30TH ANNIVERSARY

2013 INTERNATIONAL BRIDGE CONFERENCE®

David L. Lawrence Convention Center
Pittsburgh, PA USA

CONFERENCE PROGRAM GUIDE

SPONSORED BY *ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA*

THE INTERNATIONAL BRIDGE CONFERENCE®

Thank you to the sponsors of the 30th Anniversary International Bridge Conference®. Through their generous sponsorship, we are able to provide many of the amenities and events offered at this year's conference in celebration of our anniversary.

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TABLE OF CONTENTS

GENERAL INFO

WELCOME TO THE 30TH ANNUAL INTERNATIONAL BRIDGE CONFERENCE®

Please read the following general information to learn about many of the new features of the IBC! With our return to the David L. Lawrence Convention Center (DLLCC), we have the opportunity to offer many new and exciting elements to the Conference, and many new improvements from the 2012 IBC. As always, Conference personnel (found at the Registration Desk) and IBC Executive Committee Members (look for their ribbons!) can be an additional valuable source of information!

REGISTRATION DESK

The Conference Registration Desk is located in HALL B* of the DLLCC, on the riverside of the convention center. The hours of operation are:

- Sunday, June 2: 5:00 - 7:00 PM
- Monday, June 3: 7:00 AM - 5:00 PM
- Tuesday, June 4: 7:00 AM - 5:00 PM
- Wednesday, June 5: : 7:00 AM - 2:00 PM
- Wednesday, June 5: (*3rd Level) 2:00 - 5:00 PM
- Thursday, June 6: (*3rd Level) 7:00 AM - 1:30 PM

REGISTRATION AND ADMISSION

Full Registration includes admission to the Keynote Session, Featured Agency Session, daily Technical Sessions, Workshops, IBC Exhibit Hall, and the Monday, Tuesday, and Wednesday Exhibit Hall Buffet Luncheon, and 30th Anniversary Party! One-Day Registration includes the Technical Sessions, Workshops, and IBC Exhibit Hall and corresponding functions for that day only.

With so many new events included in the IBC, we hope to provide you with a better understanding of the various offerings for Conference attendees. You will still see the quality technical presentations as offered in all previous IBC's; these are referred to as "Technical Sessions", and include papers grouped into sessions of common subject matter. Again, we are offering several "Seminars" that are educational programs for continued training. We also offer for your consideration a number of "Workshops" presented by many of our co-sponsors and other industry-leading groups on an even wider variety of bridge industry subject matter.

Remember: seminars, tours, the IBC Awards Dinner, and conference proceedings require an additional registration fee. Please visit the Conference Registration Desk for details.

BADGE IDENTIFICATION

Please wear your IBC name badge at all times during the conference; it is your passport to all Conference activities. ESWP has authorized Room Monitors on staff to deny access to anyone not wearing the appropriate badge. As a safety consideration, we do suggest that you remove your badge when leaving the Conference.

MEETING INFORMATION

IBC functions are located in the DLLCC. Please check individual listings throughout this program for specific locations and times for all technical sessions, seminars and social functions. Events which require tickets will identify the specific location for these functions. Any changes in the program schedule will be posted or announced at the Conference Registration Desk.

GENERAL INFO

CELL PHONES AND PAGERS

As a courtesy to the Speakers and fellow attendees, the IBC requests that all cell phones and pagers be turned off or switched to silent mode in all Presentation Rooms.

ATTENDEE REGISTRATION LISTS

Conference registrations received prior to May 30 have been compiled in the "IBC PRE-REGISTRATION LIST - PART 1 of 2", and is available to all registered attendees in .PDF format, available to transfer to *YOUR FLASH DRIVE*. Please note, as we try to continually green the IBC, we are no longer printing Registration Lists for every attendee.

An addendum to the registration list, "PART 2 of 2," will be available Thursday morning of the conference and reflects those attendees who registered after May 30, or on-site during the conference.

An electronic copy, produced in MS Excel, of the entire Attendee Registration List is available for purchase. The cost is $25 for IBC Exhibitors, and $95 for all others, the list will be e-mailed to you following the conference. Please know that the IBC never provides email addresses as a courtesy to our registered attendees.

MESSAGE BOARD

As a service to Conference registrants, a Message Board will be located in the Registration area of the DLLCC. The board will be available on June 2 -6. Messages will be retained until the end of each day.

IBC BRIDGE TOUR

Tuesday, June 4; 1:00 - 5:00 PM

Pittsburgh is the city of bridges, and the IBC is pleased to once again offer our tour of unique area bridges. A signed waiver and release and appropriate footwear will be required to enter the construction area. This guided tour departs from the Convention Center at 1:00 PM and will visit the Freeport Bridge, South Highland Ave. Bridge, Greensburg Pike Bridge, and Tri-Borough Expressway. (An additional fee of $40 is required; advance registration is required and seating is limited.) Please check the IBC registration Desk for availability and advance registration.

IBC EXHIBIT HALL

One of the main attractions of the Conference is the IBC Exhibit Hall. As you stroll through the many exhibits, you will be able to explore the latest technologies, products and services the bridge industry has to offer. Additionally, don't forget to participate in our popular "Exhibit Hall Bingo" game for your chance to receive cash prizes, simply by visiting the exhibitors on your bingo card. All registered attendees will have a bingo card in their registration packet.

The IBC Exhibit Hall is located in HALL B. You will be able to view the exhibits during the following hours:

- Monday: 11:00 AM - 5:00 PM
- Tuesday: 8:00 AM - 5:00 PM
- Wednesday: 8:00 AM- 1:30 PM

The IBC will feature a Luncheon Buffet throughout the Exhibit Hall on Monday, June 3, Tuesday, June 4, and Wednesday, June 5 and is open (at no additional charge) to all conference-registered attendees and registered spouses.

GENERAL INFO

HOST HOTEL INFORMATION

Enjoy the luxury and convenience of the IBC Headquarters Hotel, the Westin Convention Center Hotel. Linked to the DLLCC via Skybridge, or by an easy outdoor walk across Penn Avenue. Hotel reservations can be made by contacting the Westin Convention Center Hotel directly at 412-281-3700.

Westin Convention Center Hotel
1000 Penn Avenue
Pittsburgh, Pennsylvania 15222
412-281-3700

PRE-PRINTS AND IBC MERCHANDISE

Pre-prints for all technical presentations are available at the Merchandise Booth located just inside of the Exhibit Hall near the Conference Registration Desk. Pre-prints can be purchased for just $3.00 per copy. Again this year: purchase a 1 GB flash drive that contains all available pre-prints in .PDF format for only $30.00. Also, you can find copies of previous years' IBC Proceedings (for $55 per volume). The Merchandise Booth will be open:

Monday:	11:00 AM - 5:00 PM
Tuesday:	8:30 AM - 5:00 PM
Wednesday:	8:30 AM - 1:30 PM

IBC GIFT ITEMS

Once again at this year's IBC, you will have the opportunity to purchase the popular IBC neckties, IBC Golf Shirts, T-shirts, and Hats. These items are high quality and feature the popular IBC logo. The Gift Item Table is located near the Registration Desk, just inside of Hall B, where you can make your purchases throughout the Conference until Wednesday at 1:30 PM. Please be sure to stop by and shop before Wednesday and check out our newest styles for the 2013 IBC!

COFFEE STAND

Complimentary coffee breaks are available at various times throughout the Conference as noted in your Program Guide. Most breaks are presented in the Exhibit Hall.

PDH'S

Earn Professional Development Hours (PDHs) by attending the IBC! The Engineers' Society of Western Pennsylvania (ESWP), sponsor of the IBC, is recognized as a Continuing Education Provider by the New York State Board of Professional Licensure and Florida Board of Professional Engineers, as well as many other state licensing boards. As such, your attendance at the IBC will qualify for continuing education credits in these states.

To obtain verification of attendance at the IBC from the ESWP, you must submit a PDH Request Letter. Official confirmation from the IBC Offices regarding each attendee's eligibility for PDHs will be mailed after the Conference. PDH Request Letters must be returned to ESWP. (PDH Letters can be obtained at the Conference Registration Desk or website, or by contacting the Engineers' Society of Western PA, sponsors of the IBC.)

NOTE - For fulfilling continuing education requirements with New York State, attendees are required to sign in-and-out of IBC technical sessions, workshops or seminars on the session registry. Registry forms are located at the entrance to any of these sessions. *Please note that ESWP is unable to verify your attendance in any session if you do not properly sign this registry!*

GENERAL INFO

PROCEEDINGS

Proceedings are an optional order-only purchase and may be ordered in advance or on-site at the IBC for $30.00. Following the conference, proceedings may be ordered for $55.00. The official proceedings of the 30th Annual International Bridge Conference® will be available on CD in late Summer 2013 and mailed to you at that time.

PARKING

The Westin Convention Center Hotel does have its own parking facility, and valet parking is available for an additional cost of $22 per day. Simply pull up to the front door of the hotel to utilize this service. Parking at the David L. Lawrence Convention Center is also available. Self parking lots are in the immediate vicinity. Maps are available on line at http://www.pittsburghcc.com/cc/Directions.pxp

AMERICANS WITH DISABILITIES ACT

The International Bridge Conference® and ESWP support the Americans with Disabilities Act (ADA), which prohibits discrimination against, and promotes public accessibility for those with disabilities. We ask those requiring specific equipment or services as an attendee to contact the Conference Registration Desk

LOOKING AHEAD!

Interested in presenting a paper, workshop, seminar presentation at a future IBC? The IBC Call For Papers will open immediately following the 2013 Conference, and everyone is welcome to submit an idea for presentation. Visit www.eswp.com/bridge for more details.

JOIN US AT THE 2014 IBC!

Join us in 2014 for the International Bridge Conference,® June 8-12, 2014, David L. Lawrence Convention Center, Pittsburgh, PA. Many different sponsorship oportunities are available - don't miss out and make your reservation early to take full advantage of all promotions!

GENERAL INFO

IBC EXECUTIVE COMMITTEE

The International Bridge Conference® (IBC) is sponsored by the Engineers' Society of Western Pennsylvania (ESWP), a membership based, not-for-profit organization, located in Pittsburgh, PA. Learn more at www.eswp.com. The IBC is planned mainly through the volunteer efforts of these top industry professionals who make up the IBC Executive Committee. ESWP extends a sincere thank you to the entire Executive Committee (listed below in alphabetical order) for their efforts in planning this year's conference. A very special thanks goes to the General Chair, William "Jay" Rohleder, Jr., P.E., S.E. for his leadership in planning this years conference.

VICTOR E. BERTOLINA, P.E.
SAI Consulting Engineers, Inc.
Budget Chair

CALVIN BORING JR.
Trumbull Corporation
Technical Program Co-Chair

ENRICO T. BRUSCHI, P.E.
AECOM
New Membership Chair

MATTHEW A. BUNNER, P.E.
HDR Engineering, Inc.
Seminars/Workshops Chair

RICHARD L. CONNORS, P.E., PMP
Bureau Veritas N.A., Inc.
Rules Chair

JOHN C. DIETRICK, P.E., S.E.
Michael Baker Jr., Inc.,
Technical Program Co-Chair
Education/Student Award Chair

DONALD W. HERBERT, P.E.
Pennsylvania Dept. of Transportation

GEORGE M. HORAS, P.E.
Alfred Benesch & Company

DONALD KILLMEYER, JR., P.E.
ms consultants, inc.
Tours Chair

ERIC S. KLINE, PCS
KTA-Tator, Inc.

THOMAS G. LEECH, P.E., S.E.
Gannett Fleming, Inc.
Awards Chair
Magazine Chair

M. MYINT LWIN, P.E., S.E.
Federal Highway Administration

THOMAS P. MACIOCE, P.E.
Pennsylvania Dept. of Transportation

MATTHEW P. MCTISH, P.E.
McTish, Kunkel & Associates
Construction Chair

RONALD D. MEDLOCK, P.E.
High Steel Structures, Inc.
Co-Meetings Chair

GENERAL INFO

IBC EXECUTIVE COMMITTEE (CONT'D)

GERALD J. PITZER, P.E.
Consultant

W. JAY ROHLEDER JR., P.E., S.E.
FIGG
General Chair

GARY RUNCO, P.E.
Allan A. Myers

HELENA RUSSELL
bridge design & engineering

LOUIS J. RUZZI, P.E.
Pennsylvania Dept. of Transportation

JEREMY SHAFFER, PH.D., PM
Bentley Systems, Inc.

STEPHEN G. SHANLEY, P.E.
Allegheny County Department of Public Works
Attendance/Marketing Chair

RACHEL STIFFLER
Vector Corrosion Technologies
Exhibits/Co-Sponsors Chair

JAMES L. STUMP, P.E.
Pennsylvania Turnpike Commission

DANIEL D. URANOWSKI, P.E.
Nicholson Construction Co.

THOMAS J. VENA, P.E.
A&A Consultants, Inc.
Keynote / Featured Agency Chair

KENNETH J. WRIGHT, P.E.
HDR Engineering, Inc.
Strategic Planning Chair

HONORARY MEMBERS

CARL ANGELOFF, P.E.
Bayer Material Science, LLC

JAMES DWYER
Advanced Rail Management Corporation

JOHN F. GRAHAM, JR., P.E.
Straen, Inc.

HERBERT M. MANDEL, P.E.
GAI Consultants, Inc.

LISLE E. WILLIAMS, P.E., PLS
Consultant
30th Anniversary Chair

EMERITUS MEMBERS

JOEL ABRAMS, PH.D.
Consultant

REIDAR BJORHOVDE, PH.D., P.E.
The Bjorhovde Group

ARTHUR W. HEDGREN, JR., PH.D., P.E.
Consultant

IBC HISTORICAL INFO

PREVIOUS GENERAL CHAIRMEN

2013 W. Jay Rohleder Jr., P.E., S.E.
2012 Matthew P. McTish, P.E.
2011 Thomas J. Vena, P.E.
2010 Jeffrey J. Campbell, P.E.
2009 Louis J. Ruzzi, P.E.
2008 Eric S. Kline, PCS
2007 M. Myint Lwin, P.E., S.E.
2006 Kenneth J. Wright, P.E.
2005 Enrico T. Bruschi, P.E.
2004 Thomas G. Leech, P.E., S.E.
2003 Robert F. Wellner, P.E.
2002 Donald W. Herbert, P.E.
2001 James D. Cooper, P.E.
2000 Donald J. Killmeyer, Jr., P.E.
1999 Gary Runco, P.E.
1998 Gerald J. Pitzer, P.E.
1997 Charles M. Schubert, P.E.
1996 Eric S. Kline
1995 Arthur W. Hedgren, Jr., Ph.D., P.E.
1994 Richard L. Connors, P.E., PMP
1993 Lisle E. Williams, P.E., PLS
1992 Dr. Reidar Bjorhovde
1991 Victor Bertolina, P.E.
1990 Carl Angeloff, P.E.
1989 Herbert M. Mandel, P.E.
1988 Peter Florian
1987 James D. Dwyer
1986 Stephan H. Dake
1985 John F. Graham, Jr., P.E.
1984 William J. Vandermark

PREVIOUS FEATURED AGENCIES

2013 Massachusetts
2012 Missouri
2011 Republic of Korea
2010 Maryland
2009 Pennsylvania
2008 Federal Highway Administration
2007 The People's Republic of China
2006 Delaware
2005 Maine
2004 Pennsylvania Turnpike
2003 South Carolina
2002 Utah
2001 New York
2000 Kentucky
1999 Louisiana
1998 Massachusetts
1997 New Jersey
1996 Minnesota
1995 West Virginia
1994 Virginia
1993 North Carolina
1992 Ohio
1991 California
1990 Texas
1989 Illinois
1988 Michigan
1987 Connecticut
1986 Florida
1983 Pennsylvania

IBC HISTORICAL INFO

JOHN A. ROEBLING MEDAL

Awarded to an individual for lifetime achievement in bridge engineering. Major achievements may include design, construction, research and/or educational endeavors.

2013 M. Myint Lwin, P.E., S.E., Federal Highway Administration
2012 Dann H. Hall, Bridge Software Development International, Ltd.
2011 Michael J. Abrahams, P.E., Parsons Brinckerhoff. Inc.
2010 John M. Kulicki, Ph.D, P.E., Modjeski and Masters, Inc.
2009 Harold R. Sandberg, P.E., S.E., Alfred Benesch & Company
2008 Leonardo Fernandez Troyano, Carlos Fernandez Casado S.A.
2007 William B. Conway, P.E., Modjeski and Masters, Inc.
2006 Charles Seim, P.E., F. ASCE, T.Y Lin International
2005 John E. Breen, Ph.D., University of Texas, Austin
2004 William Brown, Ph.D., Brown Beech & Associates Ltd
2003 Hiroyuki Fujikawa, Honshu-Shikoku Bridge Authority
2002 Jackson Durkee, C.E., P.E., Structural Engineer
2001 James E. Roberts, California Department of Transportation
2000 Eugene C. Figg, Jr., P.E., Figg Engineering Group
1999 Abba G. Lichtenstein, P.E., Ph.D., Retired (A.G. Lichtenstein & Associates)
1998 Man-Chung Tang, P.E., TY Lin International
1997 Christian Menn, Ph.D., Swiss Federal Institute of Technology
1996 Frank D. Sears, Modjeski and Masters, Inc.
1995 John W. Fisher, Ph.D., Lehigh University
1994 Jean M. Muller, Ph.D., J. Muller International
1993 Arthur L. Elliott, Retired (California DOT)
1992 Frank L. Stahl, Amman & Whitney
1991 Herbert Rothman, Weidlinger Associates
1990 TY Lin, TY Lin International
1989 Blair Birdsall, Retired (New York DOT)
1988 Carl H. Gronquist, Steinman, Boynton, Gronquist, & Birdsall
1987 Gerald F. Fox, Howard Needles Tammen & Bergenfodd

GEORGE S. RICHARDSON MEDAL

Awarded for a single, recent outstanding achievement in bridge engineering. Fields of endeavor may include design, construction, research or education

2013 Shandong Hi-Speed Qingdao Expressway CO., LTD, Jiaozhou Bay Bridge, Qingdao City, Shandong Province, China
2012 Nanjing Command Section of Beijing-Shanghai High-speed Railway, Nanjing Dashengguan Yangtze River Bridge, Nanjing, Jiangsu Province, China
2011 Arup & Highways Department Hong Kong, Stonecutters Bridge in Hong Kong, China
2010 Tianxingzhou Bridge Construction Headquarter of Huhanrong Railway Hubei Co., Ltd
Wuhan Tianxingzhou Rail-cum-road Yangtze River Bridge
2009 Minnesota Department of Transportation, I 35-W Bridge over the Mississippi Bridge in Minneapolis, MN
2008 Nantong City, P.R. China, Sutong Bridge, Nangtong City, Jiangsu Province, China
2007 Maine Department of Transportation, Penobscot Narrows Bridge and Observatory, Waldo and Hancock Counties, ME
2006 Donald White, Ph.D., William Wright, Ph.D., Mr. Michael Grubb, LRFD Unified Design Specifications for Steel Deck Girder Bridges
2005 GEFYRA S.A., Greece, Rion - Antirion Bridge
2004 CalTrans (Eugene Thimmhardy accepting), New Carquinez Bridge

2003 HNTB Corporation (Ray McCabe accepting), Leonard P. Zakim Bunker Hill Bridge
2002 British Columbia Ministry of Transportation, Lions Gate Bridge, Vancouver, British Columbia
2001 Rede Ferroviaria Nacional EP, Portugal, Tagus River Suspension Bridge Rail Addition Project
2000 HNTB Corporation (Ray McCabe accepting), Storrow Drive Bridge
1999 Gerard Sauvageot, J. Muller International, Confederation Bridge, Northumberland Strait, Canada
1998 Honshu-Shikoku Bridge Authority, Akashi-Kaikyo Bridge
1997 Virginia DOT, Parsons Brinckerhoff and Tidewater Construction Corp., George P. Coleman Bridge, Yorktown, VA
1996 John M. Kulicki, Modjeski and Masters, Inc., Development and Approval, LRFD Design Specifications
1995 Michel P. Virlogues and Bertrand Deroubaix Normandy Bridge
1994 Figg Engineering and Eastern Federal Lands Highway Div of FHWA, Natchez Trace Parkway Bridge, Tennessee
1993 Colorado Department of Transportation, Hanging Lake Viaduct, Glenwood Canyon, Colorado
1992 Washington State Department of Transportation, Lake Washington Floating Bridge
1991 James W. Neal, Jr., John F. Beasley Engineering, Inc., Roosevelt Lake Bridge
1990 Denny A. McLeod, Rigging International, Oakland Bay Bridge, California
1990 L. Ray Davis, Hardaway Company, Ben Sawyer Bridge, South Carolina
1989 Tsutumu Yamane, Honshu-Shikoku Bridge Authority, Honshu-Shikoku Bridge Routes, specifically the Kojima-Sukaide Route
1988 Jean M. Muller and Euguene C. Figg, Jr., Figg and Muller Engineers, Inc., Sunshine Skyway Bridge across Tampa Bay, Florida

GUSTAV LINDENTHAL MEDAL

Awarded for a single, recent outstanding achievement demonstrating harmony with the environment, aesthetic merit and successful community participation.

