



Newsletter



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Inside this issue:

BRIDGEWare Management Changes	I
Strategic Technical Direction Set	I
Upcoming BRIDGEWare User Group Meeting	I
Product Licenses on the Rise	I
Release 5.5 (November 2006)	2
Featured Enhancement-Non Standard Gage Analysis	2
Upcoming Release (Summer 2007)	2
Featured Enhancement-Support for LFR	2
Future Releases	2
Featured Enhancement-Addition of LRF to the AASHTO Analysis Engine	2
Strategic Technical Goals	3
Featured Goal LRF Specification Checking Module	3
Upcoming Release (Fall 2007)	3
Featured Enhancement-Substructure	3
Future Releases	3
Featured Enhancement-Design Tools	3
New Architecture, Improved Functionality	4
New Contractor on Board	4

BRIDGEWare Management Changes

AASHTO's Special Committee on Joint Development (SCOJD) recently announced changes in the Task Force that oversees the development, maintenance and support of BRIDGEWare. As of July 1, 2007 Virtis, Opis and Pontis has a new Task Force Chairman. Ken Hurst's six years of service ended on June 30, 2007 and George Conner (Alabama), has been appointed the next Chair of the BRIDGEWare product suite. Under Ken's leadership, users have seen tremendous product improvements such as LRF substructure for Opis, the start of an exciting new web-based Pontis product and additional superstructure rating capabilities for Virtis. In addition, by the end of Ken's term the number of BRIDGEWare licenses has not only increased but is at an all time high.

Ken is quick to credit the product improvements and success stories to all the Task Force members, two of which will also see their terms expire in June. "Doug Horton (Virginia) and Kevin Western (Minnesota) have been integral to the success of Virtis and Opis and all users can be grateful for the time and talents these professionals have given over the years. The same can be said for the Task Force members who have worked on the development of Pontis and have demonstrated their strong commitment to providing outstanding management tools to the bridge community. I wish the new Task Force members all the best and trust that they will enjoy the satisfaction of working with a fine group of people that Doug, Kevin and I have experienced." George Colgrove (Vermont) and Dean Teal (Kansas) joined the Task Force in July.

Strategic Technical Direction Set

The Task Force has laid out its basic technical direction for the coming years. For Pontis, the direction has been set and involves the migration of the current client-server architecture to a web-based application. With the Pontis 5.0 framework in place, work is underway to deliver version 5.1 in early 2008 (see page 4 for additional details).

Meanwhile development work on Virtis and Opis will center around four fundamental items:

1. Adding AASHTO-LRF to Virtis
2. Enhancing Opis as a design tool
3. Enhancing Opis LRF substructure capabilities
4. Creating an AASHTO LRF specification checking module for superstructures

Updates on the progress against these strategic technical goals can be found on pages 2 and 3 of this Newsletter.

Upcoming BRIDGEWare User Group Meetings

	Virtis/Opis	Pontis
Location:	Hilton Hotel Myrtle Beach, South Carolina	Marriott by the Bay Portland, Maine
Dates:	August 21 – 23, 2007	September 5 - 6, 2007
Contact:	Dave Koenig (MODOT)	James Foster (MEDOT)

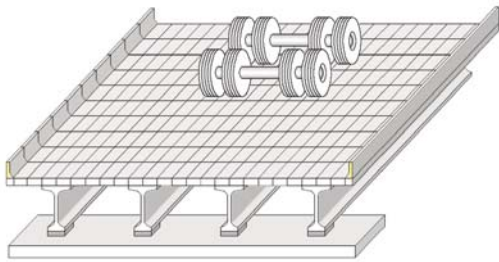
Product Licenses on the Rise

Over the past three years there has been a steady rise in the number of agencies and consultants licensing the BRIDGEWare suite. For Virtis and Opis there has been a 9% increase in the number of public agency licenses while consultant licenses have increased by 50% during the same period.

The number of Pontis licenses has increased as well, mainly in the international market, with the number of licenses increasing from 50 to 55 from 2005 – 2007.

Release 5.5 (November 2006)

- Non-standard gage analysis.
- Truss analysis.
- Flared girder analysis.
- Virtis Std LFD Engine for prestressed beams.
- Analysis Settings user templates.



