



# Newsletter



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## Task Force Perspectives - From the Chairman's Desk

The next several years promise to be an exciting time for Virtis/Opis users. Many new features are planned and are already in the development process. These features are being added both to satisfy the requests of our users and to meet the need to have LRFD/LRFR - ready software for the expected nationwide implementation of these specifications in near future. There will be new and better capabilities for bridge designers, bridge load rating engineers and permitting engineers alike.

By the time this newsletter is delivered, the first phase of the Opis Substructure module will have been released as a "demonstration" version. This demonstration version is the first phase in a two-phase development process for bridge design engineers to use Opis to describe, analyze and design piers

using the LRFD method. It is considered a demonstration version since it will not become a licensable product until the second phase of work is completed in 2006. The software will be delivered to all project participants and Opis licensees. It will also be available to all agencies upon request; however, the evaluation time period will be limited and the software will have an expiration date for non-project participants.

In addition to the substructure work, the superstructure user interface is being enhanced to accept the appropriate data in anticipation that states may

want to compute load ratings using the AASHTO LRFR Guide Specifications. This will be available in the December 2005 release.

**“One of the highest ranked user requests has been the need to import bridge data exchange files between different versions of Virtis/Opis. I'm pleased to announce that this capability will be provided in the December 2005 release.”**

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## Upcoming User Group Meeting

The 2005 annual meeting of the Virtis/Opis and BRASS User Groups is scheduled for August 3rd through 6th at the Marriott Hotel in Baltimore, Maryland. The Federal Highway Administration Resource Center - Baltimore will host the meeting.

The meeting will feature product updates, software demonstrations, software training and discussion concerning future plans and prioritization of enhancement requests.

The following training will be offered:

- Basic Virtis/Opis
- Advanced Virtis Floorsystem
- Virtis/Opis Schedule-Based Reinforcement
- Opis Substructure



*Those planning to attend any of the training sessions are asked to bring a laptop computer with the latest version of the software installed.*

You may contact Jeff Smith at [Jeff.Smith@fhwa.dot.gov](mailto:Jeff.Smith@fhwa.dot.gov) for more information.

<http://www.fhwa.dot.gov/resourcecenter/vobug/>

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Other significant enhancements that will occur over the next 12 months include the addition of the Pennsylvania Department of Transportation's load rating programs and the ability to compute load ratings for non-standard gage vehicles. We appreciate the efforts and cooperation of PENNDOT in the development of this unique agreement that will enable AASHTO to enhance and maintain this software within the BRIDGEWare environment, providing our users with an alternative analysis engine in their rating arsenal.

The Task Force is always interested in hearing the comments and suggestions of our users and we strive to respond to these requests in a timely and responsive manner. One of the highest ranked user requests has been the need to import bridge data exchange files between different versions of Virtis/Opis. I'm pleased to announce that this capability will be provided in the December 2005 release. The analysis of flared girder systems is another highly ranked user-requested feature that will be available in this release.

As you can see, we are working hard to place Virtis and Opis among the best software applications available. We are grateful for your continued support of and participation with the Virtis and Opis products' ongoing development.

In closing, I'd like to thank the Task Force members for their dedication and effort in leading us to these exciting times. I'd also like to thank the volunteers from the many states who dedicate much time and effort to provide technical review and testing assistance for our software.