2013 Government of the Northwest Territories, Deh Cho Bridge, Fort Providence, Northwest Territories, Cananda
2012 Pennsylvania Turnpike Commission, I-76 Allegheny River Bridge, Oakmont, PA
2011 Buckland & Taylor Ltd., North Arm Fraser Crossing, British Columbia, Canada
2010 Construction Command Office of Zhoushan Island and Mainland Link Project of Zhejiang Province, Xihoumen Bridge, China
2009 VDOT and Maryland State Highway Administration, Woodrow Wilson Bridge, South of Washington, DC linking VA and MD
2008 FHWA, WVDOH, and ODOT, Route 50 Bridge over the Ohio River and Blennerhassett Island, Parkersburg, West Virginia
2007 Construction Command Office of Nanjing No. 3 Yangtze River Bridge, Nanjing No. 3 Yangtze River Bridge, Nanjing, P.R. China
2006 South Carolina DOT, Arthur Ravenel, Jr. Bridge
2005 Compagnie Eiffage du Viaduc de Millau, Millau, France, Viaduct of Millau
2004 The Pennsylvania Turnpike Commission, Mingo Creek Viaduct, Pennsylvania
2003 Alexandre Chan, President JK Bridge, Brazil

2002 Figg Engineers, Broadway Bridge, Daytona Beach, Florida
2001 Henrik Christensen, Øresundskorsortiet, Denmark, Oresund Fixed Link Bridge Project
2000 Celia Kupersmith, Golden Gate Bridge, GGB Highway & Transportation District
1999 Kazu Hayashida, Hawaii Dept. of Transportation, Interstate H-3 Winward Viaduct

EUGENE C. FIGG, JR. MEDAL

Awarded for a single recent outstanding achievement in bridge engineering that, through vision and innovation, provides an icon to the community for which it was designed.

2013 New York State DOT & Vermont Agency of Transportation, Lake Champlain Bridge, Crown Point, NY & Addison, VT
2012 Municipality of La Paz, The Triplet Bridges, La Paz, Bolivia
2011 Central Federal Lands Highway Division of the Federal Highway Administration, Mike O'Callaghan-Pat Tillman Memorial (Hoover Dam By-Pass) Bridge, Connecting AZ & NV
2010 New Jersey Department of Transportation, George Street Bridge, New Brunswick, NJ
2009 T.Y. Lin International, Sanhao Bridge over the Hunhe River, Shenyang, China
2008 Ohio Department of Transportation, High-Main Street Bridge, Hamilton, Ohio
2007 Florida Department of Transportation, Royal Park Bridge Replacement, West Palm Beach, FL
2006 T.Y. Lin International, Dagu Bridge, Tianjin, China
2005 Turtle Bay Museums and Arboretum on the River, Sundial Bridge at Turtle Bay, Redding, California, USA
2004 Shanghai Lu Pu Bridge Investment Development Co., Ltd, Lu Pu Bridge, China
2003 Buckland & Taylor, Ltd., Rama 8 Bridge, Bangkok, Thailand
2002 Jiangsu Provincial Department of Communications, Jiangyin Bridge, China

ARTHUR G. HAYDEN MEDAL

Awarded to recognize a single recent outstanding achievement in bridge engineering demonstrating innovation in special use bridges such as pedestrian, people-mover, or non-traditional structures.

2013 Phu My Hung Joint Venture Limited Liability Corporation, Starlight Bridge, Ho Chi Ming City, Vietnam
2012 ILEX, Peace Bridge, Derry-Londonderry, Northern Ireland
2011 New Plymouth District Council, Te Rewa Rewa Bridge, New Plymouth, New Zealand
2010 Cambridgeshire County Council, Riverside Bridge, River Cam, Cambridgeshire County, UK
2009 Museum of Flight, T. Evans Wyckoff Memorial Bridge, Seattle, Washington
2008 City of Weil Amrhein, Tri-Countries Bridge, Weil Am Rhein, Germany
2007 Project Bureau Ijburg, Nesciobrug, Ijburg, Amsterdam, The Netherlands
2006 BAA Gatwick, Gatwick Pier 6 Airbridge, Gatwick Airport, London U.K.
2005 City of Greenville, South Carolina, Liberty Bridge
2004 City of Winnipeg, Canada, Esplanade Riel Pedestrian Bridge, Canada
2003 Schlaich Bergermann und Partner, Duisburg Inner Harbor Footbridge, Germany

IBC HISTORICAL INFO

ABBA G. LICHTENSTEIN MEDAL

Awarded for a recent outstanding achievement in bridge engineering demonstrating artistic merit and innovation in the restoration and rehabilitation of bridges of historic or engineering significance.

2013 Oregon DOT, Willamette River (Oregon City) Bridge, Oregon City & West Linn, OR
2012 Florida DOT, Bridge of Lions Rehabilitation, St. Augustine, FL

HISTORIC PRESERVATION AWARD

Special and beyond the traditional guidelines of the medal categories.

2010 Walkway Over the Hudson, Poughkeepsie Highland Railroad Bridge, Hudson River, Albany & New York, NY

ENGINEERING EXCELLENCE AWARD

Special and beyond the traditional guidelines of the medal categories.

2011 FHWA Manual entitled: “Analysis and Design of Skewed and Curved Steel Bridges with LRFD Reference Manual”

JAMES D. COOPER STUDENT AWARD

A Student Paper Competition Open to all Graduate and Undergraduate Students Attending an Accredited College or University that Offers a Civil Engineering Major.

2012 Zachary B. Haber, University of Nevada, Reno, Seismic Performance of Emulative Precast Bridge Column Elements with Grouted Coupler Connections
2011 Behrouz Shafei, University of California at Irvine, CA, A Novel Vulnerability Index for Design of RC Bridges Subjected to Seismic Hazards and Environmental Stressors (IBC 11-SP)
2010 Sarira Motaref, University of Nevada, Reno, Performance of Precast Bridge Columns with Energy Dissipating Joints (IBC 10-SP)
2009 Michael Loy, Oregon Episcopal High School, Developing a Novel pH Buffer Methodology to Inhibit Corrosion of Steel Reinforcement in Concrete (IBC 09-16)
2008 Graduate: Woo Seok Kim, The Pennsylvania State University, Simplified Nonlinear Numerical Analysis Method for Integral Abutment Bridges (IBC 08-43), Under Graduate: Heidi Clayville, Theresa Howell & Kristen Erickson, Washington University in St. Louis, MO, The New Daniel Boone Bridge Project: US Route 40/I-64 Across the Missouri River
2007 Jessica T. Newlin and K. Sham Bhat, The Pennsylvania State University, Identification and Prioritization of Stream Channel Maintenance Needs at Bridge Crossings (IBC 07-18)
2006 Seung Dae Kim, Chi Won In, Kelly E. Cronin, Carnegie Mellon University, A Reference-Free Debonding Monitoring Technique for CFRP Strengthened RC Structures Using Active Sensing

KEYNOTE SESSION

8:30 – 11:30 AM BALLROOM B/C

Chair: **William J. (Jay) Rohleder, Jr., P.E., S.E.,**
Conference Chair
FIGG Bridge Engineers, Inc., Exton, PA

Welcome
Thomas E. Donatelli, P.E.
ESWP President
Michael Baker Jr., Inc., Pittsburgh, PA

Welcome
Rich Fitzgerald
Allegheny County Chief Executive
County of Allegheny, Pittsburgh, PA

Rich Fitzgerald was sworn into office as Allegheny County's 3rd Chief Executive on January 3, 2012 at Soldiers & Sailors Memorial Hall & Museum. Surrounded by his wife, Cathy Tomasovich Fitzgerald, and his children Jocelyn, Erin, Caroline, Tanner, Madeline, Louisa, Mara, and Jackson, Rich took the oath of office as administered to him by The Honorable James J. Hanley, Jr., Magisterial District Judge.

He attended St. Lawrence O'Toole grade school and Central Catholic High School before going on to attend Carnegie-Mellon University. He earned his B.S. in Mechanical Engineering with a business minor in 1981.

In 1982, Rich started a small business, Aquenef, (acronym for "water and energy efficiency"). Three decades later, the company is the leading provider of water treatment equipment and services in the Western Pennsylvania Region, with over 700 customers.

Rich first became active in government when his children began school. He and his wife became involved in the PTO and worked with local elected officials on zoning and other issues. In 1998, he worked on the campaign to change the form of government in Allegheny County and in 1999, ran for one of the district council seats on the newly-formed County Council. He represented District 11 from 2000-2011 and served from 2004-2011 as the President of Council.

During his time on County Council, Rich worked to reform government and save taxpayers money by taking on popular officials and eliminating a number of row offices. Rich also worked to improve the way Allegheny County does business. Through his legislation and leadership, Allegheny County now has a Homestead Exemption for property owners and a Human Relations Commission. In 2011, Rich resigned from County Council to run for Chief Executive, winning the seat by a huge margin on November 8, 2011.

8:45-9:10 AM

The Way Forward

Frank DePaola, P.E.
MassDOT Highway Administrator
Massachusetts DOT, Boston, MA

Frank DePaola is the Highway Administrator for the Massachusetts Department of Transportation. Prior to Mr. DePaola's appointment to the Highway Division, he was the Assistant General Manager for the MBTA's Design and Construction Directorate providing oversight to all aspects of the design and construction projects for the MBTA's Capital Management Program.

Mr. DePaola has over thirty years experience in the design and construction industry. Prior to joining the Massachusetts Department of Transportation in 2009, Mr. DePaola was Senior Project Manager for Infrastructure for Harvard University's Allston Development Group. Mr. DePaola was also Director of Construction for the Massachusetts Water Resources Authority.

Mr. DePaola is a licensed, registered Professional Engineer in Massachusetts and Rhode Island, and holds a Master of Science Degree in Civil Engineering from Northeastern University and a Bachelor of Science Degree from the University of Massachusetts-Dartmouth.

9:10-9:35 AM

Transportation Finance

Barry J. Schoch, P.E.
Secretary of Transportation
Commonwealth of Pennsylvania
Harrisburg, PA

Barry Schoch, P.E., was nominated by Governor Tom Corbett to be Pennsylvania Secretary of Transportation in January 2011.

Schoch has over 30 years' experience in the engineering field and has been heavily involved in either consulting, managing or playing a key role in many of the pending or completed transportation projects in Pennsylvania over that time.

For the 15 years prior to becoming Secretary of Transportation, Schoch worked for McCormick, Taylor & Associates as vice president and manager of their Harrisburg office transportation department. His portfolio ran the gamut from concept planning to finance strategies to project designs. A few of his projects include the Mon-Fayette Expressway in Southwest Pennsylvania; the proposed interchange between the Pennsylvania Turnpike and Interstate 95; the South Central Centre County Transportation Study in Centre County; the I-83 master plan for the Harrisburg region; the widening and reconstruction of U.S. 30 in Lancaster County; and the rebuilding of the interchange of U.S. 15 and Route 581 in Cumberland County. He played key roles in improving PennDOT's approach to context sensitive design and training for environmental quality efforts. He also managed engineering for studies of Mag-Lev in the Washington-Baltimore corridor and was

the project director for Pennsylvania's proposed Mag-Lev project from Pittsburgh to Greensburg.

Schoch previously served as the president of the Pennsylvania Highway Information Association and as the chair of Pennsylvania Consulting Engineers transportation committee, and the Design Professionals Coalition Transportation Committee.

He graduated from Penn State University in 1982 with a degree in civil engineering and is a licensed professional engineer.

9:35-10:00 AM

Impact of Map-21 on Bridges and Tunnels

M. Myint Lwin, P.E., S.E.
Director, Office of Bridge Technology
FHWA, Washington, DC

M. Myint Lwin is the Director, Office of Bridge Technology, Federal Highway Administration (FHWA), U.S. Department of Transportation. He is responsible for setting policies, regulations, program direction and guidance for the bridge and tunnel programs in accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and the Moving Ahead for Progress in the 21st. Century Act (MAP-21). His office is responsible for providing stewardship and oversight to assure safety of the Nation's highway bridges, tunnels and other related highway structures.

He was the State Bridge Engineer with the Washington State Department of Transportation before joining FHWA. He has over 35 years of experience in design, specifications, construction, maintenance and inspection of highway bridges and structures.

He holds a BSCE degree from the University of Rangoon, Burma, and holds an MSCE degree from the University of Washington, Seattle, Washington. He is a registered Professional Engineer in Civil and Structural Engineering, a member of ACI, a Life Member of ASCE, a member of TRB Committees on Steel Bridges, Construction, and Basic Research, and Secretary of the AASHTO Highway Subcommittee on Bridges and Structures. He has authored numerous papers and books on bridge engineering, and taught courses in bridge design, construction and management, and NHI courses in bridge inspection. He is an advocate for advancing bridge technologies through working together with AASHTO, States, Industry, Academia, TRB and other stakeholders to assure safety, reliability, efficiency and sustainability of highway bridges and structures.

10:00-10:25 AM

Design-Build Procurement and Best Practices

Michael Flowers, P.E.
President and CEO
American Bridge Company, Coraopolis, PA

Michael D. Flowers, P.E. is President and Chief Executive Officer of American Bridge Company, headquartered in Pittsburgh, Pennsylvania. The 113 year old specialty bridge and marine contractor has annual revenues of about $550M.

Flowers joined American Bridge in 1975 after earning his Bachelor of Science Degree in Civil Engineering from West Virginia University, and went to work as a Design Engineer in the Pittsburgh Regional Engineering office. In the early years of his career he worked on industrial projects, mainly steelmaking facilities, which AB was designing and building for its then parent United States Steel Corporation. He also earned a Master of Science Degree in Civil Engineering from the University of Pittsburgh after three years of evening school.

Mike later was assigned to a business unit of AB responsible for major commercial construction projects in the United States working largely on high-rise buildings and bridge projects throughout the USA. His projects during this era to name a few included the two-tower Phase II of the Renaissance Center in Detroit, Michigan, the One Mellon Bank Center (55 stories), PPG Place (five buildings up to 40 stories), and Fifth Avenue Place (32 stories) buildings in Pittsburgh, PA and the Riverside Drive Viaduct in New York City – a total reconstruction of an historic 1,725' (526m) 26-span deck arch viaduct.

When AB began to fall on hard times in the mid 1980's, Mike joined Mellon Stuart Construction first in their commercial building division and then in the Heavy and Highway Division, which he ran for several years. In this capacity he worked on major bridge and highway projects in Pennsylvania and Illinois.

Returning to American Bridge in 1994 as Senior Vice President of Operations, Mike became involved with major bridge projects including the reconstruction of the Williamsburg Suspension Bridge in New York City, the MacArthur Causeway in Miami, the Tagus River Bridge rail deck addition in Portugal, the Lions Gate Bridge in Vancouver, BC, the historic reconstruction of the 160 year old Wheeling Suspension Bridge in West Virginia, the Gateway Boulevard (Arch) Bridge in Nashville, TN, the Kentucky Lakes (steel girder and truss) Bridges at Kentucky Dam and the world's largest bascule structure, the 8-leaf Woodrow Wilson Bridge in Washington, DC.

Upon the award of the $1.7 billion San Francisco Oakland Bay Self Anchored Suspension Bridge in California to an American Bridge led Joint Venture in 2006; Mike took on Project Director responsibilities and moved to the site.

There he oversaw all aspects of this unique single tower, 12 lane suspension bridge construction project in the highly seismic Bay Area. The project contains 22,000 tons of temporary steel, 46,000 tons of permanent structural steel including a four legged steel tower and orthotropic box girder superstructure, and 5,500mt of prefabricated parallel wire strand cables.

Upon the retirement of Bob Luffy in 2010, Mike assumed CEO responsibilities. He is a skilled leader that is highly experienced in the technical and operational aspects of the company's project activities. Mike oversees one of the world's legendary bridge-building companies, with over 1,000 highly skilled employees across the United States and abroad. Under his direction, American Bridge will continue to strengthen its industry leading human engineering and field construction resources in the pursuit and construction of complex bridge and marine projects around the United States and the World.

Mike is married with four grown children and enjoys fly fishing and engineering history. He is actively involved with industry organizations including the Construction Industry Round Table.

10:25- 10:50 AM

The Federal Role in Transportation

The Honorable Bill Shuster
Chairman, U.S. House Transportation & Infrastructure Committee (PA 9th District)
Hollidaysburg, PA

Congressman Bill Shuster represents the hard-working people and small communities of Central and Southwestern Pennsylvania's Ninth Congressional District.

This region played an important role in the growth of the Nation's railroad industry, and because of the importance of transportation to the region and the Nation's economy, Shuster has focused on improving our infrastructure since his first days in Congress.

As a result of his proven leadership on these issues in the House of Representatives, Shuster was selected by his colleagues to chair the Committee on Transportation and Infrastructure in the 113th Congress.

The Committee, one of the largest in Congress, has broad jurisdiction over all modes of transportation, including aviation, maritime and waterborne transportation, highways, bridges, mass transit, and railroads, as well as other aspects of our national infrastructure.

Infrastructure is the backbone of our economy, and as Committee Chairman, Shuster is committed to strengthening America's national transportation and infrastructure network to make us more efficient, more competitive, and more prosperous.

Shuster has been a member of the Transportation Committee since coming to Congress in 2001. He previously served as Chairman of the Subcommittee on Railroads, Pipelines, and Hazardous Materials, as well as Chairman

of the Subcommittee on Economic Development, Public Buildings, and Emergency Management.

In addition to Congressman Shuster's prominent role on transportation policy, he continues to be an active voice in support of our Armed Services and is a recognized leader on national security matters. As a member of the House Armed Services Committee, Shuster serves on the Subcommittee on Emerging Threats and Capabilities and in the 112th Congress was the Chairman of a special panel to investigate the challenges small and medium sized businesses face in doing business with the Department of Defense. This panel's work led to National Defense Authorization Act provisions to help reduce barriers to entry for businesses and to expand our national defense industrial base.

Bill Shuster was born in McKeesport, Pennsylvania and grew up in Bedford County, Pennsylvania working on his family's farm. After graduating from Everett High School, he attended Dickinson College in Carlisle, receiving a Bachelor of Arts in Political Science and History. He went on to earn a Master's of Business Administration from American University in Washington, D.C.

Before beginning his career in public service, Shuster gained years of private sector experience, working in marketing and management with the Goodyear Tire and Rubber Corporation, and rising to District Manager for Bandag Incorporated. He was also a successful small business owner, having owned and operated an automobile dealership in East Freedom, Pennsylvania.

Shuster and his wife reside in Hollidaysburg, Pennsylvania and have two children.

