

**Summary Minutes of The
AASHTO Virtis Opis Task Force Meeting**
January 12-13, 2011 Clearwater, FL

Table of Contents

Table of Contents	1
General Information – Meeting of the BRIDGEWare Task Force	3
General Discussion.....	3
Financial overview and work plan summary.....	3
Update on Phase 14 (FY 2010).....	3
Update on Phase 15 (FY 2011).....	3
Update on Virtis/Opis Licensees (FY 11)	4
Product report.....	4
Service Unit report.....	4
Support and Maintenance report	4
Incident and support summary	4
Progress on bug resolution	4
Enhancement list update	4
Status of Team Foundation Server implementation.....	4
Status of Developer Studio 2010 implementation	4
Miscellaneous Topics	4
TAG members	4
64-bit build status (Deliver two DVD's?).....	4
CalTran's concrete enhancements.....	5
Product Performance Measures.....	5
Update on 6.3	5
Progress and schedule review	5
Draft Alpha Test Plan	5
Beta Testing	6
Enhancements.....	6
Selection of Spec Version	6
Multimedia	6
Full 3D analysis update	6
General Preferences	6
Point load capacity for pin and hanger	6
Design Tool changes.....	7
Field measured DW.....	7
AASHTO LFR Engine Rating Factors Estimate (single/multi DF, w/wo Imp.)	7
User Group	7
Summary Minutes from San Francisco	7
User Forum.....	7
Work Plan	7
FY 12 draft work plan	7
Staffing update	8
Future work plans	8
BRASS-WyDOT discussion.....	8
Agreement with WYDOT – BRASS expiration date	8
WisDOT Culvert Software Update.....	8
FHWA Update.....	8
Status of appropriations and authorizing legislation.....	8
States that have scheduled load rating/LRFR training with NHI in the first quarter of CY 2011	8
FHWA NBIS Program Oversight:	8



FHWA report on Bridge Program Strategic Goals: 8
New Team Leader in FHWA Office of Bridge Technology:..... 8
Miscellaneous Topics - Continued..... 9
CalTrans concrete enhancements 9



General Information – Meeting of the BRIDGEWare Task Force

Date: Wednesday, January 12, 2011 12:45 PM – 5:00 PM

Participants:

BRIDGEWare Task Force

AASHTO	Jim Ramsey (AI VO-08 & 2 nd / 3 rd ES only)	Project Manager	BRIDGEWare
T&AA	Wally Ballou	Kansas DOT	
V/O Task Force	Tim Armbrecht Dean Teal Bryan Silvis Joshua Sletten	Illinois DOT Kansas DOT Virginia DOT Utah DOT	Chair
Contractor	Jeff Campbell (intermittent) Jim Duray Herman Lee	Baker Baker Baker	

BRIDGEWare Task Force not in attendance due to concurrent Pontis Task Force Meeting:

AASHTO	Jim Ramsey (remaining time)	Project Manager	BRIDGEWare
SCOJD	Dan Buhler	Manitoba DOT	
Pontis Task Force	Mike Johnson Scot Becker Paul Jensen Francois Ghanem	CalTrans Wisconsin DOT Montana DOT New York DOT	Chair

Note Taker: Bryan Silvis

Executive Session began at 12:45 PM

General Discussion

Agenda items were reorganized to allow for attendance needs between the Virtis Opis and Pontis meetings.

Financial overview and work plan summary

Update on Phase 14 (FY 2010)

The Contractor discussed phase 14 issues. All time and materials tasks are inactive; there are four active fixed price tasks. The overall progress is 70 percent complete. The Michigan LRFR Enhancements are currently on hold waiting for comments from HNTB on changes that may ultimately affect the MBE. The Contractor will send the Michigan DOT an email proposing how to finish the work and determine who will be checking the enhancement. With direction, the work can be completed in a few weeks.

Update on Phase 15 (FY 2011)

The Contractor discussed phase 15 issues, noting that the contract amendment tasks, which are not shown in the December report, will be shown in the January report and are all under development or complete. Deferred or on-hold work is depicted by shading. The Contractor indicated that development is currently on track to meet the Alpha and Beta testing schedules. A build is actually scheduled the following week for LFR steel. A number of TM tasks are or are projected to be over budget and each was discussed in detail.

