BRIDGEWare Update

AASHTO Subcommittee on Bridges and Structures
Newport, RI
June, 2005

Presentation Agenda

- *What's new in 2005*

- *Enhancements in the coming year*

- *On the horizon*

- *Virtis / Opis support of LRFR and LRFD*
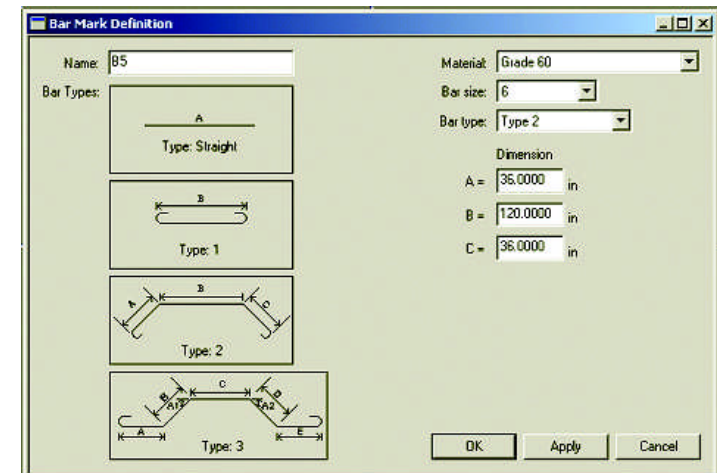
- *Upcoming meetings*

What's new in 2005

Virtis 5.2 released November 2004

- Schedule based reinforced concrete superstructure definition

    - New schematics and data entry wizard

- Added MicroSoft SQL Server 2000 as a supported database manager

- Added a variety of user-requested enhancements from the incident list

What's new in 2005

Virtis 5.3 released April 2005

- Multi-media attachments – photos, sketches, drawings, spreadsheets, Word files

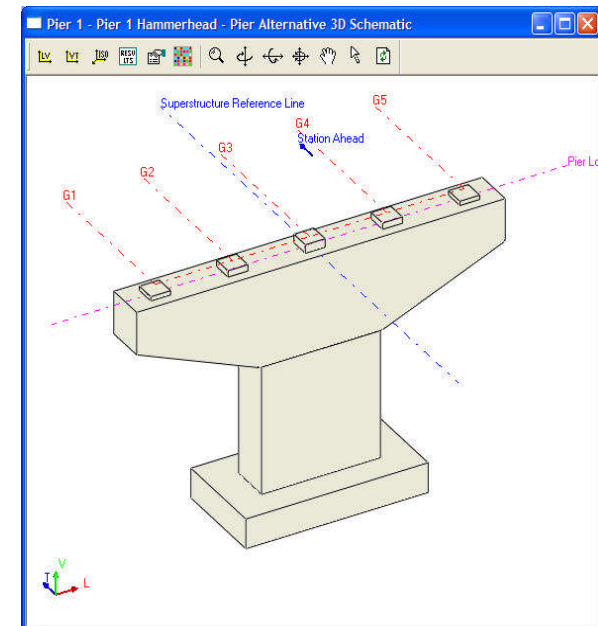- Phase I Truss rating module – truss description funded by New York State DOT

What's new in 2005

Opis Substructure – Version 0.9, June 2005

- Modeling, analysis, load combinations and results
- Various common pier types: multi-column, bents, solid shaft and hammerhead
- Works with Opis superstructure to automate load computations and load transfer
- AASHTO LRFD Bridge Specification, 3rd Ed., 2004
- First phase, demonstration project delivered June 17th to participants & Opis licensees

What's new in 2005

Pontis 4.4 released January 2005

- Performance targeting

  - Calculation of minimum annual cost to maintain a specified Health Index target

  - Allows an agency to demonstrate the impact of allowing conditions to deteriorate

  - Provides a lower bound on necessary funding

- Flexible relabeling of all buttons and labels in the product

- Support for Microsoft SQL Server

What's new in 2005

Pontis 4.4 (continued)