10:50-11:15 AM

Transportation at a Cross Roads-MAP 21 and Beyond

Michael P. Lewis
Director, Rhode Island Department of Transportation
2013 AASHTO President
Providence, RI

Michael P. Lewis has served as the Director of the Rhode Island Department of Transportation since March 2008, being reappointed by Governor Lincoln D. Chafee in 2011.

Since joining RIDOT, he has led a public awareness campaign on transportation funding which has resulted in legislative funding reforms including the elimination of borrowing to provide federal matching funds, increases in license and registration fees for transportation, a shift in debt service away from transportation revenues, and the expansion of toll opportunities for Rhode Island.

In addition to his position as the Director of RIDOT, Lewis is chairman of the R.I. Public Railroad Corporation and a board member of both the R.I. Public Transit Authority and the R.I. Turnpike and Bridge Authority.

Director Lewis was named President of American Associa-

tion of State Highway Transportation Officials (AASHTO) on October 19, 2012. Director Lewis also chairs the Construction Subcommittee of AASHTO's Standing Committee on Highways and is a member of both the Executive Committee and SHRP II Oversight Committee of the Transportation Research Board (TRB) and the Executive Committee of the Northeast Corridor Commission (NEC).

Lewis was an engineer with the Massachusetts Highway Department and then the Massachusetts Turnpike Authority from 1984 to 2001. From April 2000 through project completion in December 2007; he was Director of Boston's Central Artery/Third Harbor Tunnel Project (Big Dig). Lewis is a member of the American Society of Civil Engineers and the Boston Society of Civil Engineers.

Lewis graduated with a Bachelor's of Science degree in Civil Engineering from the University of Vermont.

FEATURED AGENCY SESSION: MASSACHUSETTS DOT

1:00 – 5:00 PM **FIGG THEATER**

Chair: **Alex Bardow, P.E.**
Massachusetts DOT State Bridge Engineer

1:00 PM

Successfully Implementing Innovation, a Presentation Including Accelerated Bridge Construction Case Studies & Lessons Learned
Thomas P. Donald, P.E., Director of Bridge Project Management

2:00 PM

Innovative Bridge Solutions in MassDOT's New Bridge Manual
Alexander K. Bardow, P.E., Massachusetts State Bridge Engineer

2:45 PM

Communicating about Accelerated Bridge Construction — Case Studies and Resources
Eliza Partington, Bridge Technical Coordinator

3:15 PM

Managing Accelerated Bridge Construction
Victoria Sheehan, Accelerated Bridge Program Manager

4:00 PM

MassDOT's Major Projects
Joe Pavao, MassDOT Project Manager

SPECIAL INTEREST SESSION

1:00 – 3:00 PM **THEATER 3**

Autonomous Robotic Grit Blasting Systems - Sydney Harbour Bridge Case Study

Presented By: SABRE Autonomous Solutions

SABRE Autonomous Solutions is a new start up company spun out of the University of Technology Sydney (Australia). The world's first autonomous grit blasting robot capable of working in an unstructured, complex environment will be unveiled. The objective is to demonstrate the potential for autonomous field robotics systems to provide safer, more efficient and higher quality abrasive blasting in complex steel bridges. The Sydney Harbour Bridge case study will be used to tell the story of how the SABRE robotic grit blaster was developed.

Speakers: Martin Lloyd, Chief Operating Officer, Greg Peters, Engineering Design Manager, and James Ross, Design Engineer, Sabre Autonomous Solutions, Sydney, New South Wales, Australia

PROPRIETARY SESSION

1:30 – 4:30 PM **COMPUTERS & STRUCTURES INC. THEATER**

Chair: **Rachel Stiffler**
Vector Corrosion Technologies, McMurray, PA

1:30 PM

IBC 13-01: Accelerated Railroad Bridge Construction to Support Historical Transportation Modes
Quentin Rissler, P.E., Larson Design Group, Lititz, PA; Stephen Weaver, Strasburg Rail Road Company, Strasburg, PA; Jeffrey Given, P.E., Loftus Construction, Inc., Cinnaminson, NJ; Kevin Grant, CONTECH Engineered Solutions LLC, Denver, PA

A unique precast concrete arch railroad structure with precast foundation units was economically constructed on the historic Strasburg Rail Road mainline with a limited 14 day track outage which also included 2000 feet of track work. This successful accelerated bridge construction project will be examined as a case study on the importance of teamwork, communication and the appropriate use of technology in meeting modern design loads while maintaining historic transportation presentation requirements.

2:00 PM

IBC 13-02: The Quest for 100 Year Bridge Coatings in Japan
Winn Darden, AGC Chemicals Americas, Exton, PA

Fluoropolymer topcoats are ultra-weatherable, with potential lives of 100 years. Based on laboratory test results as well as results from the field, fluoropolymer topcoats are required for use on all bridges in Japan. These topcoats offer substantially lower life cycle costs compared to conventional coatings, and can virtually eliminate maintenance painting requirements. Dozens of monumental bridges, primarily in Japan, China, and Korea, have used fluoropolymer topcoats over the last 25 years.

2:30 PM

IBC 13-04: Scour and SHM on the Frontera Bridge
Stephen Schorn, E.I.T., Francois Callewaert, and Gilles Hovhanessian, Advitam Inc., Sterling, VA

Scour occurs all over the world. Affecting the integrity of a bridge, scour must be monitored using up-to-date methods. One method of monitoring scour is being implemented in Mexico on the Frontera Bridge, which shows advanced deterioration. The system, developed by Advitam, monitors the phenomenon 24/7 and alerts the owner if thresholds are reached that could cause potential failure. We will discuss the concept, uses and technical specifications of the monitoring system and its implementation.

3:00 – 3:30 PM **COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC**

3:30 PM

IBC 13-05: Predicting Global Buckling Behavior in the Construction of Steel Bridges

Stephen Rhodes, Beng, MSc, Ceng, MICE and Terry Cakebread, BSc(Hons), CEng, MICE, LUSAS, New York, NY

Global buckling modes, which may not be prevented by compliance with the member resistance checks in AASHTO Chapter 6, can be critical - particularly during construction of steelwork. Finite Element Analysis can be used to predict such modes. This paper describes practical approaches, including considering criteria which might be used to identify if such behavior should be of concern to the designer. Principles explored may also be of use in rating of steel bridges.

4:00 PM

IBC 13-89: Verification Of Quality And Performance Of Modular Expansion Joints – America's Leading Role In Full-Scale Product Testing

Thomas Spuler and Colm O'Suilleabhain, Mageba SA, Bulach, Switzerland; Gianni Moor, Mageba USA LLC, New York, NY

Laboratory testing to verify the functionality, performance and durability of bridge deck expansion joints has become increasingly important in recent years. Nowhere has the demand for such testing been stronger than in the United States, where a comprehensive range of standards specifying highly demanding testing has been published. The testing is described, and the consequences of the unnecessary requirement for such testing are discussed, enabling recommendations to be made regarding project-specific requirements for testing.

NEW! SPECIAL INTEREST SESSION

1:30 – 2:30 PM **THEATER 2**

ASCE's 2013 Report Card for America's Infrastructure

Presented By: ASCE

Every four years, ASCE's 2013 Report Card for America's Infrastructure depicts the condition and performance of the nation's infrastructure in the familiar form of a school report card—assigning letter grades based on the physical condition and needed fiscal investments for improvement. The Report Card covers 16 infrastructure categories and highlights initiatives and innovations that are making a difference in an easy to use new format of a tablet and smart phone app. However, America's infrastructure grades also have economic consequences. In a recent series prepared by economists, the ASCE "Failure to Act" economic reports looked at infrastructure's impact and how only investing at current, modest levels will hurt America's GDP, citizen's personal income, and jobs if these trends continue. Together, these report findings will give you the key facts and a compelling message to share with non-engineers and decision makers who will make decisions about America's infrastructure through their votes.

Speakers: Andrew W. Herrmann, P.E., SECB, F.ASCE, ASCE President 2012 & Principal, Hardesty & Hanover, Pittsburgh, PA

IBC 30TH ANNIVERSARY PARTY!

5:00 - 7:00 PM **WEST ATRIUM & GARDEN TERRACE**

Join us to celebrate the 30th Anniversary of the International Bridge Conference®! Thats right, in case you haven't heard, the IBC turns the big 3-0 in 2013, and we are throwing a birthday party to help celebrate the event! ALL registered attendees are invited to attend - there is no additional cost, but you must present your official IBC name badge for entry. The party is held in the West Atrium and Garden Terrace of the David L. Lawrence Convention Center, just over the skybridge walkway.

Enjoy appetizers and beverage service compliments of the Engineers' Society of Western Pennsylvania, proud sponsors of the IBC!

A brief program will be conducted to introduce the past Chairmen of the IBC, as well as the traditional singing of "Happy Birthday" to the IBC.

Be sure to bring your copy of *Reflections* as many of the contributing writers will be present for book signing.

Hatch Mott MacDonald

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Craig Fairclough - Buffalo, NY
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DELIVERING SOLUTIONS

CONSTRUCTION, PART 1

8:30 AM – 12:00 NOON FIGG THEATER

Chair: **M. Myint Lwin, P.E., S.E.**
Federal Highway Administration, Washington, DC

8:30 AM

IBC 13-06: The Innovative Design and Construction of New Steel Trusses within the Existing Iconic Washington Avenue Bridge in Minneapolis, MN
John Milius, P.E., AECOM, Philadelphia, PA; Mike Pamperin, P.E., Ames Construction, Inc., Burnsville, MN

A unique bridge rehabilitation scheme was implemented for the iconic Washington Avenue Bridge, a double-decker bridge carrying an upper pedestrian deck and a lower roadway deck. In addition to highway traffic, bridge rehabilitation accommodated two lanes of light rail to the lower deck. By interlacing trusses within the existing girder-floorbeam superstructure, the rehabilitation converted the non-composite fracture-critical bridge into a redundant multi-"girder" composite structure, functional for combined pedestrian, highway and proposed light rail usage.

9:00 AM

IBC 13-07: Incremental Launch Method for Steel Truss Bridge Erection
Jerry M. Pfuntner, P.E., S.E., FINLEY Engineering Group, Inc., Tallahassee, FL

This presentation will focus on the construction engineering design and details for the Chelsea Street Bridge in Boston and the Checkered House Bridge Rehabilitation in Vermont that allowed the contractors to erect two steel trusses, using the incremental launch methods. The following details and technical solutions for the following elements will be discussed: • Launch systems and temporary launch bearings and guides. • Erection stresses in steel members. • Temporary supports. • Analysis techniques, including stability checks. • Lessons learned and recommendations for future applications

9:30 AM

IBC 13-08: NCHRP Report 725: Recommendations for Curved and Skewed Steel Girder Bridge Construction Engineering
Brandon Chavel, Ph.D., P.E., HDR Engineering, Inc., Cleveland, OH; Domenic Coletti, P.E., HDR Engineering, Inc., Raleigh, NC; Donald White, Ph.D., Georgia Institute of Technology, Atlanta, GA; Andres Sanchez, Ph.D., E.I.T., HDR Engineering, Inc, Pittsburgh, PA

The recently completed NCHRP Report 725, "Guidelines for Analytical Methods and Erection Engineering of Curved and Skewed Steel Deck-Girder Bridges," investigated the analysis of curved and skewed steel girder bridges, and aimed to improve construction engineering for steel girder bridges. Many of the findings and recommendations from this project can be immediately implemented by practicing bridge engineers. These findings and recommendations are the main focus of this paper.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM

IBC 13-09: Integrated Jacking & Shoring Support System for the Rehabilitation of Alexander-Hamilton Bridge

Gary M. Dinmore, P.E., Halmar International, LLC, Nanuet, NY; Genguo Ju and Kaizan Huang, Ph.D., P.E., China Construction America, Inc., Jersey City, NJ; John Deerkoski, P.E., John S. Deerkoski, P.E. & Associates, Warwick, NY

An integrated jacking and shoring support system was developed to not only act as temporary support for jacking up existing girders but also act as the shoring for the pier cap concrete pouring. This new system includes three harmonically integrated parts: the vertical steel pipes, the horizontal self-balanced tie-rods collar system, and the tie-rod suspended platform. The steel pipes functioned as the supports to the platform and the temporary bearings. The self-balanced tie-rods collar system was used to provide the stability to the 28m high support steel pipe to avoid the use of massive shoring towers! In addition, the tie-rod suspended platform is developed not only to support the pier cap pouring but also to provide the added lateral stability to the support pipes.

11:00 AM

IBC 13-10: Alexander Hamilton Bridge Rehabilitation of Approach Spans Superstructure

Roger Haight, P.E. and Michael Abrahams, P.E., Parsons Brinckerhoff, New York, NY; Gary Dinmore, P.E., Halmar International, Pearl River, NY

The Alexander Hamilton Bridge, carries I-95 over the Harlem River in New York City. The $407 million rehabilitation is the largest single-contract construction project in NYSDOT's history. Construction will continue through 2013. The project includes new reinforced concrete deck and modifications to the approach superstructure while maintaining eight lanes of traffic. In a Value Engineering Study, new welded plate girders were used in lieu of the intended truss girders to improve and simplify the design and construction.

11:30 AM

IBC 13-11: MNDOT Approved Supplier Program

Todd Niemann, Minnesota DOT, Oakdale, MN; Anna Petroski, DOT Quality Services, Chicago, IL

MNDOTs Approved Supplier Program for structural steel is designed to develop suppliers with fully functioning, robust, and comprehensive quality programs. MNDOT believes an effectively implemented and regularly maintained Quality Management System (QMS) is a key indicator of a supplier's ability to consistently produce a quality product for continued project success. A fully functioning QMS should reduce error, deviation, and rework. This in turn provides profitability for the supplier and improves quality and timeliness for the owner.

DESIGN, PART 1

8:30 AM – 12:00 NOON THEATER 2

Chair: **Gerald J. Pitzer, P.E.**
Consultant, Pittsburgh, PA

8:30 AM

IBC 13-12: The Benefits of Using Seismic Isolation Bearings on the SR 520 West Approach Bridge
Greg Knutson, P.E., S.E., HDR Inc., Seattle, WA

The SR 520 West Approach Bridge is a 6,000 foot long, 42-span bridge that will connect the corridor's new floating bridge to the shoreline in Seattle, Washington. This presentation will introduce the fundamentals of seismic isolation and the reasons for selecting isolation as the earthquake resisting system. It will also present the costs and benefits of utilizing isolation, and will discuss assumptions and techniques employed during the non-linear time history analysis of the bridge.

9:00 AM

IBC 13-13: Pennsylvania's Segmental Bridges
William Johnson, IV, P.E., S.E. and Ken Heil, P.E., FIGG, Exton, PA

Pennsylvania is home to three concrete segmental bridges - the I-76 Susquehanna River Bridge (2007), the state's first vehicular segmental bridge; the I-76 Allegheny River Bridge (2010) with a record 532' span; and the Monongahela River Bridge (2012). As each bridge was accomplished, valuable information was gained to provide a foundation for the next bridge. Each of these context sensitive bridges features aesthetically pleasing design in harmony with surroundings and construction to preserve the environment.

9:30 AM

IBC 13-14: Branching Out From Conventional Design: Harbourside West Pedestrian Overpass
Schaun Valdovinos, M.S., P.Eng., Hatch Mott MacDonald, Vancouver, British Columbia, Canada

Harbourside West Pedestrian Overpass is a 690-ft long bridge located in North Vancouver, BC and forms a critical link in the Spirit Trail, a multi-use greenway. The bridge crosses over three railway tracks and provides direct access to a waterfront park system for pedestrians and cyclists. Design of the overpass has many innovative features including "tree piers" supporting the long, serpentine approach viaducts and a flat network arch used to span over the railway tracks.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM

IBC 13-15: 800' Continuous Steel Girder Structure – Curved and Fully Joint-less
Michael Liona, P.E. and Rasmin Kharva, P.E., Hardesty and Hanover, New York, NY

The structure was designed to be fully joint-less to eliminate typical deck joints which are costly to maintain and are a main cause of superstructure and substructure deterioration. At a length of approximately 800 feet, this

4-span continuous steel girder bridge will be the longest fully joint-less curved structure owned by NYSDOT when completed. Finite element modeling was used to determine the full range of thermal movements of the structure taking into account thermal gradients.

11:00 AM

IBC 13-16: Seismic Design of Bridges for Increased Reliability
Roy Imbsen, Anoop Mokha, Victor Zayas, and Stanley Low, Earthquake Protection Systems, Inc., Vallejo, CA

Bridges designed and built to current AASHTO minimum design requirements to provide "life safety" using a ductile design approach will not provide a resilient and sustainable bridge. A seismic resistant construction method that takes advantage of modern technology is presented that reduces construction costs and increases reliably to avoid bridge damage. A bridge can now be economically constructed to have a 98% reliability to achieve "continued functionality" for a 2500 year event using the new Triple Pendulum BearingTechnology.

11:30 AM

IBC 13-17: US Route 29 Gainesville, VA Interchange
Christopher Lowe, P.E., Virginia DOT, Richmond, VA; Mark Unterkofler, P.E., Dewberry, Inc., Fairfax, VA

Numerous train crossings of the at grade intersection with US 29 result in traffic congestion for the 54,000 daily vehicles on this urban highway. A 77 degree skew, expensive right-of-way, and constrained vertical profile present additional challenges. The new bridge requires 11 lanes of traffic to span over four rail lines with provisions for collision protection of the abutments. A structure with prestressed concrete beams oriented perpendicular to traffic was chosen as the solution.

REHAB/PRESERVATION, PART 1

8:30 AM – 12:00 NOON THEATER 3

Chair: **Jeremy Shaffer, Ph.D., PMP,**
Bentley Systems, Incorporated, Pittsburgh, PA

8:30 AM

IBC 13-18: Rehabilitation of the PennDOT Structures Surrounding Amtrak's 30th Street Station
Joseph Sullivan, P.E., Ammann & Whitney, Philadelphia, PA; Joseph L. Sirignano, P.E., Alfred Benesch & Company, Allentown, PA; David P. Didier, P.E., AECOM, Philadelphia, PA; Henry Berman, P.E., PennDOT, King of Prussia, PA

PennDOT implemented a $50 million program to rehabilitate the bridges that combine to form a road network around Amtrak's 30th Street Station in Philadelphia. The age and general lack of proper maintenance resulted in the bridges being classified as structurally deficient. A work plan was developed outlining a sequence of construction to limit the impacts to Amtrak's train operations. All surface improvements were coordinated with project stakeholders to return a great public space adjoining station.

9:00 AM

IBC 13-19: Wearing Surfaces for Orthotropic Steel Decks in the United States

Charles Seim, P.E., Consulting Bridge Engineer, El Cerrito, CA

This paper focuses on wearing surfaces (WS) that have been used in the United States since orthotropic steel decks were introduced in the 1960s. It lists functions that are required for good WS performance; compares thin to thick WS; comments on composite versus non-composite action of WS; discusses fatigue and the role of WS in reducing fatigue effects in steel decks; suggests methods of testing WS to assess performance; and lists research-needs of wearing surfaces in the United States.

9:30 AM

IBC 13-20: Investigation and Repair of the Diefenbaker Bridge Fracture

Reed M. Ellis, Ph.D., P.E., Stantec Inc., Edmonton, Alberta, Canada; Robert Connor, Ph.D., P.E., Purdue University, West Lafayette, IN

This paper presents the case study of the investigation and repair of a 7 span fracture critical steel girder bridge which experienced brittle fracture in August 2012. The investigation concluded the fracture was a constraint induced fracture (CIF). The resulting repair involved reconstructing a portion of one of the two girders while supporting the structure. The structure was instrumented with strain gauges and a load test was performed after the repair.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM

IBC 13-21: A Bridge Inspectors Guide to NDT

Jason Stith, Ph.D., P.E., S.E. and Michael Baron, P.E., Michael Baker Jr., Inc, Louisville, KY; George Gorrill, P.E., S.E., Michael Baker Jr., Inc., Chicago, IL

Efficient maintenance of our bridges will be critical in the coming decades. The decision made by bridge inspectors will direct scarce resources. This paper will compare several nondestructive testing (NDT) techniques available to inspectors when visual inspection is insufficient including magnetic particle, ultrasonic, radiographic and high-energy x-ray testing. Each NDT method comes with practical advantages and disadvantages for the owner which were highlighted during their use in the fitness-for-service evaluation of the Sherman Minton Bridge.