The Contractor sought guidance on whether 64-bit testing should include the full suite planned for 32-bit or just perform the current build testing checklist for 32-bit. The Kansas DOT identified issues with GIS applications; windows based clients, print servers, and Microstation in their 64-bit environment. Another Virtis/Opis 64-bit build was made this week, but has not been tested yet.



The full range of 32-bit testing would result in a substantial increase in the required budget. The Contractor stated that although the source code is the same, 32-bit and 64-bit installation (executable dll's), environments (third party products), and library calling functions are a little different from one to the other. To test fully, preparation of expected results, data entry and comparison would be required for both. Survey results indicate the 64-bit and Windows 7 conversions are further along and a higher priority for DOT's than originally assumed by the Task Force.

The Task Force decided not to expand the budget for 64-bit testing citing the performed/scheduled build work, previous problems with the 64-bit build were addressed quickly and delaying the 64-bit release is possible if significant problems are encountered during Beta testing (run in 32-bit until 64-bit completed). Whether DOT's completely moved to 64-bit can run 32-bit versions needs to be confirmed.

The Contractor expects the Projected Cost at Completion for time and material tasks will exceed the Budget.

Broke at 3:15 PM
Resumed at 3:30 PM

Update on Virtis/Opis Licensees (FY 11)

Product report

Alaska will be added to the list of demos/evaluations. New consultant licenses are indicated in the comments column. The number of Opis Unlimited licenses will increase by one from last year, with Michigan licensing Opis. Agency sponsored consultant licenses are tracked for Virginia and Michigan on the final page.

Service Unit report

Oklahoma transferred service units from Transport to Opis and New Jersey transferred service units from Virtis to Pontis. There was confusion over when letters for donated service units are sent, show up in the report, and are released. The Contractor has a tracking sheet, but was not sure if it was the official source. The Task Force will check with BRIDGEWare Project Manager later in the meeting.

Support and Maintenance report

Incident and support summary

The Contractor discussed incidents and support issues with the Task Force. Forty-seven reported bugs are unresolved, which is substantially less than the number of unresolved bugs this time the previous year.

The number should decrease with development winding down.

Progress on bug resolution

The Contractor discussed progress on bug resolution with the Task Force, which contains the list of 43 assigned incidents received prior to the December deadline. The Contractor anticipates all will be completed by the start of Beta testing.

Enhancement list update

The User Group Enhancements were discussed. Mockups for the shear stirrup enhancement are expected next week and will be discussed later. The Virtis/Opis enhancement list will be scrubbed at the Beta TAG meeting.

Status of Team Foundation Server implementation

Visual SourceSafe (used to record and control source code changes for the past ten years) end of life is April 2011. Microsoft encourages users to migrate to Team Foundation Server (TFS). The Contractor started TFS implementation in November. Current implementation allows the Contractor to perform automated nightly builds without third party software and can lead to automated testing with the available tools in the future. TFS also has incident tracking capabilities similar to Elsinore, which will be investigated, but there are no plans to switch at this time.

Status of Developer Studio 2010 implementation

Developer Studio 2010 was implemented and is being used. Some well-liked features were removed or behave differently in this version, but a service pack is anticipated soon to restore some of the lost productivity.

Miscellaneous Topics

TAG members

The current list contains 10 Virtis and 9 Opis TAG members. The Task Force had no objections to any of the potential TAG members presented and the list was formally approved.

64-bit build status (Deliver two DVD's?)

BRASS will not work in a 64-bit environment and has no current plans to switch. A 64-bit version of Madero is in development. The TAG will not be charged with testing BRASS hookup, as this is Wyoming's responsibility. The TAG will either keep 6.2 loaded or bring BRASS to the TAG meeting. Beta bugs discovered in the engine or export will be referred originally to Wyoming. Separate DVD's are planned for installation (i.e. 32-bit or 64-bit).