- New field for load rating review

- Improved calculation of costs and work quantities on inspector recommendations

- Additional fields for sorting multimedia document links

- Improved accessibility to NBI items storing proposed work

- Other user-requested enhancements

Virtis and Opis Superstructure

- Non-Standard gage vehicle analysis

  - Uses AASHTO FEA engine

  - Funded by Alabama, New York State, Illinois and Montana DOTs along with SC&RA

Virtis and Opis Superstructure

- New AASHTO standard analysis engine

  - Engine from PennDOT under special agreement

  - Steel girder, R/C slabs and beams analysis and rating (LFD)

  - Funded by Oklahoma & Alabama

- PennDOT BAR7 import utility
  - Funded by Oklahoma & Alabama
  - Steel girders

Virtis and Opis Superstructure

- LRFR User Interface – framework and GUI enhanced to accept an LRFR analysis and rating engine

- Project Viewer – ability for bridge designers to organize bridges by project

  - Funded by Oklahoma

- Version Conversion – importing bridge data file between different versions of Virtis/Opis

Virtis and Opis Superstructure

- New AASHTO standard analysis engine

  - Engine from PennDOT under special agreement

  - Steel girder, R/C slabs and beams analysis and rating (LFD)

  - Funded by Alabama & Oklahoma DOT

Pontis 5.0

- Initial web-based version of Pontis

- Will make bridge inspection and inventory data available over the web

- Support for web-based reporting

- Initial step in moving the Pontis product from a client/server to thin-client (web-based) product developed in .NET

- It will be possible to run Pontis 4.4 and 5.0 off of the same database

  - Will continue to support Pontis 4.4

Virtis Superstructure

- Phase II Truss – rating module using AASHTO FEA complete

- Continue work on AASHTO Standard analysis engine

  - Add P/S concrete girder analysis and rating

  - Add R/C continuous beam and slab analysis and rating

  - Funded by ALDOT

- Resolve outstanding incidences and user enhancement requests

On the Horizon - June 06-07

Opis Superstructure

- Link new AASHTO LRFD engines (steel and prestressed concrete) to the Opis framework

- Automated design for steel plate girders

Opis Substructure

- Complete Phase II of Project solicitation

- Add automated design features for cap, column and footing components
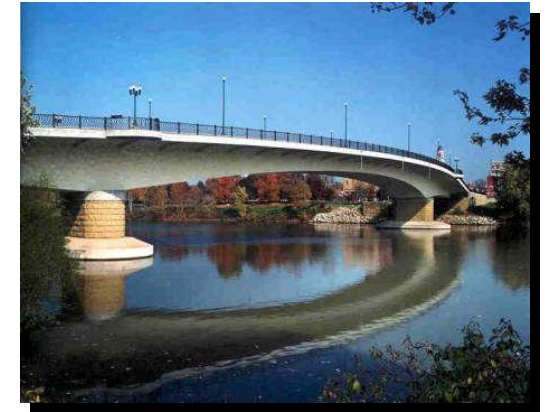
- Add LRFD Specification checking

Pontis

- Tentatively planned for June 2007
- Will build on the Pontis 5.0 work performed in 2005-2006
- Will include:
  - New inspection module supporting NBI changes
  - Web-based and standalone versions
  - Support for customization options currently in Pontis

Opis LRFD Update

Opis Superstructure – Planning stage

- Develop links to new AASHTO LRFD steel and P/S concrete engines from PennDOT "as is"

- Update programs to current AASHTO LRFD specifications and test

- Add automated design capabilities for steel girders

- Add other superstructure types per users' requests

*Estimated 2003 Dollars

Virtis – LRFR Update

Virtis Planning stage

- Virtis framework including User interface being modified to accommodate LRFR

- Database of hundreds of bridge types available to support LRFR specification validation

- Alternative rating engines being linked to Virtis (funded by Alabama and Oklahoma)
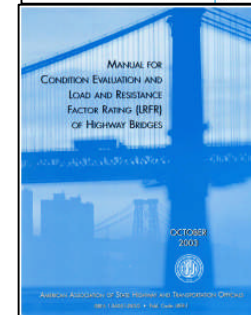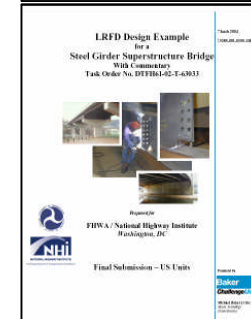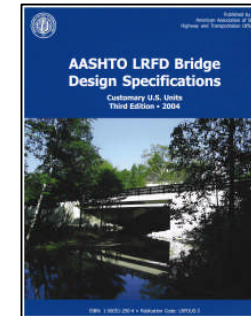
Supporting LRFD and LRFR

