



Newsletter



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Task Force Perspectives - The View from New York

Brian McCaffrey serves as a bridge engineer with the New York State DOT, and he is the newest member of the Virtis/Opis Task Force. We recently asked Brian a few questions to gain his perspective on the past, present and future of Virtis/Opis.

Q: How did you get involved in this project?

A: While working in NYSDOT's engineering software development and support group, I became involved with the initial deployment of Wyoming DOT's BRASS software in New York. I had my first interaction with bridge software users and developers from around the country at the second annual BRASS Users Group meeting in Denver, held in 1995. During that meeting, in an after-hours session, I was asked to host a future BRASS Users Group meeting, which was held in Albany in 1997 and would become the first joint BRASS-BARS Users Group meeting. After NYSDOT committed to the initial Virtis development solicitation from AASHTO, I became involved with the early product development after being asked to sit on the first Virtis Technical Advisory Group (the original Database TAG). Over the next few years I also sat on the Graphical User

Interface TAG and the Beta Testing TAG. In Spring 2003, I was asked to replace outgoing BRIDGEWare Task Force member George Christian, also from NYSDOT, and started my first term in July 2003.

Q: What exactly does a Task Force member do?

A: Typical Task Force member responsibilities include acting as the consulting manager for AASHTO, overseeing contractor activities and approving work orders, allocating contract funds for

Task Force directed work and balancing the annual budget. We also work closely with the user community so we can fully understand our customers' needs. User Group approved enhancements are always considered and, in the majority of cases, are acted upon, approved and put to contract. The Virtis/Opis Task Force is also charged with developing marketing strategies and researching new technologies and ideas to ensure that the product stays current in the continually evolving bridge world and information technology environments.

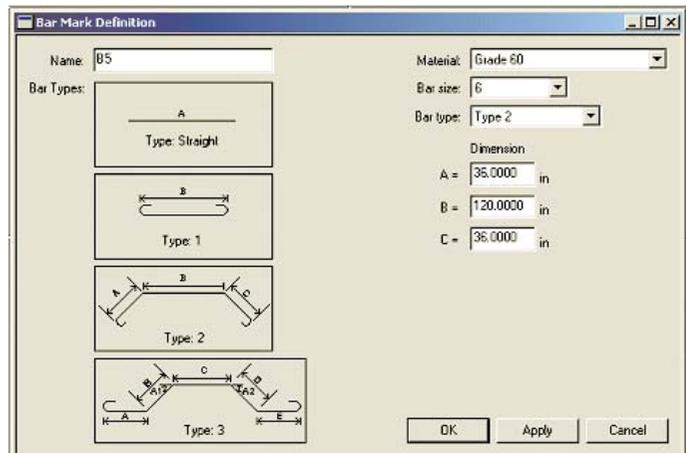
"The fact that AASHTO and our contractor listen to the user community and act on their recommendations is reason enough to be excited about this project."

Continued on Page 2

Schedule-based Reinforced Concrete

As you requested, schedule-based reinforced concrete is being developed.

Virtis/Opis currently allows the user to describe reinforced concrete girders using a cross section-based description of the girders. Work is now underway to allow the user to enter a schedule-based description of reinforced concrete girders as well.



Continued on Page 2

Task Force Perspectives - The View from New York (continued from Page 1)

Q: How is Virtis/Opis being used right now at the New York State DOT?

A: NYSDOT is currently in the process of modeling all of our Virtis ratable highway bridges, either by importing existing electronic data sets or by creating new models from scratch. We began statewide implementation of Virtis in our New York City region in Spring 2001 and have since expanded it to all of the Department's eleven regional offices for both state-owned and off-system bridges. We currently have over 4000 structures (nearly 8000 spans) modeled in Virtis, or about twenty five percent of NYSDOT's highway bridge inventory.

Q: What Virtis/Opis features are proving to be of greatest value to your bridge engineers?

A: Greater accuracy and more confidence in the results are by far the greatest values in this effort.

Q: What excites you the most about Virtis/Opis?

A: The fact that AASHTO and our contractor listen to the user community and act on their recommendations is reason enough to be excited about this project. I was on the user side of the fence until my recent appointment to the Task Force and can remember how "vocal" some of the early joint BRASS/Virtis/Opis Users Group meetings were compared to recent years. Very few, if any, commercially-developed software products have such a user involvement as the BRIDGEWare suite does. I think most users will agree that AASHTO listens to the user community and expands the participating states' resources wisely and effectively.

Q: If you had a magic wand, what additional features would you build into Virtis/Opis right now?