11:00 AM

IBC 13-22: South Street Bridge Reconstruction – A Multi-Modal Link to University City, Philadelphia, PA

Richard Kemper, Gannett Fleming, Inc., Audubon, PA; William E. Gural, P.E., City of Philadelphia, Philadelphia, PA; Thomas Piotrowski, AIA, SARP and Bruce Chamberlin, H2L2, Philadelphia, PA

The reconstruction of the South Street Bridge is the largest and most complex public works bridge project in the City of Philadelphia's history. The bridge provides multi-modal connections to residential neighborhoods and

University City community on either side of the Schuylkill River, a commuter train station, interstate ramps, and multi-use river trail. This paper will illustrate innovative methods to cost-effectively address site constraints and incorporate context sensitive designs in bridge reconstruction in an urban environment.

11:30 AM

IBC 13-23: M2 Motorway Upgrade, Sydney, Australia: Bridge Lengthening, Widening and Other Modifications under Traffic

Henry E. Ah-Cann, Ph.D., B.E., MIEAust and Darrell Meyers, B.E., MIEAust, NPER3, MIABSE, AECOM Australia, Sydney, New South Wales, Australia

The M2 Motorway Upgrade required ten existing bridges to be lengthened, widened and modified whilst they remained in service. This paper describes the application of external post-tensioning tendons to lengthen three existing girder-type over-bridges and to extensively modify a further over-bridge. Topics such as the behaviour of external tendons, the use of shear friction to attach new components to existing structure, durability and tendon replacement are discussed. Sustainable engineering outcomes were achieved by modifying existing bridges to meet new requirements, rather than the alternative of demolition and replacement.

EVALUATION & ANALYSIS, PART 1

8:30 AM – 12:00 NOON **COMPUTERS & STRUCTURES INC. THEATER**

Chair: **Kenneth J. Wright, P.E.**
HDR Engineering, Inc., Pittsburgh, PA

8:30 AM

IBC 13-24: Improved Analysis of Steel I-Girder Bridges Using 2D-Grid Models

Andres Sanchez, Ph.D., HDR Engineering, Inc., Pittsburgh, PA; Donald White, Ph.D., Georgia Institute of Technology, Atlanta, GA

This paper discusses the characteristics, attributes, and limitations of 2D-grid analysis methods. The effects of horizontal curvature and support skew on the behavior of bridges under construction are investigated to demonstrate how current 2D-grid analysis methods can deliver inaccurate predictions of the structural responses of bridges with complex geometries. Based on these studies, improved modeling techniques that can be implemented in 2D-grid analysis for a better representation of the structural behavior of steel girder bridges during construction are introduced.

9:00 AM

IBC 13-25: Experimental Evaluation of Hybrid FRP-Concrete Bridge Truss Girders of Different Spans

Mamdouh El-Badry, Ph.D., P.Eng., Mohammad Hadi Aghahassani, and Mohammad Hossein Moravvej Hamedani, University of Calgary, Calgary, Alberta, Canada

A bridge system with precast concrete truss girders and cast-in-situ deck is presented. The girder flanges are connected by vertical and diagonal concrete-filled FRP tubes.

The verticals, under compression, and the diagonals, under tension, are connected to the flanges by GFRP dowels and headed bars, respectively. The flanges are pretensioned and the girders externally post-tensioned with CFRP tendons. Advantages include reduced self-weight and enhanced durability. Tests on girders with different span-to-depth ratios show excellent performance.

9:30 AM

IBC 13-26: Load Rating Analysis of the Historic Albertus L. Meyers Bridge

Eric Martz, P.E., KCI Technologies, Mechanicsburg, PA; James McGee, P.E., PennDOT, Allentown, PA; Richard Schoedel, P.E., Michael Baker Jr., Inc., Moon Township, PA

The Albertus L. Meyers Bridge (aka 8th Street Bridge), is a historic gateway located on the south side of Allentown, Pennsylvania. Constructed in 1913, the bridge configuration includes nine reinforced concrete open spandrel arches and eight approach spans. This paper will focus on the three-dimensional load rating analysis of the main arch spans, and explain how modern structural analysis techniques coupled with historical records were used to predict the structural behavior.

10:00 – 10:30 AM COFFEE BREAK BY MMFX STEEL CORPORATION

10:30 AM

IBC 13-27: Rational Approach for Confirming the Validity of Live-Load Factors for Bridge Load Rating Manual

Wagdy Wassef, Ph.D., P.E. and Vanessa Storlie, E.I.T., Modjeski and Masters, Inc., Mechanicsburg, PA; Mark Mlynarski, P.E., Michael Baker Corporation, Moon Township, PA

The AASHTO Manual for Bridge Evaluation (MBE) uses the load and resistance factor rating (LRFR) method. The first edition of the MBE included load factors that many practitioners found to be high. The high load factors led to bridges with unsatisfactory rating factors even though these bridges had satisfactory rating factors using the load factor rating (LFR) method. AASHTO, through the National Cooperative Highway Research Program (NCHRP), initiated the NCHRP Project 12-78 to investigate the large reported differences between the rating factors produced by the two rating methods.

11:00 AM

IBC 13-28: A Proposed Markup Language for Finite Element Analysis Data Exchange

Lubin Gao, Ph.D., P.E. and M. Myint Lwin, P.E., S.E., FHWA, Washington, DC

Nowadays a huge number of finite element method-based computer applications are available to structural engineers to perform daily design and evaluation tasks from the simple beam to complex 3D or socalled 4D structural analysis. However, engineers sometimes feel frustrated with the interoperability between software packages. The current structural analysis, design or load rating software packages have limited compatibility in data exchange. This paper will: (1) describe the preliminary ideas for

bridging the gap with a proposed finite-element markup language (FEML); (2)provide a sketch of the proposed FEML; (3) discuss the possibility of developing a public domain FEML viewer; and (4) demonstrate the virtual reality modeling with FEML with an example.

11:30 AM

IBC 13-29: Re-Evaluating the Effect of Connection Length in Riveted Steel Connections

Bo-Shiuan Wang, Ph.D., Jeffrey W. Berman, Ph.D., Charles W. Roeder, Ph.D., P.E., and Dawn E. Lehman, Ph.D., University of Washington, Seattle, WA; Saura Jost, E.I.T., Meyer Borgman Johnson, Minneapolis, MN

A proposed modification to the way connection length is accounted for is presented. Analytical models calibrated to experiments from the literature are used to study the force distribution to fasteners along the connection length. The study shows that connected element yielding is necessary to cause larger forces in outer fasteners, the long connection effect. If gross section yielding is not occurring, the long connection effect is demonstrated to be negligible.

IBC BRIDGE TOUR

1:00 - 5:00 PM **DEPARTS FROM STREET LEVEL OF EAST LOBBY**

The IBC is pleased to offer the Tour of Unique Area Bridges in Pittsburgh, the city of bridges. This guided tour departs from the Convention Center at 1:00 PM and will visit the Freeport Bridge, South Highland Ave. Bridge, Greensburg Pike Bridge, and Tri-Borough Expressway. (An additional fee of $40 is required; advance registration is required and seating is limited.) Please check the IBC registration Desk for availability and advance registration. A signed waiver and release and appropriate footwear will be required to enter the construction area.

RAIL

1:30 – 4:30 PM **FIGG THEATER**

Chair: **James Dwyer**
Advanced Rail Management Corporation, Wexford, PA

1:30 PM

IBC 13-30: I-90 Track Bridge – The Challenge of Taking Light Rail Vehicles on to the Homer M. Hadley Floating Bridge
Thomas Cooper, P.E., P.Eng., Parsons Brinckerhoff, Denver, CO; Andy Foan, BSc, C.Eng., FIMechE, FPWI, Andy Foan, LTD, Sandiacre, Nottingham, UK; Travis Thornstad, University of Washington, Seattle, WA

The Central Puget Sound Region's transit agency, Sound Transit, is planning to install light rail transit on the I-90 Homer M. Hadley floating bridge. Placement of light rail across the floating bridge presents unique challenges due to the dynamic, multidimensional movement of the bridge deck.

This paper will address the approach to developing the concept, engineering studies to determine the validity of the design and the physical testing program for components and prototype.

2:00 PM

IBC 13-31: Major Bridge Structure in the World Trade Center
Martin Kendall, P.E., STV Incorporated, New York, NY; Mark Pagliettini, P.E., Port Authority of New York and New Jersey, New York, NY; Kishor Doshi, P.E., STV Incorporated c/o WTC Downtown Design Partnership, New York, NY

The reconstruction of the World Trade Center complex in New York City includes the construction of a unique underground bridge structure. This bridge supports two subway tracks and Cortlandt Street Station to span over the PATH Transit Hall, and the newly reconstructed Greenwich Street through the heart of the WTC site. The primary trusses of the bridge structure are completely composed of heavy welded construction, both shop welded fabrication and field welded assembly.

2:30 PM

IBC 13-32: Replacement of the BNSF Approach Spans over the Mississippi River
David Rogowski, P.E. and Josh Crain, Genesis Structures, Kansas City, MO; Kevin Becker, Walsh Construction Company, Chicago, IL

The BNSF Railroad crosses the Mississippi River at Burlington, Iowa. The original 120 year old bridge consisted of six 250 foot approach spans, one 360 foot swing span and two 80 foot girder spans. This paper will focus on the complex planning, equipment and construction activities required to replace the approach structures in five 36 hour closures.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

IBC 13-33: Foundation Design and Construction Challenges of 100-Year Old Saugus River Railroad Bridge Emergency Rehabilitation

Aravinda Ramakrishna, P.E. and Raymond Mankbadi, P.E., Hardesty & Hanover, LLC, West Trenton, NJ; Andrew Coates, P.E., Hardesty & Hanover, LLC, New York, NY

The 100 year old MBTA Saugus Drawbridge is located near the mouth of the Saugus River to Boston Broad Bay in Saugus, Massachusetts. Due to concerns about the severe degradation of the support at Pier 6, the Bridge underwent a temporary rehabilitation to ensure the safety of traffic crossing the structure. This paper presents a case history that covers the planning and construction of a Temporary Pier Bent to improve the load rating of the bridge.

4:00 PM

IBC 13-34: Detailed Engineering Facilitates Rapid Construction of Hybrid Road/Rail Grade Separation in Tightly Constrained Urban Setting without Interruption to Road or Rail Traffic

John Stephenson, M.Eng., P.Eng., P.E., Region of Waterloo, Kitchener, Ontario, Canada; Peter Johnson, P.Eng., AECOM, Mississauga, Ontario, Canada; Ted Brumfitt, P.Eng. and Michael Sampson, IBI Group, Waterloo, Ontario, Canada

Detailed engineering permitted construction of a new grade separation carrying an urban arterial roadway over a critical rail line servicing a major automobile manufacturer. Geometrically, the project was tightly constrained by existing infrastructure in this industrial/commercial zone. Operationally, full roadway traffic had to be provided during daily peak demand periods (with minor restrictions in off-peak hours), while daily rail traffic could not be impeded, with the exception of the annual one week automotive industry shut-down in July.

LONG SPAN

1:30 – 4:30 PM **THEATER 2**

Chair: **Herbert M. Mandel, P.E.**
GAI Consultants, Inc., Homestead, PA

1:30 PM

IBC 13-35: Highway 61 Mississippi River Bridge Design & Construction

David Dahlberg, P.E., Todd Niemann, P.E., and Nancy Daubenberger, P.E., Minnesota DOT, Oakdale, MN

This major river crossing contains a 545 foot tied arch main span with steel arches and post-tensioned concrete tie girders. The arches contain no bracing, making this the longest bridge span supported by freestanding arches in the western hemisphere. Redundancy requirements made for a challenging design. During construction, steel was erected in a staging area, moved onto barges with SPMT's, floated, skidded, and lifted with strand jacks into its final position above the Mississippi River.

2:00 PM

IBC 13-36: Contractor Proposed Design and VECP Changes – Ironton Russell Cable-Stayed Bridge over the Ohio River

Craig Finley, Jr., P.E., FINLEY Engineering Group, Inc., Tallahassee, FL; Thomas M. Hesmond, P.E., Brayman Construction Corporation, Ironton, OH

This presentation will describe Brayman Construction's pre-bid activities that identified several elements of the bridge that could be changed to provide some cost savings and sequencing advantages. FINLEY Engineering Group, Inc. prepared the pre-bid designs for elements that Brayman used to prepare their winning bid. Innovations in construction sequence solutions saved the Owner $15.2M over the 2nd bidder and allowed the project to be awarded after 6 years of delayed due the cost being over the estimated budgeted amount. This project is the first the use of precast stay anchor blocks in USA.

2:30 PM

IBC 13-37: Complete Stay Cable Replacement for the Luling Bridge, First of Its Kind in North America

Armin Mehrabi, Ph.D., P.E., MBA, Bridge Engineering Solutions, Lewiston, NY; Paul Fossier, Louisiana DOT and Development, Baton Rouge, LA

All stay cables of the Luling Bridge in Louisiana were replaced after 28 years in service to address damages to protective sheathing, and exposure/corrosion of the main tension elements. Replacement design accommodated a construction sequence that required no lane closures during peak traffic hours. The new cable system allowed individual strand installation, and is expected to facilitate future inspections and replacement. The cable replacement design and its implementation are the first attempted in North America.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

IBC 13-38: Katun River Bridge - Development of Aerodynamic Solutions to Control Vortex-Shedding, Galloping and Flutter

Pierre-Olivier Dallaire, M.A.Sc., ing. and Stoyan Stoyanoff, Ph.D., ing., P.Eng., RWDI, Bromont, Québec, Canada; Evgenii Timofeev and Vladimir Verholina, Transmost, Saint Petersburg, Russia

Designed by the firm Transmost OAO, the Katun River Bridge is a unique signature cable-stayed bridge that will be located in the Republic of Altai, Russia and will be opened to traffic in few years. Because of its location in the valley, multiple challenges related to wind engineering design are to be considered for this structure. Experimental tests carried out on the proposed deck identified a high potential for vortex-induced vibrations at low wind speeds and insufficient galloping and flutter onset speeds. An extensive test program was then established to implement aerodynamic solutions.

4:00 PM

IBC 13-39: Comparison of Long-Span Girder Bridges versus Extradosed Bridges Built In Balanced Cantilever
Juan Sobrino, Ph.D., P.E., P.Eng. and Javier Jordan, P.E., PEDELTA Inc., Coral Gables, FL

Segmental concrete bridges with a long spans (over 300 ft) are very competitive built in balanced cantilever either cast-in-place or precast segments. This construction technique can be applied up to 650 ft (world record over 987 ft). The use of stays working as eccentric external tendons (extradosed bridges) reduces the typical depths of continuous girders as stays provides more stiffness to the system. The paper discusses the general structural behavior, methods of analysis, design features, construction process and main material quantities of both types of bridges. The paper includes some case studies of concrete bridges built in Latin-America (Colombia and Chile) which have been designed using the AASTHO Code.

TESTING & INSTRUMENTATION

1:30 – 4:30 PM **COMPUTERS & STRUCTURES INC. THEATER**

Chair: **Donald W. Herbert, P.E.**
Pennsylvania Dept. of Transportation, Uniontown, PA

1:30 PM

IBC 13-40: Demonstration of Fiber Optic Instrumentation System for Prestressed Concrete Bridge Elements
Kent Harries, Ph.D., FACI, P.Eng., University of Pittsburgh, Pittsburgh, PA; Andrew Holford, exp Global Inc., Kitchener, Ontario, Canada; David F. Stevens, STRAEN Inc, Chicago, IL

Fiber optic-based sensors have been used on a relatively limited basis in North America. In this paper, load testing of a decommissioned prestressed adjacent box girder is presented. Fiber-optic generated measures of girder performance are compared with other experimental test data. The fiber optic system tested demonstrated excellent performance and data recovered correlated well with a well-established analytical modeling technique thereby demonstrating the immediate utility of the fiber optic system.

2:00 PM

IBC 13-42: Field Measurements of PA Route 30 Wrights Ferry Bridge during Passage of Super Load
Sougata Roy, Ph.D., Lehigh University, Bethlehem, PA

Response of the Wrights Ferry Bridge across Susquehanna was measured during passage of a super load consisting of a decommissioned transformer. The steel girder/floor beam superstructure of the bridge was instrumented by the ATLSS Engineering Research Center of Lehigh University at key locations based on a plan developed in conjunction with Michael Baker, Jr. Inc. of Harrisburg PA, who was responsible for engineering the move. The measurements provided valuable insight into the structural behavior of the bridge.

2:30 PM

IBC 13-43: Development of Virtual Bridge Inspection Computer Based Training

Mary Rosick, P.E., Thomas Ryan, P.E., and Eric Mann, P.E., Michael Baker Jr., Inc., Moon Township, PA; Douglas Blades, P.E., FHWA, Washington, DC

FHWA-NHI Course 130055, Safety Inspection of In-Service Bridges, is essential for individuals performing or supporting bridge inspection. The course includes field trips to provide hands-on experience in recognizing deficiencies. However, the field trips are sometimes not feasible, prompting the need for an alternative. The virtual reality bridge inspection application allows students to experience inspecting bridges in the classroom using laptops. This paper discusses the development process and demonstrates the computer gaming application.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

IBC 13-44: Use of Instrumentation to Quantify Dynamic Movements of Bridge Substructures

Matthew Pavelchak and Mark Williams, Ph.D., P.E., S.E., Walter P Moore and Associates, Houston, TX

This paper explores a structural health monitoring case study regarding the use of digital inclinometers to quantify suspected dynamic movements of steel bridge bents under vehicular loading. The bridge involved in this study had a history of expansion joint distress and anecdotal evidence of dynamic substructure movements. The results of the monitoring indicate that the bents are experiencing rigid body rotations and torsional deformations. The results are being used to inform a rehabilitation project to provide additional bearing restraint.

REHAB/PRESERVATION, PART 2

1:30 – 4:30 PM **THEATER 3**

Chair: **Matthew P. McTish, P.E.**
McTish, Kunkel & Associates, Allentown, PA

1:30 PM

IBC 13-45: Tie-Down Replacement for Weirton-Steubenville Veterans Memorial Bridge
Gregor Wollmann, Ph.D., P.E., HNTB, Blacksburg, VA; James D. Simpson, P.E., HNTB, Scott Depot, WV; Rober L. Blosser, P.E., WVDOH, Charleston, WV

The Veterans Memorial Bridge is an asymmetrical cable-stayed structure with a single pylon and spans of 820 feet and 680 feet. Significant uplift forces at the end of the shorter span are transferred through a tie-down system into a concrete counter weight. The tie-down needed replacement after only 15 years of service. The presentation explains the causes of the poor performance of the initial system and presents design and installation of replacement systems.

2:00 PM

IBC 13-46: External Post-Tensioning of Existing Steel Bridges
Clyde Ellis, VSL, Haute Court, VA

Many bridges have been found to be under-strength because of increased loads, widening of the bridge deck, or change of the type of traffic. In many cases bridges that rate low are strengthened with conventional methods. The use of external post-tensioning to strengthen steel bridges has been used in many countries since the 1960's. Their relative ease of installation, effectiveness for structural strength and economical advantages has been widely recognized. This technique is growing in popularity because of the speed of construction and the minimal disruption to traffic flow. This paper will provide information on how this technique can be applied.