FHWA

Firas Ibrahim, Tom Saad and Jeff Smith participate in Virtis/Opis Task Force meetings

NHI

LRFD example problems developed using Opis

NCHRP

Virtis database and software used to support the LRFR validation process

LRFD/LRFR Summary

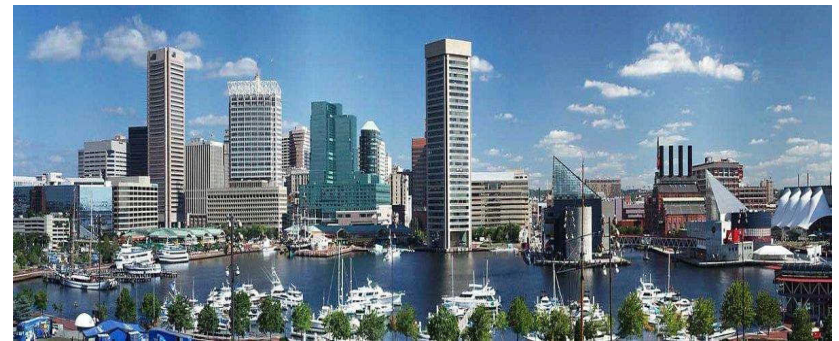| Jun 2005	Dec 2005	June 2006	Dec 2006 – Jun 2007
LRFD superstructure & Phase 1 substructure / pier ready	Virtis becomes LRFR - ready	Phase 2 LRFD substructure / pier ready	Opis LRFD superstructure enhancements & alternative engines
		Alternative rating engines available to Virtis	

2005 User Group Meetings

Virtis/Opis and BRASS User Group Meeting

- **August 3rd to 6th, 2005**
- **Beginner and Advanced training sessions on August 3rd and 6th**

- **Hosted by FHWA in Baltimore**

- **See Virtis/Opis Newsletter for more information**
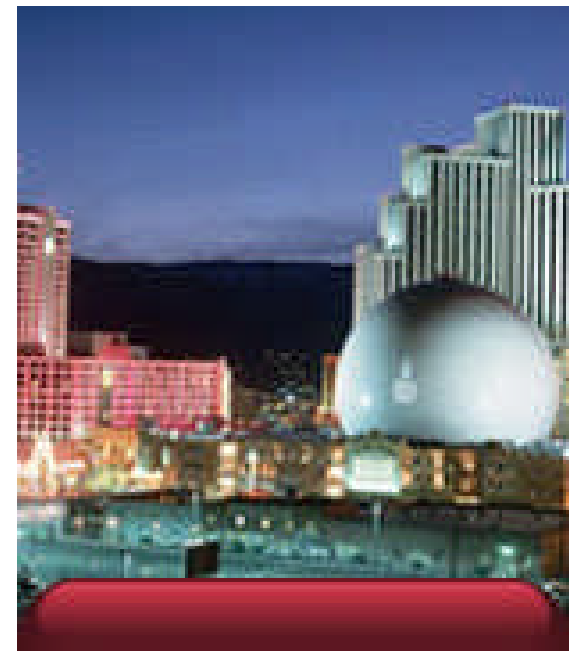
www.fhwa.dot.gov/resourcecenter/vobug

2005 User Group Meetings

Pontis User Group Meeting

- **September 28th and 29th, 2005**
- **Beginner, Intermediate and Advanced training sessions scheduled**
- **Hosted by Nevada DOT in Reno, NV**