CalTran's concrete enhancements

The Task Force and the Contractor discussed the proposal submitted by CalTrans. Under the proposal all bridges would use the same interface which would be based on the most complex bridge types, set up for the entire structure and include substructure definitions. Similar to Virtis/Opis implementation, the bridge would be defined using a reference line, which would include the distance from the reference line to edges of deck to define the bridge width.

The original goal for Virtis and Opis was to be able to handle 80 percent of bridge inventory. However, DOT expectations have increased over the years and the unspoken expectation is really 100 percent. 3D modeling is becoming more mainstream with the FHWA encouraging its use and countries like Germany using it exclusively. The proposed interface may be overly complicated for simple bridges, but different bridge types could be included with minor adjustments.

Examples of questions requiring investigation include whether this is the direction we want to go, how could it be accomplished, whether wizards could be developed to simplify input for simple bridges, whether the database is in jeopardy or adaptive and whether alternate options are still feasible. As proposed, the interface would involve many capabilities not currently in Virtis or Opis (e.g., frames, integral piers, and running live load across a transverse joint).

Implementation could begin with the slab system work as a test case (stimulate ideas and identify problems) in Version 6.4 or the post-tensioned box and other work in Version 6.5. New input could start out in the new format with migration occurring later or everything switched at one time. If implemented, this may also be an opportunity to move to a .NET interface.

Discussion was tabled and a teleconference was scheduled with Caltrans for 3:30 on Thursday.

Product Performance Measures

The Contractor developed the performance target report for Pontis and for Virtis/Opis. Pontis has four product performance measures while Virtis/Opis has three. The Task Force questioned who requested the report and whether more content was required. For example, X bugs were reported, Y resolved, the target was met/not met, the Task Force agreed to release/not release based on the following circumstances and the following corrective action is recommended.

The Task Force will work with AASHTO to determine the required content, reporting period and submission date of the report.

Adjourned at 5:15 PM

Resumed at 8:00 AM on Thursday, January 13, 2011

Update on 6.3

Progress and schedule review

The progress and schedule review included the amendment tasks not discussed during the financial review. The truss LL distribution factor development in user requested improvements is done; the pin and hanger enhancement will be discussed later in the meeting. Mockups for the shear stirrup design wizard are expected next week. The TAG will be given advanced warning when mockups become available and require a one-week turnaround. Design tool changes will be further discussed later in the meeting.

Development is finished for adding pitch and gage input for steel beams and the mockup changes for control options to ignore longitudinal deck reinforcement for moment will be discussed in later in the meeting along with work on user interface expected to begin next week. The spreadsheet work in additional testing is expected to be 30% complete next week and usable by the end of the month. Longitudinal reinforcing LRFR is expected to finish up by next week. The Contractor asked whether hard coding the support conditions for Alabama DOT's floor trusses is an option if the schedule for the Floor Truss - Boundary Conditions task is jeopardized. The Task Force stated hard coding would be allowed if necessary to ensure inclusion in Version 6.3, but ultimately the control option is required.

No work has been performed on the VDOT Multimedia enhancement. The Task Force asked whether the "Include Pontis Association in Bridge Export/Import" enhancement could be done concurrently with this item. The Contractor indicated it could, but not guaranteed for 6.3 release. Formal donation of VDOT service units is required to include the enhancement in the upcoming amendment.

Draft Alpha Test Plan

The Contractor reviewed the draft Alpha Test Plan noting the first 16 pages describe testing and test bridges begin on page 17. More than sixteen user supplied test bridges were forwarded and expected results were not provided. The Contractor is expected to ensure the software runs to completion for all test bridges provided. None of the bridges provided by the TAG will be compared against expected results. Testing specific to Fixed Price Tasks in the work plan begins on page 19. The Task Force prefers for the Fixed Price Task content to remain in the draft Alpha Test Plan instead of moving the content to an appendix or removing the content and

referring to the work plan. However, the items need to be updated to reflect the amendment.

The Contractor will update the items to reflect the amendment including the complete removal of deferred work and any Task Force comments before forwarding the revised draft to the Task Force for distribution to the TAG and agencies with service unit work. The review will require a quick turnaround as Alpha testing has begun.