A: A fully functional truss module, of course. [Editor's note: Brian's wish is in the process of coming true! See related article on page 3 of this newsletter.]

Schedule-based Reinforced Concrete (continued from Page 1)

Virtis/Opis will take into account the reinforcement development lengths when it generates the cross sections for export to analysis programs.

The user will be able to define schedule-based reinforcement for girder system reinforced concrete tee-beams and for girder line reinforced concrete tee-beams and slabs. Users will be able to

describe a schedule of reinforcement as presented on design drawings, and Virtis/Opis will take into account the reinforcement development lengths when it generates the cross sections for export to analysis programs.

As part of this effort, a Bar Mark Definition will be added to allow the user to quickly define different types of reinforcing bars, including hooked bars and crank bars.

Schedule-based reinforced concrete has an anticipated release date of September 2004.

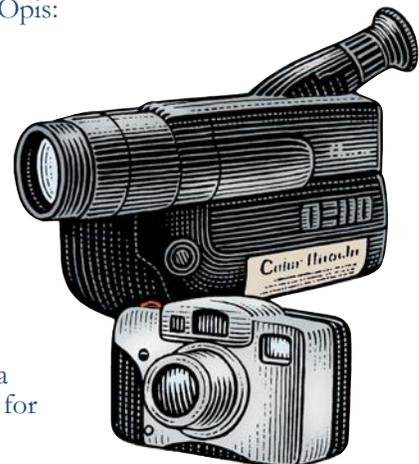
Providing Multimedia Attachments

Virtis/Opis has been designed to describe a bridge in minute detail. A wide variety of bridges can be described, and many different characteristics of the bridge can easily be entered into the program. However, what if there is additional information about your bridge - such as a photograph or a video clip - that you want to include in the bridge description?

Virtis/Opis will soon offer this capability! Two easy ways will be provided to attach a multimedia file to a bridge description within Virtis/Opis: (1) using the Bridge Workspace or (2) using the Bridge Explorer.

To whet your appetite and get your creative juices flowing, here are just a few examples of multimedia attachments that you will be able to link to your bridges within Virtis/Opis:

- Media files
- Video clips
- Photographs
- Spreadsheets
- Word documents
- Recorded interviews
- Sketches and drawings
- PowerPoint presentations
- Hand-written computations



The release of this multimedia attachment feature is planned for March 2005.

Non-standard Gage

AASHTO specifies that the standard gage (or the transverse spacing of wheels on an axle) is 6 feet or 1.8 m. The AASHTO equations for live load distribution factors are based on this standard gage. However, how can you load rate a bridge for a vehicle that does not have a standard gage?

Non-standard gage vehicles will be defined in Virtis/Opis using the Girder System structure definition.

Virtis/Opis will soon provide the solution! Non-standard gage vehicles will be defined in Virtis/Opis using the Girder System structure definition. The user will be able to define the vehicle with the following input:

- The number of axles (an unlimited number may be entered)
- The number of wheels on each axle (an unlimited number may be entered)
- The spacing between wheels on each axle (may be standard or non-standard)
- The weight of each wheel
- The spacing between axles



Non-standard gage vehicles can then be used temporarily for the current analysis event or stored in the library for future applications. Within the Bridge Workspace or the Bridge Explorer, the user can then rate the bridge for this non-standard gage vehicle. Here are the basics of how it works:

1. First, Virtis/Opis checks the advanced analysis settings to determine if a "non-standard" analysis is needed to compute the distribution factors.
2. If an advanced analysis is needed, the appropriate analysis engine is selected and the distribution factor analysis is performed.
3. The program performs the rating analysis using the special distribution factors.
4. Finally, Virtis/Opis presents both the special distribution factors and the rating analysis results.

Truss Module Development

A new module is currently being developed to facilitate the description, analysis and rating of a truss. This truss module is being developed in two phases.

Phase 1 will allow Virtis users to describe a truss using a command language description. Phase 1 includes the following features:



- Provides for user interface, database and export/analysis sufficient to describe a truss.
- Uses a command language description of the truss entered in a text editor similar to Notepad.
- Includes the capabilities to compute the truss self-weight.
- Provides a description of the member cross-sections, as well as any deterioration.
- Facilitates the computation of section properties.
- Has an anticipated release date of March 2005.

When completed, the new truss module will facilitate the description, analysis and rating of a truss within Virtis.