2005 User Group Meetings

Chairman - Ken Hurst, Kansas

AASHTO Project Manager – Jose Aldayuz

Mike Johnson, California

Dan Scherschligt, Kansas

Todd Thompson, South Dakota

Paul Jensen, Montana
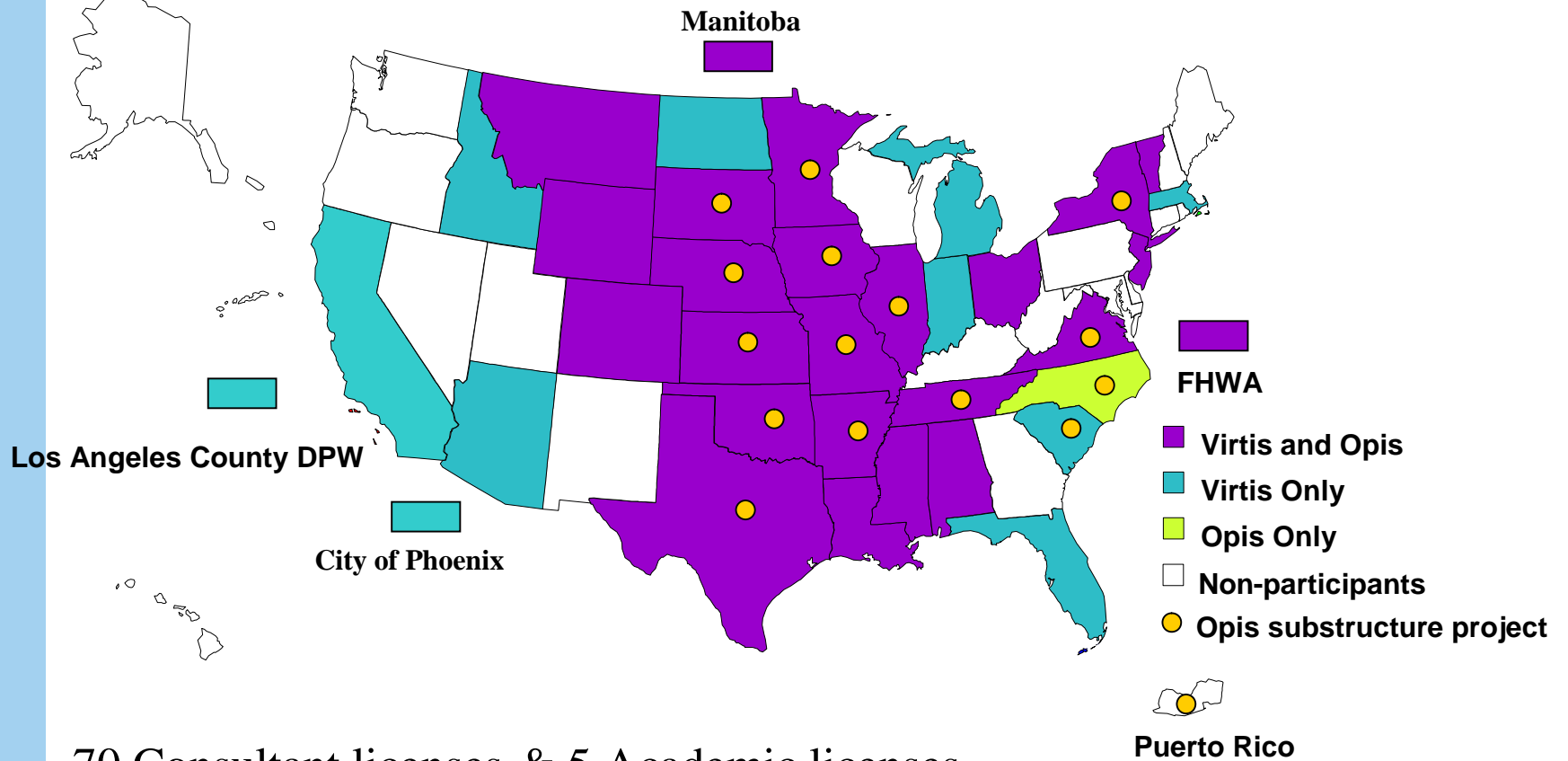
Raj Ailaney , FHWA (ex officio)