Featured Enhancement - Non-standard gage analysis

Virtis has been enhanced to include the capability of analyzing vehicles with non-standard wheel spacings. The user can define a special non-standard gage vehicle by describing the number, location, and spacing of the wheels for each axle. The user also defines the paths to be traveled by the vehicle and an optional adjacent vehicle on each structure. Virtis will compute the moment and shear distribution factors for each vehicle or vehicle combination by loading influence surfaces along the user-specified paths. The surfaces are generated for each point of interest using AASHTO's 3D finite element analysis engine. The computed distribution factors can then be used to perform a rating analysis with a traditional girder-line model. This approach for handling non-standard gage vehicles only applies to Girder System structure definitions and floor beams and stringers within Floor System structure definitions. Non-standard gage analysis may be performed from the Bridge Explorer and the Bridge Workspace.

Upcoming Release (Summer 2007)

- LRFR
- Non-standard Truck Schematic
- Virtis Std Engine Enhancements (LFD)

Featured Enhancement – Support for LRFR

User interface support for LRFR was first introduced in the April 2006 release (Version 5.4) with the addition of windows for collecting data that is specification-dependent. No rating capabilities were provided at that time.

The upcoming release (planned for Summer 2007) will utilize the LRFR capabilities of the Wyoming BRASS Girder(LRFD)TM module to provide LRFR rating capabilities.



Future Releases

- AASHTO LRFR Engine
- Support for "Fishbelly" steel girder profile
- Support truss floorbeams
- Support for trusses with counters
- Support for Oracle 10.2 and Microsoft SQL Server 2005

Featured Enhancement – Addition of LRFR to the AASHTO analysis engine

There are numerous enhancements planned for upcoming releases and an increasing number of these enhancements are being funded by agencies or groups of agencies with Service Units. Support for LRFR is a strategic technical goal (see article on page 1) and as such the addition of rating capabilities using Wyoming BRASS Girder(LRFD)TM is only the beginning of LRFR support. The Task Force is planning to add LRFR to the AASHTO LRFD analysis engine currently being developed for Opis.

Strategic Technical Goals

- LRFD Specification Checking module
- Enhancing Substructure capabilities
- Adding design capabilities

Featured Goal –

AASHTO LRFD Specification Checking Module

The Opis Substructure module enhancement includes the development of a specification checking module. The framework for this new module offers a great deal of flexibility including the simultaneous support of multiple versions of a specification. This

includes user-defined specification articles that can be executed in addition to or in place of the official articles from the 2007 – 4th Edition of the AASHTO LRFD Bridge Design Specifications that will be delivered with the module. Detailed calculation information is provided for each specification article and can be used by the design engineer to better understand how the article was implemented and what data was used in the evaluation of the article. The NCHRP 12-50 Software Validation process is also implemented within each article so the results of the specification checking process can be compared to other software or to different versions of the AASHTO LRFD Specification Checking Module using automated comparison tools.

The module is being developed within a testing environment that promotes frequent validation during development. This environment promotes the testing of individual specification articles or groups of articles with controlled input that ensures all execution paths are adequately evaluated. The environment can be configured with expected outcomes so each article (or group of articles) can be automatically validated. The environment will remain useful as the specification continues to evolve allowing for comparison of effects of specification revisions.

Because the Opis Substructure module is being developed for reinforced concrete piers, the initial version of the spec-check module will only include articles pertaining to reinforced concrete. The new LRFD reinforced concrete superstructure module also uses this new spec-check module.

Upcoming Release (Fall 2007)

- Substructure LRFD analysis and specification checking
- LRFD analysis and specification checking for reinforced concrete superstructures
- Additional LRFD analysis reports for steel superstructures

Featured Enhancement – Substructure

The upcoming Fall release of Opis will include the first “official” release of the substructure module. The two previous versions of Opis were “Demonstration” releases to provide users a sampling of the features being developed and to solicit feedback about their needs for substructure analysis. The next release includes specification checking utilizing the AASHTO LRFD Specification Checking module.

New for this release is the ability to describe the pier reinforcement for the four types of reinforced concrete piers (frame, solid shaft, wall and pile bent). After the structural analysis is complete the pier can be

evaluated by the new specification-checking module in accordance with the LRFD specification. Specification checking results are available similar to those provided by Opis for superstructure LRFD analyses. Reports are available that list the results of the specification evaluation and can be filtered to quickly show which articles failed for each component of the pier. Detailed calculations are available for reporting as well.