2:30 PM

IBC 13-47: Route US 190 Mississippi River Bridge Rehabilitation Design, Cleaning, and Painting
John Richard, P.E. and Durk Krone, P.E., TRC Engineers, Inc., Baton Rouge, LA; Chris Guidry, P.E., Louisiana DOT and Development, Baton Rouge, LA

The concepts and approaches for the structural rehabilitation, cleaning and painting of a major Mississippi River crossing, the US 190 Mississippi River Bridge at Baton Rouge, a five span cantilever truss, carrying both a major highway and mainline railroad, are discussed. The additional difficulties in control and phasing of highway and railroad traffic during construction and use of inclusive pay items for multiple repair types providing a payment baseline for additional repairs are also presented.

3:00 – 3:30 PM COFFEE BREAK BY HRV CONFORMANCE VERIFICATION ASSOCIATES, LLC

3:30 PM

IBC 13-48: Major Bridge Rehab Using Design-Build Delivery

Matthew Lengyel, P.E., S.E., David Evans & Associates, Inc., Olympia, WA

The Murray Morgan Bridge in Tacoma, Washington is over 100 years old, making it an important transportation link and piece of the City's cultural history. This 1,750 foot long bridge with a 221 foot long vertical lift span completed a $50 million design-build rehabilitation project that reopened it and extend its service life an additional 75 years. This presentation will review the details of how this project was successfully executed using the design-build delivery method.

4:00 PM

IBC 13-49: Deterioration of Weathering Steel Box Chord Members of the Newburgh-Beacon Bridge - South Span

Thomas Cole, P.E., Modjeski and Masters, Inc., Poughkeepsie, NY; William Moreau, P.E., New York State Bridge Authority, Highland, NY

The Newburgh-Beacon Bridge – South Span was constructed using A588 Weathering Steel. During a routine biennial inspection, it was discovered that water leaking through bottom chord splice locations was allowing excessive corrosion of the unpainted weathering steel interior of the chord box members leading to areas of severe section loss in several locations. The causes and effects of this box member problem were studied to provide a complete solution to protect the bridge from further deterioration.

IBC AWARDS DINNER

5:00 – 7:00 PM **BALL ROOM B**

Host: **Thomas G. Leech, P.E., S.E.**
Gannett Fleming, Inc., Pittsburgh, PA

ESWP, in association with Bridge design and engineering (bd&e) Magazine, Roads and Bridges Magazine, Bayer MaterialScience LLC, and TranSystems, Inc. presents the 26th Annual IBC Bridge Awards Ceremony. Following Tuesday's sessions, unwind and network apart from the Conference with fellow attendees and celebrate the Award winners at our IBC Awards Dinner. A separate registration is required with a fee of $40 ($50 without conference registration). seating is limited, so please check at the IBC Registration Desk for availability.

The International Bridge Conference® annually recognizes individuals and projects of distinction. The medals are named in honor of the distinguished engineers who have significantly impacted the bridge engineering profession worldwide. Honorees will be recognized as follows:

JOHN A. ROEBLING MEDAL

Awarded to an individual for lifetime achievement in bridge engineering. Major achievements may include design, construction, research and/or educational endeavors. Presented to: M. Myint Lwin P.E., S.E., Washington, DC.

GEORGE S. RICHARDSON MEDAL

Awarded for a single, recent outstanding achievement in bridge engineering. Fields of endeavor may include design, construction, research or education. Presented to: Jiaozhou Bay Bridge, Qingdao City, Shandong Province, China.

GUSTAV LINDENTHAL MEDAL

Awarded for a single, recent outstanding achievement demonstrating harmony with the environment, aesthetic merit and successful community participation. Presented to: DEH CHO Bridge, Fort Providence, Northwest Territories, Canada.

EUGENE C. FIGG, JR. MEDAL

Awarded for a single recent outstanding achievement in bridge engineering that, through vision and innovation, provides an icon to the community for which it was designed. Presented to: Lake Champlain Bridge, Crown Point, NY – Addison, VT.

ARTHUR G. HAYDEN MEDAL

Awarded to recognize a single recent outstanding achievement in bridge engineering demonstrating innovation in special use bridges such as pedestrian, people-mover, or non-traditional structures. Starlight Bridge, Ho Chi Minh City, Vietnam.

ABBA G. LICHTENSTEIN MEDAL

Awarded for a recent outstanding achievement in bridge engineering demonstrating artistic merit and innovation in the restoration and rehabilitation of bridges of historic or engineering significance. Presented to: Willamette River (Oregon City) Bridge, Oregon City and West Linn, OR.

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ABC, PART 1

8:30 AM – 12:00 NOON THEATER 3

Chair: **Ronald D. Medlock, P.E.**
High Steel Structures, Inc., Lancaster, PA

8:30 AM

IBC 13-50: Milton Madison Bridge: Innovative Procurement and Construction to Accelerate the Replacement of a Vital River Crossing, Part 1 - Innovative Concept & Procurement
Aaron Stover, P.E., S.E. and Terrence Tiberio, P.E., Michael Baker Jr., Inc., Louisville, KY

The Milton Madison Bridge project sets a precedent for replacement of river crossings and other major structures nearing the end of their useful life. This presentation will highlight the innovative reuse of existing substructure units and the procurement process that encouraged bidding contractors to minimize the bridge closure. Together this combination reduced the cost of replacing the bridge by approximately $50 million dollars and resulted in significantly less impact to the communities on both sides of the river.

9:00 AM

IBC 13-51: Milton Madison Bridge: Innovative Procurement and Construction to Accelerate the Replacement of a Vital River Crossing, Part 2
Nedim Alca, P.E., Murray Johnson, P.Eng., and Peter Taylor, P.E., Buckland & Taylor, Ltd., North Vancouver, British Columbia, Canada; Tom Bolte, P.E., Burgess & Niple, Inc., Columbus, OH; Brian Hoppel, P.E., Walsh Construction Company, LaPorte, IN

The recent construction of the Milton Madison Bridge over the Ohio River between Milton, KY and Madison, IN represents a precedent setting innovation in project concept using existing substructure units, project procurement offering contractors explicit incentives for closure schedules and resulting construction techniques that allowed a new superstructure to be built on existing piers with minimal traffic interruption. This paper will describe how the full scope of bridge design and erection expertise was used to deliver innovation at the lowest cost possible, with minimum inconvenience to the public.

9:30 AM

IBC 13-52: Design and Construction of the Bronco Arch Bridge
Gregg Reese, Summit Engineering Group, Inc., Littleton, CO

The Bronco Arch Bridge supports IH25 over the Platte River adjacent to Mile High Stadium in Denver, CO. The new bridge was designed as a Value Engineering Proposal which uses maximizes the use of precast concrete and an innovative construction sequence to accelerate construction while minimizing disruption to existing traffic. The paper will describe the design and construction engineering of this innovative bridge project which will be completed in early 2013.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.

10:30 AM

IBC 13-53: Rapid Bridge Replacements Using Lateral Slides

Jeffrey Smith, P.Eng., Matthew Bowser, P.Eng., and James Sherlock, P.Eng., McCormick Rankin, Mississauga, Ontario, Canada

Lateral sliding of superstructures provides an effective method for rapid bridge replacement. This paper presents four case studies for lateral slides including the 630 foot long Kenogami River Bridge. By implementing the lateral slide method these projects maintained traffic throughout each stage of construction. Means and methods presented in this paper also demonstrate how the lateral slide method can be used to accelerate bridge construction.

11:00 AM

IBC 13-54: Rapid Replacement of US 6 Bridge Over Keg Creek

Bala Sivakumar, HNTB Corp, New York, NY

The three span prefabricated bridge consists of pre-deck steel modular superstructure system with precast substructures and precast bridge approaches. The bridge was originally designed as a conventional replacement with a construction duration of 6 months. HNTB redesigned this bridge using ABC techniques so that the replacement could be completed in a two-week period using prefabricated elements. The contractor fabricated all elements near the bridge site. The bridge has a jointless superstructure, connected using Ultra High Performance Concrete closure pours.

11:30 AM

IBC 13-55: Precast Integral Abutments and Superstructure Bridge : A MassDOT ABC Case Study

Yihui Wu, P.E. and Brian Guzas, P.E., CDR Maguire Inc., Providence, RI; Thomas Donald, P.E. and Morteza Tayarani, P.E., Massachusetts DOT, Boston, MA

This project replaced the existing 32'-6" span cast-in-place concrete T-beam bridge carrying Route 62 (Princeton Road) over the Stillwater River in Sterling, MA, with a 45-foot span rolled steel beam bridge with composite pre-cast concrete deck panel and integral abutments. Featuring precast concrete deck panels, abutments and wingwalls, this is the first integral abutment bridge in Massachusetts constructed with all precast components. Project design, detail, criteria, construction, and materials specific requirements are presented in the paper.

CONSTRUCTION, PART 2

8:30 – 11:30 AM **FIGG THEATER**

Chair: **Calvin Boring, Jr.**
Trumbull Corporation, Pittsburgh, PA

8:30 AM

IBC 13-56: Multi-faceted Construction Project: A Unique Approach to Supporting Construction Phase Services
Christopher Hylas, P.E. and Dean A. Bagdasarian, P.E., H.W. Lochner, Inc., Rocky Hill, CT; Roy Merritt, P.E., H.W. Lochner, Inc., New Haven, CT; Mathew Briggs and Ghazi Alsaqri, Connecticut DOT, New Haven, CT

The $2.0 billion I-95 New Haven Harbor Crossing Corridor Improvement Program features the replacement of the Pearl Harbor Memorial Bridge with an extradosed cable-stay design, and the reconstruction of the I-95/I-91/Route 34 Interchange. CDOT implemented a unique approach to providing construction phases services by employing experienced, on-site design personnel on a full-time basis. This approach fostered increased collaboration and communication between construction staff and the project designers, resulting in improved submittal response times and innovative field solutions.

9:00 AM

IBC 13-57: Construction of the Q-Bridge: New Haven's Extradosed Cable-Stayed Signature Bridge
Wade Bonzon, P.E., FIGG, New Haven, CT; John Dunham, P.E., Connecticut DOT, New Haven, CT

The new Pearl Harbor Memorial Bridge will be a 10-lane Signature Bridge carrying I-95 across the Quinnipiac River in New Haven, CT. It is the first major extradosed cable stayed bridge constructed in the United States. It features a segmental concrete box girder superstructure constructed in balanced-cantilever. This paper will highlight the unique challenges during construction including details of the form travelers, geometry control methods, and the installation and stressing of the stay cable system.

9:30 AM

IBC 13-58: Unconventional Girder Erection on the Moses Wheeler Bridge
Douglas Whittaker, McNary Bergeron and Associates, Old Saybrook, CT; Joseph Zwain, PCL Civil Constructors, Inc., Tampa, FL

Site constraints limited the options available to erect plate girders on the I-95 Moses Wheeler Bridge in Connecticut. Walsh / PCL Joint Venture and McNary Bergeron & Associates developed a unique girder erection method for Stage I of this project that incorporated cranes on the existing bridge and temporary rolling carts to side launch girders into position. This presentation focuses on the extensive construction engineering required to develop this procedure and the challenges faced during construction.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.

10:30 AM

IBC 13-59: Construction of the US 281 Bridges Over the Colorado River

Robert A. Alonso, P.E., S.E., FINLEY Engineering Group, Inc., Orlando, FL; Eric Hiemke, Archer Western Contractors, Marble Falls, TX

This presentation discusses the construction engineering modifications made by FINLEY Engineering Group, Inc. for Archer Western Contractors for the construction of this bridge. This presentation provides innovative insight to practical details on how to build cast-in-place segmental bridges; gives the how's and why's on setting pier table and typical segment lengths for construction with form travelers; provides design and details of temporary falsework and offers recommendations to engineers and contractors on how to handle the geometry control for cast-in-place segmental bridges.

11:00 AM

IBC 13-60: Tri-Level Interchange

Amish Bhatt, AECOM, Chicago, IL and Dan Manojlovski, P.E., AECOM, Chicago, IL

Tri-Level Interchange Project is one of the six projects that comprise relocation of I-70 to a new bridge crossing the Mississippi River. The project's scope includes the extension of I-64 mainline westward to connect to the relocated I-70 and reconstruction of the interchange. The project comprises flyover-curved ramp structures with the complex flared geometry. Project is also located near New Madrid Fault zone and the structures are designed to withstand seismic forces.

DESIGN, PART 2

8:30 AM – 12:00 NOON THEATER 2

Chair: **W. Jay Rohleder, Jr., P.E., S.E.**
FIGG, West Chester, PA

8:30 AM

IBC 13-62: Bridging From Land to Light
Tammy Heffron, P.E. and Darin Freeman, P.E., HDR Engineering, Inc., Denver, CO

This National Park Service project required the replacement of a historic, timber, suspension pedestrian bridge accessing the Point Bonita Lighthouse. The site is situated atop a 100-foot-high rock formation extending out into the Pacific Ocean. The many unique characteristics of this undertaking are highlighted. Topics such as tropical hardwood, sustainability, corrosion protection, partnering, incorporation of the CM/GC process, and the challenging access to this remote site will be discussed.

9:00 AM

IBC 13-63: Challenges of Designing and Building Bridges in Alaska
Leslie Daugherty, P.E., Alaska DOT & Public Facilities, Juneau, AK

Alaska's short construction season, remote locations, frozen ground, and high seismic zones require innovative approaches to bridge design. Over the years, the Alaska Department of Transportation & Public Facilities (DOT&PF) Bridge Section has developed standard design approaches for their unique circumstances. This presentation will highlight the DOT&PF's experience with addressing these numerous concurrent design challenges, including the research projects that have been useful in verifying the anticipated performance of these systems.

9:30 AM

IBC 13-64: Integrating Cultural Symbolism into Bridge Design
Schaun Valdovinos, M.S., P.Eng., Hatch Mott MacDonald, Vancouver, British Columbia, Canada

Squamish Pedestrian Overpass is a new landmark structure over of the Sea-to-Sky Highway in British Columbia. The design effort included collaboration with a Squamish Nation artist, cultural centre, and band members. In the end, the design not only addresses the engineering challenges, but seamlessly integrates cultural symbolism into the various elements of the bridge. This cultural symbolism tells the stories important to Squamish Nation and gives the bridge special meaning to the community it serves.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.

10:30 AM

IBC 13-65: Design and Construction of the Rich Street Bridge in Columbus, OH

Frederick Gottemoeller, P.E., AIA, Bridgescape, LLC, Columbia, MD; John Shanks, P.E. and Travis Butz, P.E., Burgess and Niple, Columbus, OH

The newly constructed Rich Street Bridge is a landmark structure spanning the Scioto River in Columbus, Ohio. The new bridge is a 5-span, 563 foot long modern rib arch structure, designed to be pedestrian-friendly and to accommodate festival events. The configuration of the new bridge was selected in response to design criteria set by community representatives requiring that the bridge compliment the surrounding "family" of arch bridges while respecting the character of the surrounding area.

11:00 AM

IBC 13-66: Permanent Jacking and Lengthening of Twin Steel Box Girder Bridge

Simon Simon, P.E., Stantec, Laurel, MD; Fred Ochoa, P.E., Florida DOT, Fort Lauderdale, FL; Missak Sisserian, P.E., Stantec, Mechanicsburg, PA

To accommodate the I-595 Express Toll Lanes (ETL) at the University Drive interchange, the owner's concept proposed replacing two curved steel box girder ramp bridges. The redesign of the southbound ramp included reconfiguring the geometry of the bridge by-, removing and reconstructing the last span and a portion of the penultimate span using a spiral alignment, and raising the ramp 18in to meet the vertical clearance requirements. Subsequently, the northbound ramp did not require modification.

11:30 AM

IBC 13-67: Cost-effective Welded Connections for a Movable Bridge Orthotropic Deck

Sougata Roy, Ph.D., Xudong Zhao, and Soham Mukherjee, Lehigh University, Bethlehem, PA; Ronald Medlock, P.E., High Steel Structures, Inc., Lancaster, PA

Recently, fatigue performance of several rounded bottom rib-to-deck and rib-to-floor beam connection details for a vertical lift bridge was evaluated by full-scale testing at Lehigh University. These connections were fabricated by varying the extent of labor-intensive joint preparations including different bevels, root openings and fit-ups. A novel test setup was designed based on 3D Finite Element Analyses of the entire bridge deck to reproduce the stress state in the specimen. The experimental studies identified unique fatigue fracture modes and helped in identifying cost-effective connection details.

MONDAY JUNE 3				
8:30 - 11:30 AM	IBC KEYNOTE SESSION - Ball Room B & C, Third Floor			
11:00 AM - 5:00 PM	Exhibit Hall Grand Opening (strolling buffet lunch at noon), Hall B			
1:00 - 5:00 PM	Featured Agency Session MassDOT - FIGG Theater, Hall B			
1:00 - 3:00 PM	Special Interest Session: Autonomous Robotic Grit Blasting Systems - Theater 3, Hall B			
1:30 - 4:30 PM	Proprietary Session - Computers & Structures Theater, Hall B			
1:30 - 2:30 PM	Special Interest Session: ASCE's 2013 Report Card for America's Infrastructure - Theatre 2, Hall B			
5:00 - 7: 00 PM	IBC 30th Anniversary Party - West Atrium & Garden Terrace, Third Floor			
TUESDAY JUNE 4				
8:00 AM - 5:00 PM	Exhibit Hall open (strolling buffet lunch at Noon)			
8:30 AM - 12 Noon	Construction, Part 1 FIGG Theater	Design, Part 1 Theater 2	Rehab/Preservation, Part 1 Theater 3	Eval/Analysis, Part 1 CSI, Inc. Theater
1:00 - 5:00 PM	IBC Bridge Tour - departs from Street Level on East Lobby (Tickets Required)			
1:30 - 4:30 PM	Rail FIGG Theater	Long Span Theater 2	Rehab/Preservation, Part 2 Theater 3	Testing & Instrumentation CSI, Inc. Theater
5:00 - 7:00 PM	IBC Awards Dinner - Ball Room B (Tickets Required)			

WEDNESDAY JUNE 5

8:00 AM - 1:30 PM	Exhibit Hall open (strolling buffet lunch at Noon)			
8:30 AM - 12 Noon	Construction, Part 2 FIGG Theater	Design, Part 2 Theater 2	ABC, Part 1 Theater 3	Eval/Analysis, Part 2 CSI, Inc. Theater
1:00 - 5:00 PM	W1: FHWA Load Rating Room 327	W2: Extradosed Bridges Room 326	W3: Owner's Forum Room 325	W4: Engineering Ethics Room 324
1:30 - 4:00 PM	ABC, Part 2 Room 330	Foundations Room 329	Rehab/Preservation, Part 3; Room 328	

THURSDAY JUNE 6

8:00 - 12: 00 Noon	Seminar: Steel Bridge Design (see ticket for room location)			
8:00 - 12: 00 Noon	W5: FHWA's ABC Room 330	W6: Bridge Preservation Room 329	W8: BRIM Project Delivery Room 327	W13: SHRP2 - Saving Time & Money Room 326
1:00 - 5:00 PM	Seminar: NCHRP Report 725 Guidlines for Analysis of Curved and Skewed Girders (see ticket for room location)			
1:00 - 5:00 PM	W9: BRIM Benefits Room 330	W10: FRP Composites Room 329	W11: Asset Management Room 328	W12: Western PA Bridge Preservation Room 327

EVALUATION & ANALYSIS, PART 2

8:30 AM – 12:00 NOON **COMPUTERS & STRUCTURES INC. THEATER**

Chair: **John C. Dietrick, P.E., S.E.**
Michael Baker Jr., Inc., Cleveland, OH

8:30 AM

IBC 13-68: 3D Analysis and Structure Rehabilitation of TDOT's SR56 Deck Truss over Caney Fork River
Todd Stephens, E.I.T., Adnan Kurtovic, P.E., Michael Irwin, P.E., and John Kulicki, Ph.D., P.E., S.E., Modjeski and Masters, Inc., Mechanicsburg, PA; Edward Wasserman, P.E., Modjeski and Masters, Inc., Nashville, TN

Multiple deck removal sequences for the rehabilitation and re-decking of TDOT's 65 year old SR-56 Caney Fork River Bridge were analyzed using a three-dimensional analysis to determine the most appropriate and economical structure rehabilitation and deck replacement sequence. Use of lightweight concrete and truss strengthening provided sufficient capacity for AASHTO LRFD HL-93 live load for a structure originally designed for H15 live load. The rehabilitation included truss member and gusset plate retrofits and gusset "doubler" plates. Supplemental supports for fracture critical truss suspenders and post-tensioning of a deficient pier strut were also completed.