Truss Module Development (continued from Page 3)

Phase 2 will complete the work started in Phase 1 by adding the remaining portions of the database and implementing a complete graphical user interface for entering the truss description. Phase 2 will include the following features:

- Performs live load analysis, dead load computations and LFD rating analysis computations.
- Reports analysis and rating results.
- Has an anticipated release date of early 2006.



Update on Opis Substructure

The Opis substructure project began in July 2001 and was initially funded by sixteen agencies that are committed to providing LRFD capabilities for pier design. When completed, Opis substructure will allow the user to analyze and design several different pier types, including frames, solid shafts, wall piers and pile bents. The engineer will be able to use Opis substructure to design piers in two ways: (1) in conjunction with existing Opis superstructure capabilities or (2) as a stand-alone tool using a different superstructure package.



computation module, which automatically computes the loads acting on the pier. Development of the windows is nearing completion, and work is also focusing on load generation, load combinations and overall structural analysis results for the basic pier types. This phase has an anticipated release date of March 2005.

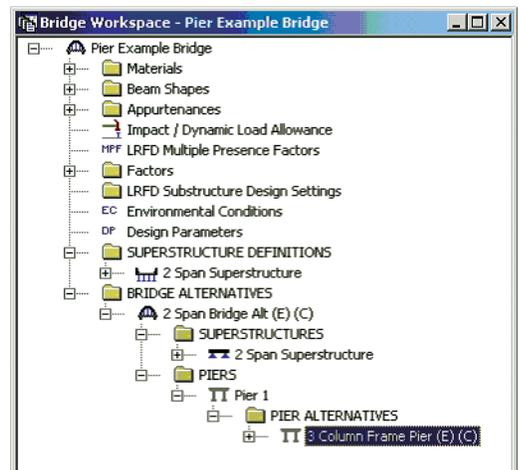
The second phase of work will include specification checking and design capabilities, including automated design tools and wizards. The system design for this second phase will begin this fall, and the second phase has an anticipated release date in 2006.

The first phase of work is going strong and is currently focused on development of the load

Database Migration

Since consistency of the database structure and data is essential for Virtis/Opis to function properly, database migration is one of the most important, complicated and sensitive tasks as new versions of the software are developed. A new Database Migration Wizard that makes the migration process easier, faster and more reliable for end-users and database administrators has been used since Version 5.0.1. This new product provides the following benefits:

- Speedy migration process - the amount of time used to migrate Virtis/Opis databases is significantly reduced with this tool.
- Ease of use - the end-user can use this tool with little or no training required.
- Migration of old database - a version as old as Version 4.0.0 can be migrated to a more recent version.
- Validates database structure - before the migration begins, the database structure is validated, which prevents partially migrated databases from being migrated again and ensures the consistency of the migrated database.



Third-party Development

From its very inception, the architecture of the Virtis/Opis framework has been designed to facilitate add-ons and extensions. AASHTO desires to leverage the user-friendly GUI's and timesaving tools of Virtis/Opis with the diversity of bridge software that has been developed by others. Therefore, they planned for Virtis/Opis to allow third-party developers to plug in their unique applications, whether it's a commercially-developed software program or a DOT program, a spreadsheet or a Visual Basic application.

Virtis/Opis third-party development is now becoming a reality for the bridge engineering community. This has been accomplished through the API (Application Program Interface), a layer that sits within the Virtis/Opis system. Here are some of the immediate benefits of the API:

- API allows third-party developers to tie-in their applications to the Virtis/Opis framework.
- API leverages the benefits of Virtis/Opis with the diversity of applications available from private developers and DOT's.
- API allows developers who are familiar with C++ and Microsoft COM to tie in their work without having to deal with the complexities of the database.
- API facilitates the comparison of results from different software, all within the Virtis/Opis system.
- API maximizes the potential of the Virtis/Opis suite.

Third-party development is now becoming a reality for the bridge engineering community. This has been accomplished through the API, which allows tie-in of virtually any application.

AASHTO is serious about allowing third-party developers to take advantage of the Virtis/Opis framework. Here are some recent developments that are making third-party development a reality:

- Documentation - Virtis/Opis Application Program Interface Documentation is now available to the public and provides a practical and comprehensive description of the API (available upon request).
- Training - a programmers' training course will be provided this summer for hands-on instruction (see article below).
- Implementation - several commercial software developers and state DOT's are already putting the API to use right now by linking their particular programs with Virtis/Opis.

Contact José Aldayuz at AASHTO for more information regarding license fees and support, or refer to the Product Catalog available at www.aashtoware.org.

Programmers' Training Course

Would you like to be able to connect a different analysis engine to Virtis/Opis? Would you like a utility that accesses the BRIDGEWare database? If you answered yes to either of these questions, then the upcoming programmers' API training course may be just right for you!