Beta Testing

The dates for the Beta TAG meeting were set for the week of April 11. Proposed agenda items include scrubbing the enhancement list, reviewing CalTrans ideas, and surveying the TAG on 6.6 Work Plan concepts. With the shear stud and reinforcement enhancements providing test cases for the development of Opis as a design tool, the TAG may have additional direction to include in the 6.6 Work plan. Further development of Opis as a design tool provides another opportunity to make the interface change moving to a .Net format and discontinuing C++. The User group will be surveyed during the User Group meeting in Montana.

Eleven TAG members attended last year including Wendy Gagnier. As done previously, Dean will send the meeting dates to the TAG and ask them to forward whether they are available and approved. Based on the response, the Task Force will determine who is selected to attend. TAG members will be asked to volunteer to test certain enhancements to ensure all work is covered and long-term concepts are addressed.

Broke at 10:15 AM
Resumed at 10:30 AM

Enhancements

Selection of Spec Version

There was a substantial increase in cost due primarily to the additional windows and changes to existing windows. Floor beam and member alternative window were not in the previous estimate. The specific features added address comments made during review of the conceptual mockup at the October Task Force meeting. As proposed, interim specifications and associated load factors can be applied and users will not be locked into applying the 2010 specifications.

The Task Force supports a contract modification for the additional work and provided verbal approval to begin work. The Contractor will send the Task Force a request to which a respond providing written Task Force approval. As indicated in the handout, the Task Force did not decide to add special security to this enhancement, but the decision was made assuming it could be applied in the General Preferences

enhancement, which originally included specification version in the available preferences.

Multimedia

The Contractor indicated that the work in this enhancement and the additional changes that VDOT is requesting should not interfere with the Pontis BRIDGEWare Integration process, but someone on the Pontis side should test the enhancement when completed. No problems are anticipated as the work does not involve a database change, but the Contractor still needs to confirm this.

Full 3D analysis update

Description of Finite Element Models outlines the 3D finite element beam models to be used as test cases for the additional investigation approved by the Task Force. The single I-girder model with STRUDL did not match results and were non-symmetric. Switching to a cantilever model produced better results. The required level of accuracy needs to be clarified. This work is ongoing.

The work will be similar to the earlier investigative study for steel, but was done for concrete superstructures. Three responses are still outstanding, but some responses received indicated that they did not believe 3D analysis is necessary for concrete superstructures. Since this work is ongoing, it is not clear how to implement the results into the Work Plan.

General Preferences

The Michigan LRFR, Corrugated Deck, and Windows 7 enhancements were reviewed for overlap. The General Preferences enhancement replaces the Michigan LRFR and Windows 7 enhancements and overlapping work was removed from the Corrugated Deck enhancement resulting in an overall \$28k increase in the work plan estimate. Security is included in the estimate, permanent/temporary changes were added to the case scenarios in the mockup, additional preferences were added from the TAG review and Specification versions was removed as they are already part of the work performed. The Task Force supported the changes to the Work Plan.

Point load capacity for pin and hanger

The original estimate was based on entering pin and hanger capacity in the hinge window for steel member alternatives and applying the capacity to shear. Based on discussion at the VOBUG meeting and TAG mockup review comments, Users voted for this enhancement with a wider expected range of application. The Task Force decided to defer the work until the scope can be clarified and the mockup revised to show how the enhancement would work. This enhancement will be added to the



TAG meeting agenda and discussion will include whether the capacities should be entered in the POI window and already include factors.

Design Tool changes

The shear stud wizard is hard coded to select the HL-93 and fatigue truck for design optimization. The Contractor assisted Montana DOT overcome problems using the wizard, which occurred because the SI vehicle ID's in their database did not match. The Task Force directed the Contractor to develop a mockup and estimate for vehicle selection for use with all design tools. The additional changes identified by the TAG including jumping splice plates and updating the Wizards tutorial should be investigated for possible inclusion at this time. This work was identified as a possible substitute for point load capacity in the current work plan. The TAG will be encouraged to thoroughly review the stirrup wizard mockup and test the Beta versions prior to acceptance and release.