9:00 AM

IBC 13-69: Study on the T-PBL Panel Joint Structure in Hybrid Truss Bridge
Weiguo Yan, CCCC Highway Maintenance Engineering Technology Co., Ltd., Nanjing, Jiangsu, China

The most critical elements in a hybrid truss bridge are the panel joints. To analyze the stress-transfer mechanism and the mechanical characteristic of the T-PBL panel joint structure, three specimens of joint were made, the cyclic loading tests were carried out, and three-dimensional finite element analysis was done. Then the results of failure pattern, load - horizontal displacement curve, stress of steel tubes, stress of T-PBL and transverse bolts etc of the specimens were compared.

9:30 AM

IBC 13-70: Load Rating Steel Box Girder Bridges with LRFR: Special Considerations
Lubin Gao, Ph.D., P.E., FHWA, Washington, DC

Steel box girder bridges behave differently from steel plate girder bridges. The provisions in the current LRFD Specifications apply to straight multiple steel box beam bridges that meet the limitations specified in the code. This creates challenges to engineers in load rating steel box girder bridges. This paper will: (1) identify the issues and challenges; (2) discuss the provisions in the current LRFD Specifications; (2) compare the provisions between steel plate girders and steel box girders; and(3) discuss the special considerations in load rating steel box girder bridges.

10:00 – 10:30 AM COFFEE BREAK BY HDR ENGINEERING, INC.

10:30 AM

IBC 13-71: Estimation of the Maximum Von Mises Stress in Steel Truss Bridge Gusset Plate Connections

Bo-Shiuan Wang, Ph.D., Jeffrey W. Berman, Ph.D., Charles W. Roeder, Ph.D., and Dawn E. Lehman, Ph.D., University of Washington, Seattle, WA

Methods for approximating normal and shear stress distributions at critical sections of gusset plates are presented, including the horizontal section above the chord and vertical sections along the hangers and at the chord splice. Using the approximate stress distributions at the critical sections the equivalent Von Mises stress can be estimated for potential high stress locations and used to determined and locate the maximum stress on the gusset plate.

11:00 AM

IBC 13-72: Quick Scan Method - Dutch Approach for the Shear Assessment of Reinforced Concrete Slab Bridges

Eva Lantsoght, Cor van der Veen, Ph.D., and Joost Walraven, Ph.D., Delft University of Technology, Delft, The Netherlands; Ane de Boer, Ph.D., Ministry of Infrastructure and the Environment, Utrecht, The Netherlands

To assess a large number of reinforced concrete slab bridges for shear, recommendations based on experimental research are implemented in a spreadsheet-based "Quick Scan" method. In particular, transverse load redistribution is studied. The resulting method is used to study cases of existing slab bridges in The Netherlands, indicating the benefits of the proposed method as compared to previous "Quick Scan" approaches.

11:30 AM

IBC 13-73: Influence Line Based Load Ratings for Oklahoma DOT Truck Routing and Permitting

Rachel Sharp, P.E. and Kenneth Wilson, P.E., S.E., Michael Baker Jr., Inc., Moon Township, PA; William Edberg, Ph.D., P.E., HNTB Corporation, Boston, MA; Wes Kellogg, P.E., Oklahoma DOT, Oklahoma City, OK

Oklahoma Department of Transportation is enhancing their current automated truck routing and permitting internet based system. For approximately 170 relatively complex structures, an influence line based computer program is being developed to run parallel to the AASHTO Bridge Suite of load rating tools in an effort to expand the capacity of the current permitting system. This paper describes the influence line based program, including lessons learned from its development and implementation.

ABC, PART 2

1:30 – 4:00 PM **ROOM 330**

Chair: **Louis J. Ruzzi, P.E.**
Pennsylvania Dept. of Transportation, Bridgeville, PA

1:30 PM

IBC 13-74: A Short-Span Tied Arch Bridge
Robert Hong, P.E., S.E., P.Eng., H.W. Lochner Inc., Chicago, IL; Soliman Khudeira, Ph.D., P.E., S.E., Chicago DOT, Chicago, IL

The distinguishing characteristics of a tied arch bridge have long been regarded as an elegant solution for the long span crossing. The successfully completed 156'-8" long and 80'-4" wide parabolically-shaped Halsted Street Bridge over the Chicago River North Branch Canal demonstrates that a short-span tied arch can be done economically with attention to the steel details that accommodates both constructability and durability. The thoughtful steel detailing also ensures sufficient design redundancy and improves cost competitiveness.

2:00 PM

IBC 13-75: Construction and Movement of the Torrence Avenue Truss Bridge
John Boschert, P.E., S.E., Genesis Structures, Kansas City, MO; Damian Gronsky, P.E., Sarens / Rigging International, Alameda, CA; Curtis Luecke, P.E., Walsh Construction, Chicago, IL; Leonard Kapovich, S & J Construction Co. Inc., South Holland, IL

The Torrence Avenue Truss carries rail traffic over a busy roadway in an industrial area in southeast Chicago. The truss was assembled at-grade in a staging area adjacent to the final bridge position, then lifted onto Self-Propelled Modular Transporters (SPMT's) for transport to the final position. At 394' and approximately 4.75 million pounds, this is believed to be the largest truss bridge ever to be moved into place after being assembled off-site.

2:30 PM

IBC 13-76: Eggner's Ferry Bridge: Innovative Approach to the Emergency Replacement of a Vital Crossing Over Kentucky Lake
Chou-Yu Yong, P.E., Terrence Tiberio, P.E., Jason Stith, Ph.D., P.E., S.E., and Dennis Baron, P.E., Michael Baker Jr., Inc., Louisville, KY

The collision of a cargo ship with Eggner's Ferry Bridge knocking out one of the 322 feet truss spans. This paper focuses on the design strategy and opportunities to speed-up material procurement, simplify fabrication and assembly. Accelerated construction techniques are also presented in this paper. The Eggner's Ferry Bridge emergency replacement project that completed in 17 weeks sets the benchmark for speedy emergency repair and replacement of structures that are disrupted by accidents or disasters.

3:00 PM

IBC 13-77: Alteration of Galveston Causeway Railroad Bridge over the Gulf Intracoastal Waterway, Galveston, TX

Kamal Elnahal, Ph.D., P.E. and Arvind Patel, P.E., PMP, U.S. Coast Guard, Washington, DC; Ralph Eppehimer, P.E., Modjeski & Masters, New Orleans, LA

This presentation addresses the alteration of the Galveston Causeway Railroad Bridge over the Gulf Intracoastal Waterway in Texas. The old bridge was replaced under the Coast Guard Alteration of Bridges Program. The presentation encounters various challenges and techniques used for the construction of the new bridge to overcome the complex site limitations and restrictions. It covers also accelerated construction method used to replace the movable span with the least interruption to rail and marine traffic.

3:30 PM

IBC 13-78: Implications Of The Funding Gap: A New Look at Efficiencies

David Cook, STRAEN, Inc, Chicago, IL

Certainly, money to manage the bridge inventory is tight and tightening. Options to manage the situation are paramount. What is spent is known, but how efficiently is it spent? What are the effects of inefficiently-scoped or mistimed expenditures such as refurbishment and replacement? How often does it happen and by how much? How could such efficiencies be measured? What information and analysis would be helpful? Who should take leadership on this kind of initiative?

FOUNDATIONS

1:30 – 3:30 PM **ROOM 329**

Chair: **Richard L. Connors, P.E., PMP**
Bureau Veritas North America, Inc., Pittsburgh, PA

1:30 PM

IBC 13-79: Application of GRS-IBS Bridge Design in Massachusetts

Thomas Pechillo, P.E., Collins Engineers, Inc., Dedham, MA; Richard Tobin, P.E., GEI Consultants, Inc., Woburn, MA

As part of its ground-breaking Accelerated Bridge Program (ABP) legislation, the Massachusetts Department of Transportation (MassDOT) is initiating several innovative bridge design and construction methods and techniques. One such occurrence of the application of these techniques is in Sheffield, Massachusetts, where MassDOT will be constructing a Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) bridge next year. GRS-IBS technology is part of the Federal Highway Administration (FHWA) Everyday Counts (EDC) initiative.

2:00 PM

IBC 13-81: Non-Destructive Testing Of Drilled Shafts - Current Practice and a New Method

George Piscsalko, P.E. and Garland Likins, P.E., Pile Dynamics, Inc., Solon, OH; Ben White, P.E., GRL Engineers, Solon, OH

Quality control of drilled shafts is greatly dependent upon the practices of the site personnel. In many applications it is difficult or not possible to fully inspect the shaft prior to concreting, such as when the shaft is drilled under slurry. There are numerous methods currently available to assess the integrity of drilled shafts. This paper will compare evaluations by two existing methods with a new method of Thermal Integrity Profiling for assessing integrity.

2:30 PM

IBC 13-82: Fort Street Bridge over the Rouge River, Movable Bridge – Movable Foundation

Jeff Routson, P.E., S.E., F.ASCE and Rick Wianecki, P.E., Hardesty & Hanover, Okemos, MI; Jose Garcia, P.E., Michigan DOT, Lansing, MI; Anne Zweibel, P.E., Hardesty & Hanover, Defiance, OH

During construction of the Fort Street Bridge in 1922, the Rouge River was significantly widen and deepened for navigation leading to movement of the bridge foundations. This movement was monitored for several decades. By 2000, MDOT determined that the existing bascule bridge needed major rehabilitation or replacement. The new 88-ft wide, 176-ft long single-leaf bascule leaf will weigh nearly 8 million pounds. The bascule pier will be supported by 132 HP18x204 piles driven to rock.

3:00 PM

IBC 13-83: Full Scale Test Program for Support of MSE Walls Using Rigid Inclusions / Controlled Modulus Columns in New Jersey

Frederic Masse, DGI-MENARD, Bridgeville, PA; Alex Potter-Weight, DGI-MENARD, Pittsburgh, PA; Sherif Aziz, The Reinforced Earth Company, Vienna, VA; Mike Walker, GEI Consultants, Woburn, MA

After several successful projects on the Garden State Parkway and NJ turnpike for support of single-stage MSE Walls using Controlled Modulus Columns as an alternate to two-staged MSE Walls and surcharge, the Bass River Bridge Widening project presented additional challenges in terms of soil conditions and height of embankment that created opportunities for the deign-build ground improvement contractor and its MSE wall designing partner to enhance their design and construction methods. The contractor also decided, in association with the wall system supplier to perform an independent large scale instrumented test! area on the project to demonstrate the abitility of the design techniques to model the behavior of the system as well as the capacity of the system CMC to provide the necessary bearing capacity and settlement control to allow the construction of the highway without any consolidation period. This paper will present a detailled description of the design of the ground improvement system and MSE wall system as well as the results and conclusions of the monitoring data gathered on the large scale test program.

REHAB/PRESERVATION, PART 3

1:30 – 3:30 PM **ROOM 328**

Chair: **Stephen G. Shanley, P.E.**
Allegheny County, Department of Public Works, Pittsburgh, PA

1:30 PM

IBC 13-03: Light, Solid-Surface Decking for Historic and Moveable Bridges
Maria Lopez de Murphy, Ph.D., Penn State University, University Park, PA; Amjad Aref, Ph.D., University at Buffalo, Buffalo, NY; Stephen Ayers, Ph.D., P.E., LeTourneau University, Longview, TX; Jerome O'Connor, P.E., BridgeComposites, LLC, Hornell, NY

Over the past 10 years, a new generation of FRP decking has been developed with funding from NYSDOT, FHWA and BridgeComposites, LLC, a technology incubator company at University at Buffalo. Though the deck materials initially cost more than alternatives, its use can be cost effective because installation is fast, the solid surface protects the superstructure from environmental damage, and it eliminates the issues of deck corrosion and fatigue. Details of the extensive testing regimen will be explained, which included railing and fire tests.

2:00 PM

IBC 13-84: Rehabilitation of the Historic Riegelsville Suspension Bridge
Joseph Riley, P.E., M.ASCE, Ammann & Whitney, Inc., Philadelphia, PA; Ron Lamb, P.E., Pickering, Corts & Summerson, Inc., Newtown, PA; Kevin Skeels, P.E., Delaware River Joint Toll Bridge Commission, Morrisville, PA

The Riegelsville Toll-Supported Bridge Rehabilitation project included the complex rehabilitation design of a 1904, three-span, 577 foot suspension bridge. The project helped to preserve this outstanding example of historic civil engineering infrastructure. For the floor system replacement, Ammann & Whitney designed a system for raising preconstructed 15' floor sections up from a river barge using a movable gantry system. This procedure allowed for a wide array of maintenance and protection of traffic options during construction.

2:30 PM

IBC 13-85: Extending the Service Life of Bridges Using Seamless Pavements
Steve Griffiths and Geoff Bowmaker, AECOM Australia, Beecroft, New South Wales, Australia

The seamless pavement connection is an improvement to the interface between the highway pavement and bridge decks by eliminating all transverse joints and providing a reinforcement concrete connection between the pavement and bridge. This results in improved ride quality for highway users and reduced maintenance costs to the community by the elimination of expansion joints at the bridge abutments. Bridge to pavement connections using this technique were first completed in 2004 and have now been successfully used at over 50 bridge locations in Australia. This paper reviews the design principles and

compares actual performance with the design theory. It also provides details of pavement to bridge connections which can be used to eliminate expansion joints on existing structures.

3:00 PM

IBC 13-87: Reconstruction of the New Jersey Turnpike Authority's Easterly Hackensack River Bridge

Richard Schaefer, P.E., HNTB, Inc., Parsippany, NJ; S. Andrew Kamilaris, P.E., Dewberry Engineers, Inc., Bloomfield, NJ; Kevin Healy, P.E., New Jersey Turnpike Authority, Woodbridge, NJ

The New Jersey Turnpike's Easterly Hackensack River Bridge, a 5600' long viaduct structure with spans up to 375, has undergone a complete rehabilitation including a complete staged redecking, repainting, seismic retrofit, and installation of new structural steel which both enhances the bridge's redundancy and increases the load rating of the structure. The rehabilitation work was designed to provide an additional 75 years while withstanding a 2500 year seismic event with minimal future maintenance costs.

WORKSHOPS

W-1: APPLICATION OF SOFTWARE IN LOAD RATING HIGHWAY BRIDGES

1:00 – 5:00 PM ROOM 327

Presented By: FHWA

The objectives of this workshop are to provide bridge owners and engineers with fundamental knowledge in load rating highway bridges in accordance with the AASHTO Manual for Bridge Evaluation and tools and experience in performing load rating of bridges with computer software.

This workshop will consist of presentations from FHWA, AASHTO Bridge Analysis and Rating Task Force and State DOTs. It will also include demonstrations of the AASHTO Bridge Rating software and commercial bridge load rating software.

Speakers: Myint Lwin, P.E., S.E., Director, Office of Bridge Technology, FHWA, Washington, DC; Lubin Gao, Ph.D., P.E., Senior Bridge Engineer – Load Rating, Office of Bridge Technology, FHWA, Washington, DC; Dean Teal, Bridge Evaluation, Kansas Department of Transportation, Topeka, KS; Roy L. Eriksson, P.E., President, Eriksson Technologies, Temple Terrace, FL; C. C. Fu, Ph.D., P.E., Director, The BEST Center, Department of Civil and Environmental Engineering, University of Maryland, College Park, MD; Ron Love, P.E., Senior Product Manager, Bridge Information Modeling (BrIM), Bentley Systems, Chicago, IL; Mohsen Shahawy, Ph.D., P.E., President, SDR Engineering Consultants, Inc., Tallahassee, FL

W-2: EXTRADOSED BRIDGES

1:00 – 4:00 PM ROOM 326

Presented By: Pedelta

This workshop will focus on the conceptual design of extradosed bridges, including the geometric arrangement, typical cross-section, methods of construction, etc. In addition, final design issues such as design criteria, permanent load supported by cables/girder, design of cables, fatigue on cables, and other topics will be discussed. Finally, case studies of various domestic and international extradosed bridge projects will be presented.

Topics:

- Design, testing and implementation of a stay cable system applicable for extradosed bridge. Case study: Kwydzin Bridge, Poland
- Behaviour and Design Criteria of Extradosed Bridges
- Extradosed Bridges in Japan
- Design of the St Croix Extradosed Bridge
- Pearl Harbor Memorial (Q) Bridge - A Construction Perspective

Speakers: Rachid Annan, Special Developments Manager, VSL International, Switzerland; Juan A. Sobrino, Ph.D., P.E., PEng, President of PEDELTA Inc., Coral Gables, FL; Akio Kasuga, Ph.D. Eng., Chief Engineer - Managing Executive Officer, Sumimoto Mitsui Construction Co. Ltd, Tokyo, Japan; Don Bergman, P.Eng., P.E., Senior Project Director - Vice President Major Projects, Buckland & Taylor/COWI, Canada; Sean Bush, Project Manager Pearl Harbor Memorial (Q) Bridge, Walsh / PCL JV, New Haven, CT

W-3: OWNER'S FORUM
1:00 – 5:00 PM ROOM 325

Presented By: High Steel Structures, Inc.

Owners will provide a forecast of their bridge program at this forum, including an overview of upcoming structures design, construction or inspection work.

W-4: ENGINEERING ETHICS
1:00 – 3:00 PM ROOM 324

Presented By: Burns White, LLC, Pittsburgh, PA

Many states now require 1-2 hours of continuing education on ethics. This workshop will include a current, relevant topic on Engineering Ethics. Additional case studies will also be presented that address various engineering ethics issues.

Speakers: Michael Cremonese and Katherine Wrenshall, Burns White, Pittsburgh, PA; Paula M. Selvaggio and Eric O. Pempus, Oswald Companies, Cleveland, OH

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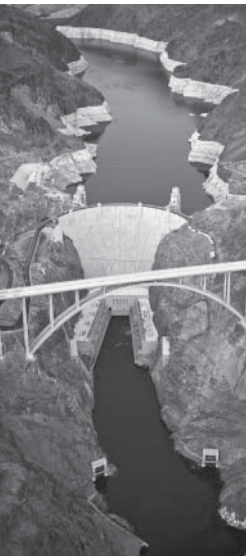


Forward Thinking

BRIDGE ENGINEERING SOLUTIONS

HDR's experience has positioned us as a leader in the delivery of exceptional bridge and structures programs. Our highly skilled professionals have designed bridges and structures that meet our clients' unique and individual needs and specifications. Our services include:

- Design
- Rehabilitation
- Construction Management
- Design-Build
- Condition Inspection
- Construction Inspection
- Construction Engineering
- Rating and Analysis
- Demolition
- Erection

CLOCKWISE: Shenandoah River Bridge, WV | Tappan Zee Hudson River Crossing, NY | Mike O'Callaghan – Pat Tillman Memorial Bridge at Hoover Dam, AZ-NV

SEMINAR: STEEL BRIDGE DESIGN - TOOLS, RESOURCES, REFERENCES FOR DESIGNERS

8:00 AM – 12:00 NOON

See page 60 for description

W-5: ACCELERATED BRIDGE CONSTRUCTION

8:00 AM – 12:00 NOON ROOM 330

Presented By: FHWA

This Workshop, conducted by the FHWA as part of their Every Day Counts program will provide various presentations on Prefabricated Bridge Elements and Systems (PBES) and their role in ABC. Topics will include strategies in the areas of planning, engineering, materials, research, contracting, and construction.