The upcoming API training course will provide you with:

- Overview of Virtis/Opis
- Overview of the API
- Overview of program architecture
- API examples (using C++)
- Short demo of Virtis/Opis
- Review of API documentation
- Overview of the engine interface



This two-day course will be held September 14-15, 2004 at the headquarters of Michael Baker Jr., Inc., in Moon Township, Pennsylvania. For more information, you may contact Cheryl Epperson at 412-269-7943 or at cepperson@mbakercorp.com.

Upcoming User Group Meeting

The annual meeting of the Virtis/Opis and BRASS User Groups is scheduled for July 21st through 24th, 2004 at the Sheraton Hotel and Conference Center in Burlington, Vermont. This year's annual conference is a combination of summer Vermont splendor and cutting-edge bridge designing and rating programming. George Colgrove of the Vermont Agency of Transportation will host the meeting.

The User Group meeting is for AASHTO, FHWA, USDOT and state DOT personnel; bridge engineers and technicians; and consultants working for state agencies in the development of public transportation projects. Your participation in this meeting will allow you to:

- Network with colleagues and establish relationships for partnering opportunities.
- Share experiences and collaborate on the acceptance of new practices.
- Increase your understanding about products and learn of new updates.
- Ensure that your voice is heard in the guidance of Virtis/Opis products.
- Discover how colleagues have tackled similar challenges.
- See demos of the latest updates in software product development.

You may contact George Colgrove at George.Colgrove@state.vt.us for more information.

<http://www.aot.state.vt.us/vobug2004/index.htm>



What's New?

Virtis/Opis 5.1 (Released October 6, 2003)

Version 5.1 of Virtis/Opis was released in early October of 2003 and contains the following new features:

- Harped and debonded P/S strands can now be defined in the same beam.
- The Virtis/Opis application can now be started from the command line, bypassing the login dialog.
- Windows XP SP1a is now a supported platform.
- Oracle 9i is now a supported database manager.
- The Migration Wizard, introduced in 5.0 SP1, has been added to the Start menu.

Service Pack 1 for Version 5.1 was released on March 24, 2004. This service pack addresses various incidents from the Virtis/Opis Technical Support website.

Virtis/Opis Technical Support Website

Several new features have been added to the Virtis/Opis Technical Support website (<http://aashto.engrprograms.com/virtis/>) in the past year.

- **eNotification Mailing List**

An end user electronic mailing list is now available for Virtis/Opis users. Subscribing to this list ensures that you will receive e-mail notifications of Service Packs when they become available, as well as Virtis/Opis workstation license renewals. You can subscribe to this mailing list on the Virtis/Opis Technical Support website. Select the "End user mailing list - enotification" link on the Technical Support homepage and follow the instructions to subscribe to or unsubscribe from this list.

- **Tentative Release Schedule**

A tentative release schedule is now available on the Technical Support website.

Customer Satisfaction Survey Results

The AASHTO Special Committee on Joint Development has initiated a process to develop a high-level performance framework integrating goal setting, performance measurement, and management controls. The AASHTOWare Strategic Plan, the performance measures adopted by the Product Task Forces, the annual Information Technology survey and an annual product customer satisfaction survey are the evolving components of this framework. The performance framework is envisioned to be part of the AASHTOWare strategic planning and budgeting cycle.

Customer satisfaction is a performance metric which most managers consider important but which few organizations really measure well. This Fiscal Year, our Virtis/Opis community (Users, Task Force Members, Contractors and Managers) initiated a system to measure customer satisfaction.

Satisfied customers are vitally important to the success of our Joint Software Development Program. With the purpose of measuring customer satisfaction, a survey was conducted of Virtis/Opis users. The survey was sent 147 people who are either end user designees or who attended the Virtis/Opis User Group Meeting, and 29 people (or 20%) responded. The following is a summary of the survey results:

- **Customer service expectations** - 89% answered that customer service is average to excellent.
- **Product platform** - 96% responded that the product platform is satisfactory or very satisfactory.
- **Support** - in various areas of support, those who are satisfied or very satisfied varied from 67% to 100%.
- **Average contractor response time** - 82% acknowledged a response in one day or less, 52% in four hours or less, 26% in two hours or less, and 18% in one hour or less. The average response time was about 17 hours.
- **Installation** - 64% are satisfied or very satisfied with installation. This is one area where users indicated that improvements to the installation process are needed. Since the date of the survey, the Contractor has developed an automated process for migrating user data to the latest version of the database.
- **Training** - in various areas of training, up to 94% are satisfied or very satisfied.