George Conner, Alabama

Doug Horton, Virginia

Brian McCaffrey, New York

Kevin Western, Minnesota

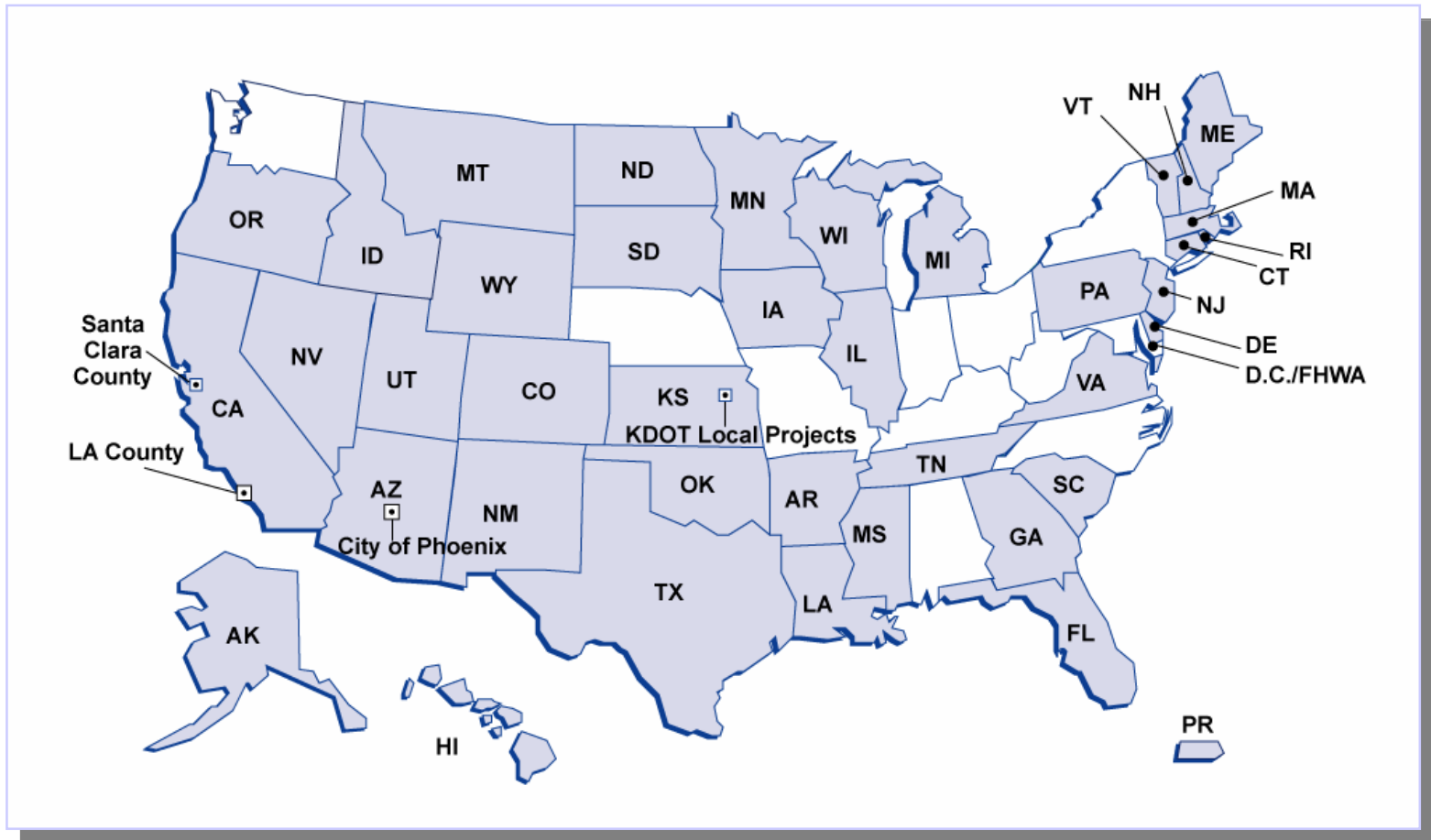Jeff Smith, FHWA (ex officio)

BridgeTech, Inc

Virtis and Opis Licensees

Manitoba

Los Angeles County DPW

City of Phoenix

FHWA

Puerto Rico

Legend:
- ■ Virtis and Opis
- ■ Virtis Only
- ■ Opis Only
- □ Non-participants
- ● Opis substructure project

70 Consultant licenses & 5 Academic licenses

36 Agency Licensees

Pontis Licensees

International:
Angola; Estonia; Hungary; Italy; Kuwait; and Hokkaido, Japan

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…..supporting the LRFD and LRFR specifications and training efforts.

Thank you for your continuing support.