Future Releases

- Opis as a design tool
- Additional LRFD analysis reports

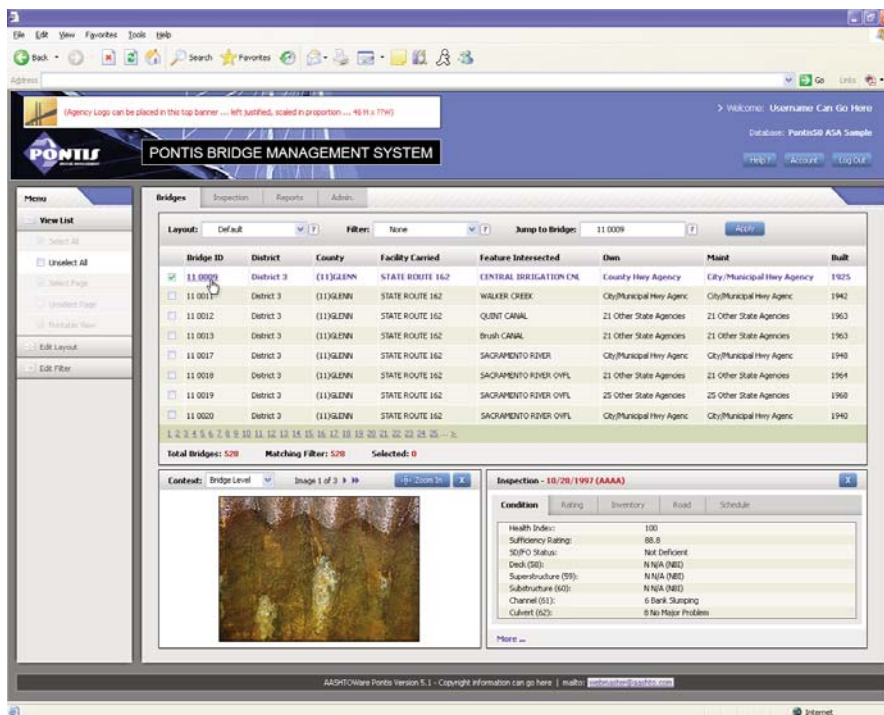
Featured Enhancement – Design Tools

Improving the design capabilities of Opis is one of the four strategic technical goals for the BRIDGEWare Task Force and is consistent with the top four User Group requests based on the voting during the 2006 User Group meeting. The Task Force intends to implement the following design capabilities as funding becomes available:

1. Add design capability for R/C members – recommend size and number of reinforcing steel for both flexure and shear.
2. Add design capability for P/S beams – recommend strand pattern and debonding or harping configurations.
3. Add shear stirrup design capability for P/S beams.
4. Add plate girder design – recommend size of web and flange plate dimensions for simple and continuous span configurations.
5. Add stiffener spacing design for steel plate girders.



4



With the Pontis 5 framework and a new development contractor in place, AASHTO is poised to deliver the first release of the next generation of Pontis software in February 2008.

New Architecture, Improved Functionality

Pontis 5 is the web-based replacement for the highly successful Pontis 4 currently used by more than 40 states, local government agencies, and several international clients. While Pontis 4 is a conventional thick-client/server application written in PowerBuilder, Pontis 5 is browser-based and coded using Microsoft .NET managed code technology, primarily in C#.

Pontis 5 will gradually supplant Pontis 4 as releases of the new product are deployed over the next few years. The phased Pontis 5 implementation focuses on delivering real functionality in two main releases termed 5.1, and 5.2. Pontis 4 will be maintained and coexist with these versions until all the functionality that is to be provided in Pontis 5 is designed and implemented.

New Contractor on Board

The Pontis Task Force recently completed a comprehensive, 3-Phase RFP process culminating in the selection of Michael Baker Jr., Inc. based in Pittsburgh, PA to create the first release of Pontis 5. Work on Pontis 5.1 will soon begin and is aimed at providing the Inspection Module which will include the following main areas of functionality:

- Agency bridge, inspection, structure unit, and roadway screens, editing of gency-specific data items;
- Support for inspection calculations, including NBI translation, sufficiency rating calculation, and NBI data validation rules;
- Migration of inspection reports to Crystal Reports;
- Data import and export functionality;
- Create Structure and support configuration screens.

Contractor for BRIDGEWare Development:

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