In assessing the overall value of the Virtis/Opis product, 75% rated it average or higher, and approximately 72% of the respondents would recommend the product to others.

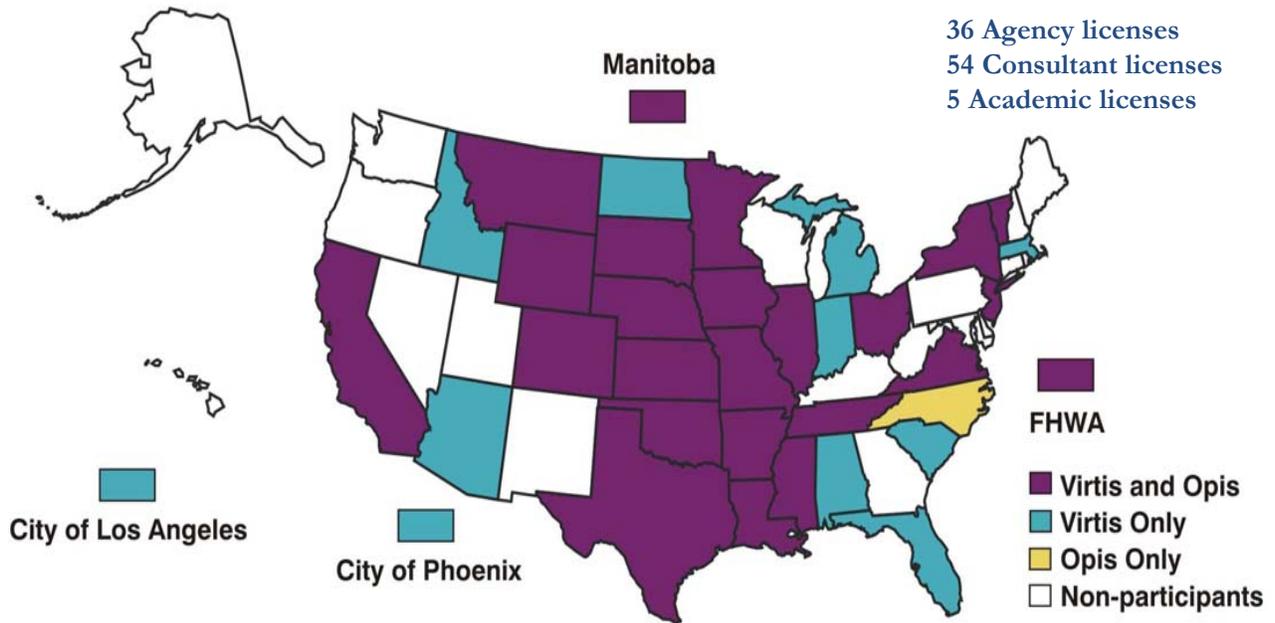
These survey responses will enable the Contractor and the Task Force to build on the product's strengths and to improve in weaker areas. The Contractor and the Task Force will take these comments seriously, and they appreciate the contributions of everyone who provided valuable input.

What's New ? (continued from Page 6)

- **Tutorials**

The Virtis/Opis training examples from the 2003 User Group meeting have been added to the Tutorials section. In addition, a document titled "Effective Flange Width Computation Method" has been added to the tutorials page. This document describes the procedures and assumptions Virtis/Opis uses when it computes the effective flange width for you.

Current Licensees



Virtis/Opis Task Force and Management Team

- | | |
|-------------------|--|
| José L. Aldayuz | Project Manager, AASHTO
jaldayuz@aaashto.org |
| Kenneth F. Hurst | Task Force Chairman
Kansas Department of Transportation
kenh@ksdot.org |
| George H. Conner | Alabama Department of Transportation
connerg@dot.state.al.us |
| Brian McCaffrey | New York Department of Transportation
bmccaffrey@dot.state.ny.us |
| Douglas L. Horton | Virginia Department of Transportation
douglas.horton@virginiadot.org |
| Kevin L. Western | Minnesota Department of Transportation
kevin.western@dot.state.mn.us |

Contractor for Virtis/Opis Development:

Michael Baker Jr., Inc.
100 Airside Drive
Moon Township, Pennsylvania 15108
Contact: Jeffrey J. Campbell, P.E.
Phone: 412-269-6300
Email: BridgeWare@mbakercorp.com

Subcontractors:
BridgeTech, Inc., Laramie, WY
Paul D. Thompson, Castle Rock, CO