**Ken Hurst, BRIDGEWare Chairman**

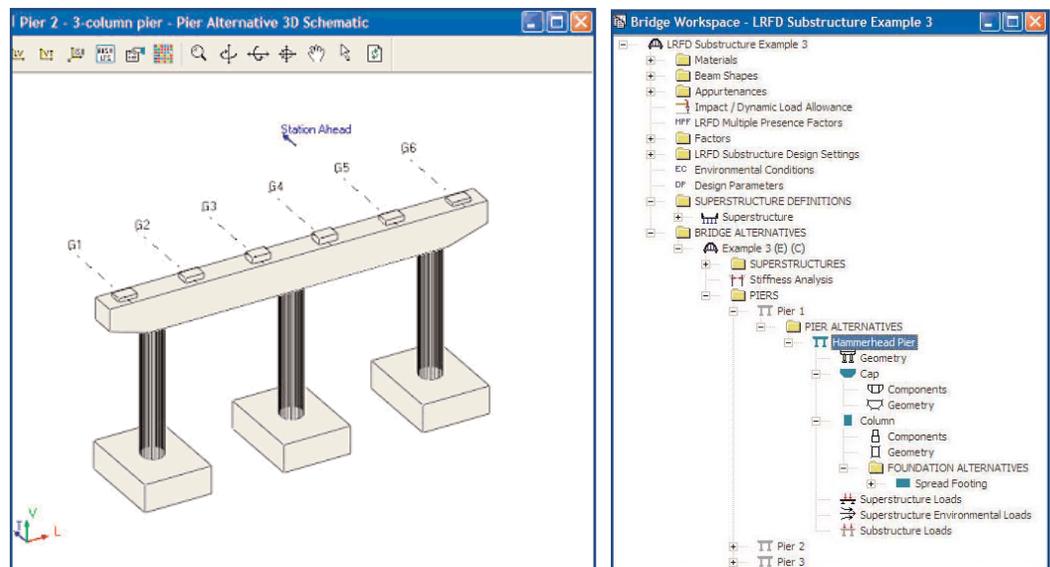
## Opis Substructure Update

Opis Substructure Version 0.9 was released in June 2005 as a "demonstration" version since it is not yet a licensable product. This release represents the first phase of the Opis substructure project. Included in this release is the ability to describe the pier geometry of four types of reinforced concrete piers: frame, solid shaft, wall and pile bent piers. Opis can compute the loads acting on the pier, including superstructure loads, or override loads can be entered. Opis generates a three-dimensional finite element model of the pier based on user-entered modeling parameters. A finite element analysis of the pier is performed and load combination results are generated based on the limit states the user chooses to include. A three-dimensional schematic view of the pier is available so users can view a to-scale drawing of the pier, the FE model of the pier and the analysis results plotted on the pier.

The second phase of Opis Substructure will include LRFD specification checking and design capabilities, including automated design tools and wizards. Work is well under way for this phase, which has an anticipated release date of June 2006.

Many thanks to the following members of the Opis Substructure TAG who have provided great assistance in the design of the user interface, the preparation of the loading and model generation requirements and beta testing for Opis Substructure Version 0.9:

- Kevin Western - Minnesota (Task Force member)
- Gregg Freeby - Texas
- Keith Gager - New York
- Tom Koch - North Carolina
- Tom Kurtenbach - Illinois



## Future Plans for Virtis/Opis

One of the major new features being added to Virtis/Opis over the next several years is the addition of new analysis engines. Through an agreement with the Pennsylvania Department of Transportation, AASHTO has received the source code to several of PENNDOT's bridge design/rating programs and will be modifying that source code to meet the needs of Virtis/Opis users. The first of the new analysis engines to be integrated is the PENNDOT BAR7 program. This program will be modified for AASHTO and will be given the name "AASHTO Standard" analysis engine. This program is currently capable of performing ASD and LFD ratings of steel girders, stringers and floorbeams, steel trusses, and single-span reinforced concrete slabs and tee beams. The software will be enhanced to allow rating of multi-span, variable depth, reinforced concrete slabs and beams and prestressed concrete beams.

### Virtis rating analysis using non-standard gage vehicles

Another enhancement that has ranked high on the users' request list is a rating analysis using non-standard gage vehicle configurations. The December 2005 release of Virtis will include the ability to rate girder and floor system superstructures for vehicles with non-standard gage axles. Users can define vehicles with an unlimited number of axles, unlimited number of wheels on each axle, and variable wheel spacing. The AASHTO finite element engine developed as part of the Opus Substructure module will be used to compute the distribution factors for the non-standard gage vehicle. A rating analysis will then be performed using these special distribution factors. This work is being funded by the Alabama, New York State, Montana and Illinois Departments of Transportation along with the Specialized Carriers and Rigging Association (SC&RA).



The following additional features are being worked on for Virtis/Opis:

### Planned December 2005 Release:

- Non-standard gage vehicle analysis
- Ability to import PENNDOT BAR7 steel girder files (funded by Oklahoma DOT)
- Export Virtis steel girders, single-span concrete slabs and tee beams to the new AASHTO Standard analysis engine (funded by Oklahoma DOT)
- Project Viewer - ability to organize bridges by projects (funded by Oklahoma DOT)
- LRFR user interface modifications
- Version conversion - ability to import bridge data exchange files between different versions of Virtis/Opis.