Speakers: Benjamin Beerman, P.E., FHWA, Atlanta, GA; Mike Culmo, P.E., CME Associates, Inc., East Hartford, CT

W-6: BRIDGE PRESERVATION STRATEGIES

8:00 AM – 12:00 NOON ROOM 329

Presented By: FHWA

The objectives of this workshop are to showcase bridge preservation practices aimed to extend the service life of bridges, and to reduce the life-cycle cost of highway bridges, and to communicate bridge preservation program values, benefits and needs to stakeholders and the general public.

This workshop will consist of presentations from FHWA, State and Local Transportation Agencies, industry representatives on protective coatings, corrosion mitigation, and others. It will also provide an overview of NCHRP Project 14-24 Communicating the Value of Preservation.

Speakers: Anwar Ahmad, Senior Bridge Preservation Engineer, FHWA, Washington, DC; Dan Williams, Director of Engineering, Maryland Transportation Authority, Baltimore, MD; Kevin Irving, Marketing Manager, AZZ Galvanizing, Joliet, IL; Rachel Stiffler, Business Development Manager, Vector Corrosion Technologies, Pittsburgh, PA; Joe Crossett, Partner; High Street Consulting Group, Pittsburgh, PA

ent, GeoStabilization International, Grand Junction, CO

W-8: MOVING THE BRIDGE INDUSTRY TOWARDS BRIM PROJECT DELIVERY AND DATA MANAGEMENT

8:00 AM – 12:00 NOON ROOM 327

Presented By: FHWA

This workshop is intended to be an open forum where the FHWA will share its vision for development and implementation of national standards for Bridge Information Modeling (BrIM), and appeal for broad stakeholder input. BrIM based engineering provides an opportunity to be better, faster, and more visualized, while reducing errors and conflicts in project development, construction, and asset management. Creation of credible, unbiased national BrIM standards will provide a common digital exchange format that ideally all software tools would accept both now and in the future. Successful implementation in the bridge industry requires a multi-year roadmap that includes a “top down” strategy involving policy-makers and owners, and a “bottom up” strategy involving practitioners and software providers. FHWA intends to work with all the stake-

holders to greatest extent possible and create an initial set of core BrIM standards that, once established, could be turned over to an industry-driven stewardship body for long-term ownership and management. We will explore opportunities and obstacles from stakeholders such as policy makers, owners, engineers, developers, and commercial software providers and solicit feedback from audience in roundtable discussion format.

Speakers: Brian Kozy, FHWA, Washington, DC; Chuck Eastman, Georgia Tech University, Atlanta, GA; Bob Lipman, NIST, Gaithersburg, MD; Scott Becker, WIDOT, Madison, WI; Mike Waddell, HNTB, Kansas City, MO; Ali Koc, Red Corp, New York, NY; Stuart Chen, University at Buffalo, Buffalo, NY

W-13: SAVING TIME AND MONEY AND CREATING LONGER LASTING BRIDGES

8:00 AM – 12:00 NOON **ROOM 326**

Presented By: SHRP2

This workshop provides detailed technical information on the most promising SHRP 2 products for the Bridge and Structures communities. Many of these products have direct impact on the state of practice to selection, design, construction and preservation of bridge and tunnel components, subsystems and systems. Several products are applicable to “bread and butter” bridges and can be applied by local bridge owners and contractors. Other products advance the body of knowledge of LRFD bridge service life design.

Topics:

- Design Guide for Bridges for Service Life
- Bridge for Service Life beyond 100 Years
- Innovative Bridge Designs for Rapid Renewal
- Selection Tool for Concrete Bridge Assessment Techniques
- Mapping Defects in or Behind Tunnel Linings
- Implementation Plans for SHRP 2 Bridge Products

Specific presentations will address: Service Life Design Guide for 100-year Bridges; Framework and Model AASHTO Design Specifications bridges for Service Limit States; Innovative Bridge Designs for Rapid Renewal (sample plans, design details and design and construction procedures for “workhorse bridges”); Selection Tool for Concrete Bridge Deck Assessment Techniques; Rapid Methods for Mapping Tunnel Lining Defects; and Geotechnical Solutions for Problematic Foundation Conditions. Additional SHRP 2 products will be briefly addressed, including Risk Management, Innovative Strategies for Managing Complex Projects and Performance Specifications for Rapid Renewal Projects.

Speakers: James Bryant, Ph.D., P.E., Second, Strategic Highway Research Program (SHRP 2), The National Academies; Atorod Azizinamini, Ph.D., P.E., Florida International University; Wagdy Wassef, Ph.D., P.E., Modjeski and Masters Inc.; Ken Price, Ph.D., P.E., HNTB; Dr. Nenad Gucunski, Rutgers University; Andrew Wimsatt, Ph.D., P.E., Texas Transportation Institute; Ken Jacoby, FHWA

SEMINAR: NCHRP REPORT 725: GUIDELINES FOR ANALYSIS AND CONSTRUCTION ENGINEERING OF CURVED AND SKEWED GIRDER BRIDGES

1:00 – 5:00 PM

See page 60 for description

W-9: BRIM BENEFITS AND RAPID BRIDGE DESIGN

1:00 – 3:00 PM **ROOM 330**

Presented By: Bentley Systems, Inc.

Attendees will learn how the new paradigm of Bridge Information Modeling (BrIM), which is the future for designing, delivering, and sustaining transportation infrastructure and bridges, addresses the challenges faced by today's engineers through integrated project delivery.Owner expectations and tight funding will continue to require projects of increasing complexity to be delivered more accurately, efficiently, and cheaply. Bridge Information Modeling is the way the bridge industry will address these new challenges.

Speakers: Ron Love, Bentley Systems, Chicago, IL; Jeff Kroon, Bentley Systems, Philadelphia, PA

W-10: FRP COMPOSITES ADVANCEMENTS IN DESIGN, REHABILITATION AND FABRICATION OF PREFABRICATED BRIDGE ELEMENTS AND SYSTEMS

1:00 – 4:00 PM **ROOM 329**

Presented By: American Composites Manufacturing Association

This workshop offers six presentations on recent bridge installations focused on bridge decks, girders, and other bridge applications where the installations demonstrate support of the FHWA Prefabricated Bridge Elements and Systems program for new construction. Other presentations include rehabilitation solutions using structural strengthening systems applied to bridges located in seismic regions will demonstrate the feasibility of composites to extend the service life of structures, bridge pier protection systems, and an overview on specification of FRP rebar used in bridge decks along with several case histories. In addition, a presentation will be given on the development of a new AASHTO specification on concrete filled FRP composites tubes used as girders for bridge design.

Speakers: John P. Busel, American Composites Manufacturers Association, Arlington, VA; Scott Reeve, Composites Advantage, Dayton, OH; David White, P.E., Sika Corporation, Lyndhurst, NJ; Dustin Troutman, Creative Pultrusions, Alum Bank, PA; Markus Spieler, COLEVO, Sins, Switzerland

W-11: INNOVATIVE INFRASTRUCTURE ASSET MANAGEMENT

1:00 – 3:00 PM **ROOM 328**

Presented By: Intelligent Infrastructure Systems (IIS)

As our infrastructures age and the resources available for their conventional replacements dwindle, there is increasing recognition that we need to innovate and increase the effectiveness of how we preserve, rejuvenate and renew existing assets. To accomplish these objectives we need considerable new knowledge and new paradigms that will help operate, inspect, maintain and repair/renew infrastructure in an optimal manner. This workshop will be a series of presentations focused on asset management practice at federal, state, and local agencies.

Speakers: Ehsan Minaie, Ph.D., P.E., Intelligent Infrastructure Systems, Philadelphia, PA; Matt Hardy, Ph.D., Program Director for Planning and Policy, AASHTO, Washington, DC; Colleen Kissane, Transportation Assistant Planning Director, Bureau of Policy and Planning, ConDOT, Newington, CT; Melissa Batula, P.E., Asset Management Division Chief, Bureau of Maintenance and Operations, PennDOT, Harrisburg, PA

W-12: BRIDGE PRESERVATION - WESTERN PA PROJECTS
3:00 – 5:00 PM ROOM 327

Presented By: Michael Baker Jr.

Bridge preservation aspects of various project in Western PA (PennDOT District 11-0). Projects covered will include Cross-town, Parkway North, Parkway East and other various bridge preservation projects.

Speakers: Louis Ruzzi, P.E., Pennsylvania DOT, District 11-0, Bridgeville, PA; Keith A. Michael, P.E., SAI Consulting Engineers, Inc., Pittsburgh, PA; Nikki Bedillion, PE, CBIS, Johnson, Mirmiran & Thompson, Inc., Pittsburgh, PA; Eric Hayes, SPK Engineering, Uniontown, PA; Russell T. Howells P.E., Michael Baker Jr. Inc., Moon Township, PA

SEMINARS (TICKETS REQUIRED)

IBC Seminars are intensive, four-hour, single-topic focused sessions. An additional fee of $175 is required for each seminar and advance registration is required, and a ticket will be provided to you at that time. Tickets are required to attend all seminars. Seating for each Seminar is limited, so please register early. Certificates of Completion are awarded upon completion.

STEEL BRIDGE DESIGN - TOOLS, RESOURCES, REFERENCES FOR DESIGNERS

8:00 PM – 12:00 NOON

Presented by: National Steel Bridge Alliance

Objective of this seminar is to introduce new, complimentary tools and resources available to the bridge design community, including girder design software, girder splice software, and the new Steel Bridge Handbook from FHWA. Efficient girder design will be reviewed using the new SIMON program and splice design will be reviewed using the new NSBASplice software. Attendees will develop better insight into economical bridge design, enabling them to use the provided software to quickly develop preliminary & final designs of steel bridge superstructures. Additionally an overview to the use of eSPAN140, a web based tool for a quick and easy assessment of steel options for simply supported, short span bridges will be provided. Finally an introduction to the FHWA's new Steel Bridge Design Handbook, a compendium of 19 volumes and 6 design examples prepared by a 'Who's Who' of bridge design. A more detailed at the Redundamcy and Bracing chapters will be provided.

Speakers: Bill McEleney, NSBA, Cranston, RI; Mike Grubb, M.A. Grubb & Associates, Pittsburgh, PA; Bob Cisneros, High Steel Structures, Lancaster, PA; Karl Barth, West Virginia University, Morgantown, WV; Brandon Chavel, HDR, Chicago, IL; Brian Kozy, FHWA, Washington, DC; Dennis Mertz, University of Delaware, Newark, DE

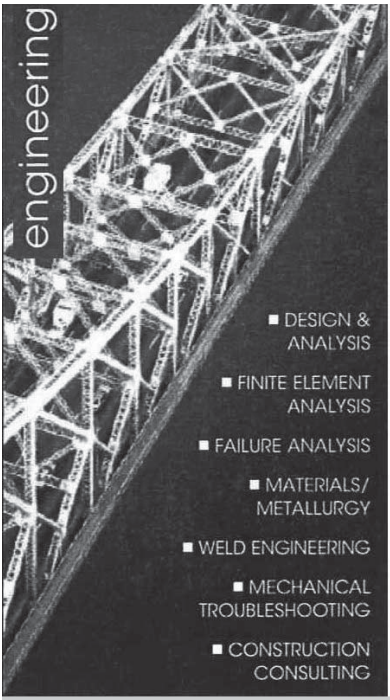
NCHRP REPORT 725: GUIDELINES FOR ANALYSIS AND CONSTRUCTION ENGINEERING OF CURVED AND SKEWED GIRDER BRIDGES

1:00 – 5:00 PM

Presented by: HDR Engineering, Inc.

The behavior of horizontally curved and/or skewed steel I- and tub-girder bridges is more complicated than that of straight, non-skewed bridges. These structures can experience significant three-dimensional deflections and rotations and system behavior, all of which can potentially compromise the constructability of the bridge, and in some cases, its structural integrity. Little has been previously published in the way of quantitative guidelines or recommendations on the appropriate level of structural analysis for construction engineering of these types of bridges. The recently published NCHRP Report 725, Guidelines for Analysis Methods and Construction Engineering of Curved and Skewed Steel Girder Bridges, provides bridge engineers with guidance that will be presented and discussed.

Speaker: Brandon W. Chavel, HDR Engineering, Inc., Cleveland, OH; Don White, Georgia Institute of Technology, Atlanta, GA; Andres Sanchez, HDR Engineering, Pittsburgh, PA; Cagri Ozgur, Paul C. Rizzo Associates, Pittsburgh, PA



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EXHIBITOR INFO

New this year, the 2013 IBC Exhibit Hall has moved to Hall B of the David L. Lawrence Convention Center, where we can accommodate even more displays than ever before–heavy equipment, active displays and super-sized exhibits, along with numerous enhancements for your enjoyment. With more space than ever to accommodate additional features, the IBC Exhibit Hall is the place to be for attendees and exhibitors! In addition to the many vendor exhibits, the Featured Agency display from MassDOT is prominently featured in the center of the Exhibit Hall.

All registered attendees are welcome to enjoy our strolling luncheon buffets on Monday, Tuesday and Wednesday during the IBC, where you will find lots of goodies displayed throughout the Exhibit Hall. Please stop by and visit with our many exhibitors while enjoying your lunch. In addition, coffee breaks, when scheduled, will be located throughout HALL B.

The IBC Exhibit Hall is open:

- Monday: 11:00 AM - 5:00 PM, featuring complimentary lunch starting at 12:00 Noon.
- Tuesday: 8:00 AM - 5:00 PM, featuring complimentary lunch starting at 12:00 Noon.
- Wednesday: 8:00 AM - 1:30 PM, featuring complimentary lunch starting at 12:00 Noon.

Thanks to all of our returning and new Exhibitors! The following is a quick find numerical listing of all exhibitors. Following, an alphabetical listing with full contact information and company description can be found. This listing contains all Exhibitors as of May 20, 2013.

BOOTH #	NAME
Hall B	Massachusetts DOT
201	Dynamic Isolation Systems
203	TRC Engineers, Inc.
207	Hardwire LLC
211	Bentley Systems, Incorporated
213	Pultrall Inc.
216	STV
217	Oldcast Precast
218	Z+F USA, Inc.
219	American Segmental Bridge Institute (ASBI)
221	Epoxy Interest Group of CRSI
223	SHRP2 Solutions
224	Headed Reinforcement Corporation (HRC)
225	Silica Fume Association
229/328	U.S. Bridge
237	ZPMC
300	KLAAS Coatings (North America) LLC
301	Harcon Corporation
302	Scougal Rubber Corporation
303	Advitam, Inc.
304	Neel Company, The
305	Campbell Scientific, Inc.
306	Terex Hydra Platforms
310	FIGG
311	Wirerope Works, Inc.
312	AZZ Galvanizing Services
313	Termarust Technologies
316	McClain & Co. Inc.
318	Moog USA, Inc.
320	AECOM
322	Watson Bowman ACME

EXHIBITOR INFO

324 .....Seismic Energy Products
329 .....DOT Quality Services
330 .....Snap-Tite
331 .....American Shotcrete Association
332 .....Phoenix National Laboratories, Inc.
336 .....All Access Rigging
337/436 ...Pennoni Associates
400 .....R.J. Watson, Inc.
401 .....Reinforced Earth Company, The
402 .....Outokumpu Stainless
403 .....Vector Corrosion Technologies
404 .....Transpo Industries, Inc.
405 .....Carolina Stalite Company
407 .....Highway Care
410 .....Hayward Baker
411 .....Modjeski and Masters, Inc.
412 .....Viathor, Inc.
413 .....D.S. Brown Company, The
428 .....MMFX Steel Corporation of America
429 .....G.W.Y., INC.
430 .....Williams Form Engineering Corp.
431 .....Bridge design & engineering
433 .....H2L2/ Nelson Company
437 .....Strand7 Pty Ltd.
500 .....Sika Corporation
501/600/503/602 ... CBSI
502/504 ...American Composites Manufacturers Association
505/604 ...Acrow Corporation
506 .....MDX Software
510 .....Bridge Grid Flooring Manufacturers Association
511 .....St. Louis Screw & Bolt
512 .....Hilman Rollers
513 .....Central Atlantic Bridge Associates
517 .....Short Span Steel Bridge Alliance
519 .....Sofis Company Inc.
521 .....National Steel Bridge Alliance (NSBA)
523 .....HRV Conformance Verification Associates, Inc.
525 .....Eriksson Technologies, Inc.
528 .....Lusas
529 .....Euclid Chemical Co.
530 .....Pittsburgh Rigging
531 .....Evonik Industries
532 .....Dymat Construction Products, Inc.
536 .....Freyssinet, Inc.
537 .....ZPMC
601 .....WireCo World Group
603 .....Loadtest
605 .....FRP Bridge Drain Pipe
607 .....Michael Baker Jr., Inc.
610 .....Proto Manufacturing
611 .....DBi Services
612 .....Moffatt & Nichol
613 .....G.M. McCrossin
616 .....Bridge Access Specialties
617 .....SPX Hydraulic Technologies (Power Team)
618 .....Palmer Engineering
619 .....Crafco Inc.
620 .....VSL
621 .....TranSystems Corporation
622 .....Earthquake Protection Systems, Inc.

623 .....Halferty Metals Company
624 .....Skyline Steel
625 .....Red-D-Arc Welderentals
628 .....The Thortex Group
629 .....ChemCo Systems
630 .....Greenman-Pedersen, Inc.
631 .....AST/Adhesive Systems Technology
633 .....Safway Services
636 .....Protective Coating Systems
637 .....Ceratech Inc.
700 .....Roads & Bridges Magazine
706 .....Trimble Navigation
710 .....LeJeune Bolt Company
712 .....Sealite USA
716 .....Spider-Systems Group
717 .....Mageba USA
719 .....AASHTO
720 .....Guardian Bridge Rapid Construction Inc.
724 .....Trinity Highway Products
725 .....CTS Cement Manufacturing Corporation
728 .....N.E. Bridge Contractors Inc.
732 .....Sabre Autonomous Solutions
736 .....3A Composites

IBC POS – 1

A Study on Wrapping Wire Tension Loss of Main cable of Suspension Bridge

Jinhyuk Choi, Bridge Engineering Team, Daelim Industrial Co., Ltd., Jongno-gu, Seoul, Korea

EXHIBITOR INFO

3A Composites

Booth #: 736

Contact: Markus Spieler
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E-mail: markus.spieler@3acomposites.com
Website: www.colevo.ch

3A Composites is a global provider of lightweight sandwich solutions and products, focused on the architecture, display, marine, transportation and wind energy markets, offering a unique product range for the respective high-end segments. COLEVO® is a new offering of 3A Composites for light and durable sandwich composite solution in bridges, bridge decks, and further lightweight applications in the civil engineering and construction market.

AASHTO

Booth #: 719

Contact: Erin Grady
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E-mail: egrady@aashto.org
Website: www.transportation.org

The American Association of State Highway and Transportation Officials (AASHTO) advocates transportation-related policies and provides technical services to support states in their efforts to efficiently and safely move people and goods.

Acrow Corporation

Booth #: 505/604

Contact: Eugene Sobecki
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Fax: 973-244-0085
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Website: www.acrow.com

Acrow Corporation, a steel bridging company, has been in business for over 57 years. Acrow's primary business is the engineering, manufacturing, and supply of prefabricated modular steel bridges for emergency, temporary detour, and permanent application. Acrow is an industry world leader that specializes in the design, manufacture, and supply of modular prefabricated steel Acrow Bridges and Superprop Shoring Systems.

Advitam, Inc.

Booth #: 303

Contact: Stephen Schorn
Phone: 703-674-0813
Fax: 703-342-0426
E-mail: stephen.schorn@advitam-usa.com
Website: www.advitam-usa.com

Advitam provides solutions and services for infrastructure management. ScanPrint is our asset management system offering inventory, inspection, reporting and LCC modules for bridges and other highway structures and assets. Advitam is also an expert in structural health monitoring and NDT; our EverSense system provides short/long-term solutions for bridge monitoring.

