the TOMIE manual will be distributed soon after.

FHWA LTBPP has organized and hosted meetings of the newly formed TRB LTBP Advisory Board and LTBP State Coordinator's Committee. Three Expert Task Groups have been established and will host initial meetings in the next 2 months. These committees are established to provide a mechanism for FHWA to receive critical and timely guidance needed by the LTBPP staff to ensure the program produces results that are of the highest value to the U.S. bridge design, management and operations community. Please contact your LTBP State Coordinator for more information on the goals of the LTBPP. Dr. Hamid Gashemi, FHWA LTBPP Project Manager, will be providing a 60 minute overview of the program for the Pontis TF, this week.

FHWA distributed a memorandum dated February 10, 2012, to update Division Offices and States on the efforts underway to address the 'Elevated Chloride Levels in SikaGrout® 300PT Cementitious Grout'. It provides a working list of bridges that may contain grouts with elevated chloride levels and discusses research that has been initiated and the development of an updated specification for grouts. It also asks Division offices to work closely with their State to develop a better list of bridges that may be affected.

Marketing / Training

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