### Planned June 2006 Release:

- Phase 2 of Opus Substructure - LRFD Spec-check and design capabilities
- Analysis and rating of trusses (Virtis)
- Export of prestressed beams and multi-span reinforced concrete beams to the new AASHTO Standard analysis engine (funded by Alabama DOT)
- Resolution of outstanding bugs on the Virtis/Opis Technical Support Web site

## What's New?

### Virtis/Opis 5.2 - Released November 24, 2004

Version 5.2 of Virtis/Opis was released in late November 2004 and contains the following new features:

- Schedule-based description of reinforced concrete girders is supported for girder system reinforced concrete tee-beams and for girder line reinforced concrete tee-beams and slabs.
- For schedule-based R/C, a Reinforcement Plan schematic is available from the Girder Profile item of the Bridge Workspace tree.
- Also for schedule-based R/C, a Reinforced Concrete Point of Interest Wizard is available from the Points of Interest label item of the Bridge Workspace tree.
- Microsoft SQL Server 2000 is now a supported database manager.

### Virtis/Opis 5.3 - Released April 28, 2005

Version 5.3 of Virtis/Opis was released in late April 2005 and contains the following new features:

- Multimedia attachments - ability to link to multimedia files, such as photographs, sketches and drawings, spreadsheets, Word documents, etc. from a bridge in Virtis/Opis.
- Input of a truss description (Virtis only)

## Resolution of Outstanding Bugs and Enhancements

In April 2005, the Virtis/Opus Superstructure Technical Advisory Group (TAG) met with the contractor in Pittsburgh, Pennsylvania to review and prioritize the unresolved bug list on the Virtis/Opus Technical Support Web site. Over the course of several days, the TAG reviewed each of the unresolved incidents on the Web site marked as a bug and assigned each incident a priority. The result of their effort is a list of 83 incidents that are scheduled to be resolved for upcoming releases and service packs.

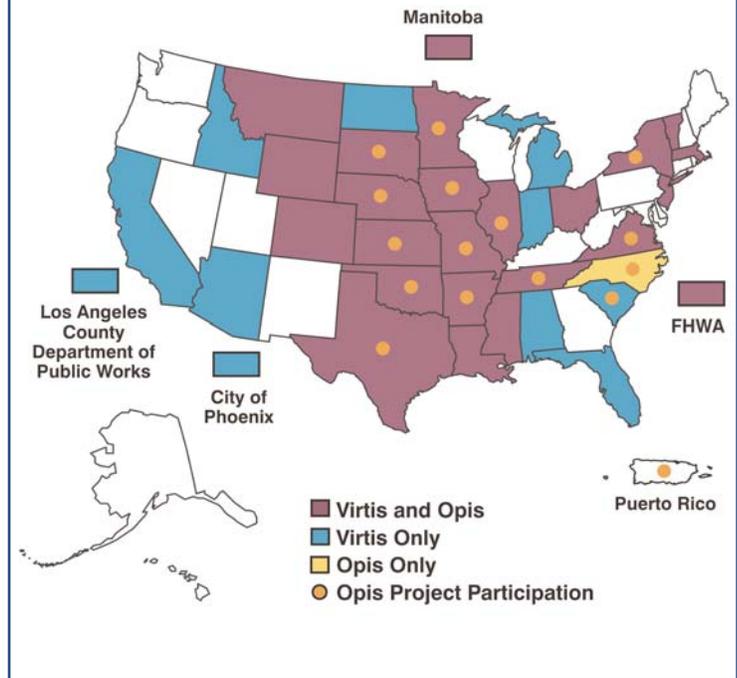
While in Pittsburgh, the TAG also reviewed the unresolved enhancement incidents and assigned them priorities. This resulted in a shortlist of enhancement items to make the list more manageable for discussing and voting by the users at the August User Group meeting.

Many thanks to the following Superstructure TAG members:

- Brian McCaffrey, New York (Task Force member)
- Robert Fulton, Alabama
- Paul Jensen, Montana
- Randall Mullins, Alabama
- Dean Teal, Kansas
- Todd Thompson, South Dakota

## Current Licensees

70 Consultant Licenses of Virtis and/or Opus



## Support Web Site

The product support Web site is established to provide a communication tool between the users and the contractor. The Web site contains many useful features and information such as:

- Frequently asked questions and technical notes
- Support center for entering incidents (enhancements, bugs, etc.)
- Tutorial and example problems
- User group information
- Product brochure

- Links to the AASHTOWare Web site
- Product downloads
  - Service packs and software updates
  - Patches
  - User documentation
  - Database documentation

Users should register by calling Jim Duray at Michael Baker Jr., Inc.

The Web site address: [aashto.bakerprojects.com](http://aashto.bakerprojects.com)

The e-mail address: [bridgeware@mbakercorp.com](mailto:bridgeware@mbakercorp.com)

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