Field measured DW

The Contractor indicated that a check box for field-verified wearing surface thickness with a hard-coded factor of 1.25 for LRFR rating could be completed for 6.3 release and charged to Task Force Directed Tasks. The Task Force determined the work is critical for 6.3 release and the check box note should include the statement that a factor of 1.25 will be used when checked. Specific state needs can be addressed through service units.

AASHTO LFR Engine Rating Factors Estimate (single/multi DF, w/wo Imp.)

Every vehicle selected will be analyzed four times, appear as four vehicles and have individual specification checking. Run times will increase. BRASS uses a scaling method to obtain the rating results for the combinations. The Task Force directed the use of the more rigorous method based on TAG comment. This enhancement is only for the AASHTO LFR and ASR engines. LRFR live load is more complicated.

Illinois will fund the enhancement with a service unit, but the work should be included in a contract modification. The work will require a drop down menu instead of radio buttons to include as requested, detailed, and detailed rigorous options.

Lunch Break at 12:15 PM
Resumed at 1:00 PM

User Group

Summary Minutes from San Francisco

The Contractor will send a Word version to the Task Force for distribution.

The Contractor shall forward the final summary minutes for both the Portland and San Francisco meetings to the Task Force for distribution to the User Group.

User Forum

The Task Force proposed to setup a User Forum similar to the one for Pontis. The User Forum would be hosted by Kansas with AASHTO covering the modest fee. Kansas DOT personnel would also assist with the website and would do person-by-person username additions. Links would be provided on the Support Center and VOBUG websites.

AASHTO expressed concern with Task Force involvement, as this is a User Group function. It was suggested that a moderator might be easier to find once the forum is up and running. A presentation at the VOBUG meeting would encourage use and some or all of the wiki content could be transferrable to the new forum. The Task Force supported starting the work.

Work Plan

FY 12 draft work plan

The Contractor reviewed Draft 4 of the 2011/2012 V/O Work Plan. The Contractor will review the estimate for full 3-D analysis closer to the submission date, but the estimate may still need to be revised based on the results of the ongoing 3D investigations.

Switching to the Caltrans T-Beam approach in the Reinforced Concrete Slab System Structure Definition enhancement would reduce the estimate substantially. Export to BRASS LFD/LRFD should be removed from both the slab system and voided slab estimates. With uncertainty with when and if the Caltran's approach will be implemented, the original basis of the estimate should remain unchanged until decisions are made. Once the estimates are further defined, commitments from the states responding to a previous service unit donation query can be confirmed.

The Contractor raised the possibility of moving Drilled Shaft analysis enhancement into the Version "6.35" work as the amount of work originally anticipated may not need to be done and the Task Force expressed interest in beginning the work earlier at previous meetings. The Task Force was interested in additional enhancement of the modeling, but the additional cost and labor requirements are not known. The Task Force is in support of the Contractor determining whether the work could be incorporated into a contract modification citing the strong User interest in accelerating the completion of this enhancement

The distribution factor portion of FP Truss Cross Sections and Graphics was removed as it is being done



under FY2010. Four entities were moved to General Preferences from the Data exchange enhancement. The report tool, Michigan LRFR enhancement, and API documentation for the spec checker were deferred from the previous work plan. The Task Force will discuss service unit donation with AASHTO for the Michigan enhancement. No changes were made to Limit State Selection and Substructure result report table of contents.

The Support activities items language will be updated once the V-O issue policy is finalized. The Contractor will re-forward his comments to the Task Force for review.

Staffing update

The Contractor reviewed the three additional hires reported on at the last Task Force meeting and inquired whether to continue to seek additional staff. The Task Force believes that available income and Contractor staffing are closely balanced, but will survey the TAG and Users to their needs including service unit work.

Future work plans

The Caltrans approach, interface changes, and addition of major bridge types need to be considered together. Design tool, output and report development were also identified as possibilities for future work plans. The Task Force suggested checking the budget to determine whether a Reports TAG meeting can be held.

BRASS-WyDOT discussion

Agreement with WYDOT – BRASS expiration date

The Task Force received clarification from WYDOT. Users can continue to use BRASS with Virtis/Opis 6.2 even after the June 30 deadline. However, BRASS is not to be shipped with 6.3, and is not to be used with 6.3 without a license agreement between WYDOT and the licensee.

WisDOT Culvert Software Update

The contract with WisDOT is signed and the new module delivered. The FP task in the 2011/2012 Work Plan is to incorporate the module into Virtis and develop the interface. Enhancements can be added later. Testing will be performed on the interface not the analysis.

FHWA Update

Status of appropriations and authorizing legislation

The President has signed H.R. 3082, which includes continuing appropriations for FY 2011 and further extension of the authorization of surface transportation programs, both through March 4, 2011. It is expected that Congress will address appropriations and authorizing legislation soon after the new session convenes in January. FHWA will need to operate in a conservative manner and delay major decisions with regard to the use

of our administrative funding until Congress completes work on the full FY 11 appropriations.

States that have scheduled load rating/LRFR training with NHI in the first quarter of CY 2011

Montana, Nebraska, Kentucky, Michigan, Virginia, and Connecticut. Many of these States are licensees of Virtis and Opis, so the Task Force may wish to initiate outreach to see if they need technical assistance, or have suggestions for the Task Force.

FHWA NBIS Program Oversight:

The second of four regional meetings to rollout new procedures for NBIS program oversight by FHWA Division Bridge Engineers (DBEs) takes place this week in Baltimore. The DBEs are receiving training in the new procedure for the purpose of uniform evaluations of State DOT compliance with the NBIS regulatory requirements. The DBEs will receive information and tools to share with their respective State DOT counterparts to explain the new procedures. The DBEs will be asked to complete a comprehensive review of all 23-performance measures that have been established, in this calendar year. Then they will maintain those measures with evaluations of five or six performance areas, annually. The new procedures include specific metrics to establish whether a State is in full or partial compliance in each performance area. Midwest DBEs received training in November. Please contact your respective DBE if you have questions regarding these new oversight procedures. The procedures are established in response to OIG and GAO audits that found FHWA Oversight to be lacking uniformity and consistent detail from State to State. The audits found that several States did not comply with some NBIS requirements.

FHWA report on Bridge Program Strategic Goals:

A recent evaluation of States by DBEs indicates that 37 of 50 States have procedures to load rate LRFD-designed bridges with LRFR beginning on October 1, 2010, as required by FHWA policy. It should be noted that DBEs in a few states still had not reported and this evaluation was completed prior to the October 1 target date. An updated report will be prepared in June 2011.

New Team Leader in FHWA Office of Bridge Technology:

Dr. Joey Hartmann has accepted a lateral re-assignment to serve as the Team Leader for the Bridges and Tunnels Team in Headquarters. He has served in FHWA for over 15 years and formerly held the position of Bridge and Foundation Engineering Team Leader at the Turner Fairbanks Highway Research Center. Lubin Gao is FHWA's new Load Rating Engineer on Joey's team. Lubin formerly worked with the firm of T Y Lin.



Beckie Curtis joined FHWA and will be working for Firas Sheikh-Ibrahim as the Non-Destructive Evaluation Project Manager at Turner-Fairbanks.

Miscellaneous Topics - Continued

CalTrans concrete enhancements

Caltrans personnel reviewed the proposal that is based on their experience using Virtis and the significant time spent on work-a-rounds to get Virtis to handle more of their existing inventory. By building concepts into the architecture, future enhancement costs will decrease, third party analysis is opened up, and you obtain a better long-term final product. Additional capabilities not currently in Virtis or Opis not noted earlier include widening superstructures, longitudinal joints, construction staging, and sections with thicker webs.

Caltrans indicated that certain concepts in the proposal are higher priority and require an immediate solution. Flared T-beams, widened structures and straight beams/ girders in a curved alignment (with particular importance to the ability to define the deck edges relative to the layout line) were specifically identified. The Contractor will get with Caltrans as Virtis can handle straight splayed beams/girders without kinks in a curved alignment and there was some confusion on AASHTO engine development schedule.

The Task Force thanked Caltrans for their time and in putting the proposal together. The Task Force further acknowledged CalTrans's needs and their intent to investigate the proposal thoroughly.

Adjourned at 5:45 PM