EXHIBITOR INFO

AECOM

Booth #: 320

Contact: Ken Butler
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E-mail: Ken.Butler@aecom.com
Website: www.aecom.com

Ranked No.1 in Transportation by Engineering News-Record, AECOM is also among the industry leaders in bridges. With more than 1,100 bridge staff in over 75 offices, we have been contributing to successful bridge engineering projects worldwide, providing planning and environmental evaluation, financing, rehabilitation, design, inspection, and program and construction management.

All Access Rigging

Booth #: 336

Contact: Amy Guzma
Phone: 412-877-9660
Fax: 866-491-2140
E-mail: contact@allaccessrigging.com
Website: www.allaccessrigging.com

AARC is a nationwide bridge inspection support service company with over 30 years of experience. We provide access to the most challenging structures while eliminating the need for lane closures and track time. We also provide traffic control, bridge maintenance & repair, certified welding services. Penndot prequalified & hold PA & WV contractor licenses.

American Composites Manufacturers Association (ACMA)

Booth #: 502/504

Contact: John P. Busel
Phone: 914-961-8007
Fax: 703-525-0743
E-mail: jbusel@acmanet.org
Website: www.compositesinfrastructure.org

ACMA is the world's largest composites trade association and hosts the largest composites conference in North America – COMPOSITES. The ACMA Transportation Structures Council serves to inform and educate engineers on FRP composites used in infrastructure applications. Products on display include FRP bridge decks, rebar, girders, bridge pier protection, and concrete repair/strengthening systems. Visit www.compositesinfrastructure.org.

American Segmental Bridge Institute (ASBI)

Booth #: 219

Contact: William R. (Randy) Cox
Phone: 512-523-8214
Fax: 512-523-8213
E-mail: info@asbi-assoc.org
Website: www.asbi-assoc.org

The American Segmental Bridge Institute (ASBI) is a nonprofit organization providing a forum where owners, designers, constructors, and suppliers can meet to further refine current design, construction, and construction management procedures, as well as evolve new techniques to advance the quality and use of concrete segmental bridges.

EXHIBITOR INFO

American Shotcrete Association

Booth #: 331

Contact: Mark A. Campo
Phone: 248-848-3742
Fax: 248-848-3740
E-mail: info@shotcrete.org
Website: www.shotcrete.org

The American Shotcrete Association (ASA) is a non-profit organization of contractors, suppliers, manufacturers, designers, engineers, owners, and others with a common interest to encourage and promote the use of the shotcrete method of concrete placement. ASA's vision is that the shotcrete process be understood and used in every beneficial application.

AST/Adhesive Systems Technology

Booth #: 631

Contact: Stephen Hirt
Phone: 763-592-2060
Fax: 763-592-2075
E-mail: ast@ast-corp.net
Website: www.ast-corp.net

Manufacturer of equipment used for bridge deck coating, doweling, injection, & joint filling. Used for applications of epoxies, urethanes and other one & two part materials.

AZZ Galvanizing Services

Booth #: 312

Contact: Kevin Irving
Phone: 815-693-4242
Fax: 630-243-6426
E-mail: kevinirving@azzgalv.com
Website: www.azzgalvanizing.com

The steel bridge industry has looked to AZZ as a leading provider of corrosion protection services for more than four decades. As North America's largest after-fabrication galvanizer, we assure durability and safety for decades by applying molten zinc to metal components. Zinc corrodes at a rate 30 times slower than steel. The resulting coating serves as a rust-free shield that can last for decades.

Bentley Systems, Incorporated

Booth #: 211

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E-mail: Barbara.day@bentley.com
Website: www.bentley.com/IBC

Bentley Systems, Incorporated provides software for the lifecycle of the world's infrastructure. Bentley delivers Bridge Information Modeling (BrIM) technology for the entire bridge lifecycle. Bentley BrIM provides broad access to advanced bridge products in Bentley's comprehensive software portfolio. Bentley products provide an interoperable, data-managed bridge solution for planning, design, engineering, analysis, fabrication, construction, maintenance, and rehabilitation. These end-to-end solutions enable the transportation industry to efficiently and effectively address the challenges of new and aging bridges and deliver sustainable, long lasting infrastructure.

Bridge Access Specialties

Booth #: 616

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Website: www.bridgeaccessspecialties.com

Bridge Access Specialties is a Under Bridge Inspection Truck Rental Company. We rent UBITs to inspect Rail structures, Roadway structures and Transit elevated rail structures through out the United States.

Bridge design & engineering

Booth #: 431

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Website: www.bridgeweb.com

The leading magazine for the international bridge industry. Every issue of Bd&e looks at the latest news, project reports, interviews and technical & application features from around the world. Bd&e is essential reading for anyone who finances, plans, designs, builds, maintains, operates or owns bridges.

Bridge Grid Flooring Manufacturers Association (BGFMA)

Booth #: 510

Contact: Ryan Schade
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E-mail: bgfma@bgfma.org
Website: www.bgfma.org

The Bridge Grid Flooring Manufacturers Association (BGFMA) industry group is comprised of companies who fabricate steel grid deck systems for bridges and other companies with an interest in this market. This professional organization is focused on the reliable development and application of open grid, grid reinforced concrete, and Exodermic™ bridge decks to meet the demands of the engineering community and traveling public.

Campbell Scientific, Inc.

Booth #: 305

Contact: Mike Adams or Bill Bradford
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Website: www.campbellsci.com/structures

Campbell Scientific, Inc. manufactures data acquisition systems for bridge monitoring and testing. Proven on many of the world's premier bridges, our rugged, stand-alone, DC powered instrumentation features multiple telemetry options, low power use, non-volatile data storage, rainflow histograms, real-time FFTs, and rugged reliability even in harsh, remote environments.

EXHIBITOR INFO

Carolina Stalite Company

Booth #: 405

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Fax: 704-642-1572
E-mail: rcastrodale@stalite.com
Website: www.stalite.com

Stalite is a high performance lightweight aggregate manufactured by expanding slate at high temperatures. Lightweight concrete produced using Stalite has enhanced durability and a lower density that improves structural efficiency and reduces handling costs for precast elements. Stalite has been successfully used as geotechnical fill in a range of applications.

CBSI

Booth #: 501/600/503/602

Contact: Jerry V. Clodfelter
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Fax: 713-675-1140
E-mail: jvclodfelter@cbsii.com
Website: www.cbsiusa.com

CBSI is the definitive resource for engineering matters relating to cable-supported structures. In addition to consulting services, CBSI personnel design, contract for, storehouse, and supply both custom and standard bridge strands, ropes and related structural sockets, casting and forgings. We are driven by a determination to provide each client with the finest products and services available today. We know the excellence of our work is our most important asset.

Center Rock Inc.

Booth # 702

Contact: Christen Fisher
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Fax: 814-267-3841
Email: cfisher@centerrock.com
Website: centerrock.com

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Central Atlantic Bridge Associates

Booth #: 513

Contact: Heinrich O. Bonstedt
Phone: 610-395-2338
E-mail: info@caba-bridges.org
Website: www.caba-bridges.org

The Central Atlantic Bridge Associates (CABA) represents PCI Certified prestressed concrete bridge beam producers in the Central Atlantic region – Pennsylvania, Virginia, Maryland, Delaware, and New Jersey. It promotes the use, application, and technical development of prestressed concrete for the transportation markets.

Ceratech Inc.

Booth #: 637

Contact: Todd Miller
Phone: 1-800-581-8397
Fax: 443-524-4411
E-mail: todd.miller@pavemend.com
Website: www.pavemend.com

Pavemend Rapid, Permanent Concrete and Asphalt repair products are quickly becoming the choice for Turnpike, State DOT Bridge Crews and discriminating engineers who value superior permanent repairs and reduced traffic disruptions. Pavemend products are easier to use, offer greater durability, provide superior return on investment, and are the most sustainable repair products available today.

ChemCo Systems

Booth #: 629

Contact: John Bors
Phone: 650-261-3790
Fax: 650-261-3799
E-mail: bors@chemcosystems.com
Website: www.chemcosystems.com

Epoxy Asphalt is the highest performing surfacing for long span bridges around the world. With a design life typically exceeding 20 years, this pavement provides high bond strength and fatigue resistance on orthotropic steel decks. As a thermoset polymer, this pavement does not melt, offering superior performance in hot climates.

Crafco Inc.

Booth #: 619

Contact: Lisa M Zentner
Phone: 307-287-6267
Fax: 480-940-0313
E-mail: lisa.zentner@crafco.com
Website: www.crafco.com

Crafco specializes in Pavement Preservation supplying the industry with bridge deck waterproofing membranes, crack and joint sealants, geo-composites, patching products and application equipment. Crafco's knowledge comes from preserving pavements and the challenges that come with the never-ending efforts to maintain them.

CTS Cement Manufacturing Corporation

Booth #: 725

Contact: Chris Davis
Phone: 800-929-3030
Fax: 714-379-8270
E-mail: info@ctscement.com
Website: www.ctscement.com

CTS manufacturers Rapid Set® cement and Type K shrinkage compensating cement (SCC). Rapid Set® allows bridge deck overlays to be completed faster, with higher quality, long-term performance than Portland cement concrete. SCC has been used in over 800 bridge decks with reduced permeability, excellent durability and little to no cracks.

D.S. Brown Company, The

Booth #: 413

Contact: Bob Rose
Phone: 732-451-0070
Fax: 732-262-4443
E-mail: brose@dsbrown.com
Website: www.dsbrown.com

Design and manufacture engineered bridge construction materials including expansion joint systems, structural bearing assemblies (elastomeric, HLMR and spherical), Cableguard™ elastomeric wrap (corrosion protection for bridge cables), and Exodermic™ (composite, unfilled steel grid) Bridge Decks.

DBi Services

Booth #: 611

Contact: Fred Grant
Phone: 570-459-1112
Fax: 570-459-0321
E-mail: fgrant@dbiservices.com
Website: www.dbiservices.com

DBi Services provides global transportation infrastructure maintenance and operations solutions for highways, bridges and tunnels to toll authorities, government agencies, concessionaires and private partners. In addition, our High Friction Surfacing Treatment division provides application technology of skid-resistant surfaces and bridge deck coatings, making roads safer worldwide.

DOT Quality Services

Booth #: 329

Contact: Seth Bransky
Phone: 312-285-5344
E-mail: info@dotqs.com
Website: www.dotqs.com

DOT Quality Services is a specialized firm that develops standards of performance, creates and conducts supplier audit programs, and offers ISO 9001 and ISO 3834 Certification Services. Our quality audits are conducted by experienced quality professionals with technical and quality system certification credentials. All evaluations are done with a customer's perspective to specific contracts, state specifications, and industry codes.

Dymat Construction Products, Inc.

Booth #: 532

Contact: D. Stephen Fitz
Phone: 775-800-1190 or 775-420-8905
E-mail: steve@dsfitz.com or dsfitz@dymatinc.com
Website: www.dymatinc.com

Dymat provides high quality, American made bridge disc and sliding bearings, carbon fiber reinforced bearings, rubber bearings, slip seal expansion joints and simple base isolation systems as well as rapid construction systems for repairs to damaged columns and piers. Engineering assistance, proposal and submittal drawings and CAD for custom applications.

Dynamic Isolation Systems

Booth #: 201

Contact: Tung Ng
Phone: 775-359-3333
Fax: 775-359-3985
E-mail: tng@dis-inc.com
Website: www.dis-inc.com

Dynamic Isolation Systems Inc. (DIS) has been at the forefront of seismic isolation for over 25 years. DIS designs, manufactures and tests seismic isolation bearings of all sizes and specializes in custom designs. We have supplied isolators for the majority of prominent isolation projects around the world. Please contact DIS for design assistance for your isolation project.

Earthquake Protection Systems, Inc.

Booth #: 622

Contact: Roy A. Imbsen
Phone: 707-644-5993
Fax: 707-644-5995
E-mail: roy.imbsen@earthquakeprotection.com
Website: www.earthquakeproyection.com

Earthquake Protection Systems is the world's leading manufacturer of seismic isolation bearings. Our Friction Pendulum bearings are used in the world's largest and most critical seismic isolation applications. The new Triple Pendulum bearing provides the best seismic performance available in seismic isolation at a lower installed cost.

Epoxy Interest Group of CRSI

Booth #: 221

Contact: David McDonald
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E-mail: dmcdonald@epoxy.crsi.org
Website: www.epoxyinterestgroup.org

Epoxy-coated reinforcing steel is the most commonly used and most cost-effective method to reduce damage to concrete due to corrosion. The Epoxy Interest Group is a not-for-profit trade association providing an authoritative resource for information related to use of epoxy-coated steel.

Eriksson Technologies, Inc.

Booth #: 525

Contact: Roy Eriksson
Phone: 813-989-3317
E-mail: eriksson@eriktech.com
Website: www.LRFD.com

Eriksson Technologies provides consulting engineering services and develops and markets engineering design software. Engineering services are primarily rendered to precast/prestressed concrete fabricators that serve the transportation market. Our full range of services include detailing, shop drawing preparation, stressing bed design and retrofit, product design and re-design, lifting and handling, damage assessment, and repair. Engineering software includes applications for pretensioned bridge girder, spliced bridge girder, and precast and cast-in-place culvert design.

Euclid Chemical Co.

Booth #: 529

Contact: Mike Konkle
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Fax: 216-481-7072
E-mail: info@euclidchemical.com
Website: www.euclidchemical.com

The Euclid Chemical Company manufactures top quality concrete admixtures, repair products, sealers and coatings that meet the demands of the bridge industry. We strive to be "demonstratively better" to our customers through cutting edge research, technical support and service, product training and an education-driven specification effort.

Evonik Industries

Booth #: 531

Contact: Christopher Soldi
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E-mail: info.protectosil@evonik.com
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Booth #: 310

Contact: Linda Figg
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Website: www.figgbridge.com

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Booth #: 536

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Booth #: 429

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Booth #: 300

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Massachusetts DOT

Booth #: Center Exhibit Hall B

Contact: Eliza S. Partington
Phone: 857-368-9290
Fax: 857-368-0601
E-mail: eliza.partington@state.ma.us
Website: www.massdot.state.ma.us/highway

Learn about the bridge program of Massachusetts in the Featured Agency Mega-display. Located in the center of Hall B, the Featured Agency display is at the crosswalk of the exhibit hall. Be sure to spend some time browsing the many displays and learn more about the bridge program of MassDOT.

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Booth #: 316

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Fax: 540-423-1066
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Booth #: 428

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Booth #: 411

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Booth #: 318

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Booth #: 728

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Booth #: 521

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E-mail: raff@steelbridges.org
Website: www.steelbridges.org

NSBA, a non-profit trade association, is the unified voice representing the entire steel bridge community. In addition to structural steel fabricators and producers, NSBA brings together the agencies and groups who have a stake in the success of steel bridge construction, including representatives from AASHTO, FHWA, state DOTs, bridge consultants, erectors, and representatives of the coatings, fastener, and welding industries. The NSBA's mission is to establish steel as the bridge material of choice.

Neel Company, The

Booth #: 304

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Booth #: 402

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Booth #: 337/436

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Booth #: 700

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Sabre Autonomous Solutions

Booth #: 732

Contact: Martin Lloyd
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Booth #: 517

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Booth #: 223

Contact: Carin Michel
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E-mail: goshrp2@dot.gov
Website: www.fhwa.dot.gov/goSHRP2

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Sika Corporation

Booth #: 500

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Silica Fume Association

Booth #: 225

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Booth #: 716

Contact: Spider-Systems Group
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Fax: 206-575-6240
E-mail: spider@spiderstaging.com
Website: www.spiderstaging.com

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Booth #: 617

Contact: Jesus Guevara
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Fax: 815-874-7886
E-mail: jesus.guevara@spx.com
Website: www.powerteam.com

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Booth #: 511

Contact: Joe Howard
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E-mail: sales@stlouisscrebolt.com
Website: www.stlouisscrewbolt.com

St. Louis Screw & Bolt is a domestic manufacturer of structural bolts including A325 and A490 hex bolts that sells direct to steel fabricators, erectors and general contractors.

Strand7 Pty Ltd.

Booth #: 437

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Phone: 252-504-2282
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Website: www.strand7.com

Beaufort Analysis, Inc. (BAI) is the distributor of the Strand7® Finite Element Analysis System in the United States. Strand7 is a general purpose finite element analysis program developed by Strand7 Pty Ltd, Sydney, Australia and is used throughout the world for the analysis of ship structures, aircraft, road and rail vehicles and a wide range of industrial products as well as for the analysis of buildings and bridges

STV

Booth #: 216

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Website: www.stvinc.com

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Terex Hydra Platforms

Booth #: 306

Contact: Gwen Caines
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Fax: 803-366-0603
E-mail: gwen.caines@terex.com
Website: www.terex.com

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Booth #: 313

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Booth #: 628

Contact: Kelly Strong
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Booth #: 404

Contact: John B. Karlson
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E-mail: jkarlson@transpo.com
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Manufacturer of road safety products and specialized polymer concrete materials. Materials for the maintenance, rehabilitation and preservation of bridges. Breakaway supports for signs and light poles, Roadway Glare Screen, Polymer Concrete Barrier panel for roads, tunnels, and bridges, Anti-Skid Color Pavement Marking Surface, Airport blast fence and maintenance products.

TranSystems Corporation

Booth #: 621

Contact: Paul G. Norton, P.E.
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Website: www.transystems.com

TranSystems is a nationwide consulting firm, with our entire 900+ person staff of engineers, architects, and planners devoted solely to transportation. We are consistently listed among the ENR Top Ten Bridge Firms, providing bridge design, inspection, evaluation, load rating, rehabilitation and construction engineering services for fixed, movable and historic bridges.

TRC Engineers, Inc.

Booth #: 203

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www.trcbridgedesignsoftware.com

TRC is a national engineering, consulting and construction management firm providing integrated services to the energy, environmental and infrastructure markets to both public and private sector clients. Today, the company has emerged as one of the nation's leading engineering and consulting firms with the resources of 2,500 employees in more than 90 offices nationwide. TRC also markets, maintains and supports several bridge design software programs for several bridge structure types and offers training and workshops to consultants and public agencies. These software programs provide the necessary tools to model, analyze and design bridge components.

Trimble Navigation

Booth #: 706

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E-mail: infrastructure_sales@trimble.com
Website: www.trimble.com/infrastructure

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Trinity Highway Products

Booth #: 724

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Website: www.highwayguardrail.com

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U.S. Bridge

Booth #: 229/328

Contact: Raj Shah
Phone: 740-432-6334 ext. 293
Fax: 740-439-7349
E-mail: rshah@usbridge.com
Website: www.usbridge.com

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Vector Corrosion Technologies

Booth #: 403

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E-mail: rachels@vector-corrosion.com
Website: www.vector-corrosion.com

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Viathor, Inc.

Booth #: 412

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E-mail: vinfo@viathor.com
Website: www.viathor.com

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VSL

Booth #: 620

Contact: Clyde Ellis
Phone: 410-859-6539
Website: www.structuraltechnologies.com

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Booth #: 322

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EXHIBITOR INFO

WireCo World Group

Booth #: 601

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Website: www.MacWhyte.com

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Wirerope Works, Inc.

Booth #: 311

Contact: William Austin
Phone: 570-327-4206
Fax: 570-327-4274
E-mail: w.austin@wireropeworks.com
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Booth #: 218

Contact: Jeremy Clements
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Website: www.zf-usa.com

Z+F USA, Inc. was founded in 1998 to expand the company's market and to create a local presence for Z+F customers in the United States. Z+F USA, Inc. distributes and supports high quality electronic control equipment including; wire ferrules, wire processing machines and revolutionary 3D Laser Scanners and Software.

ZPMC (Shanghai Zhenhua Heavy Industries Co., Ltd)

Booth #: 537

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Website: www.zpmc.com

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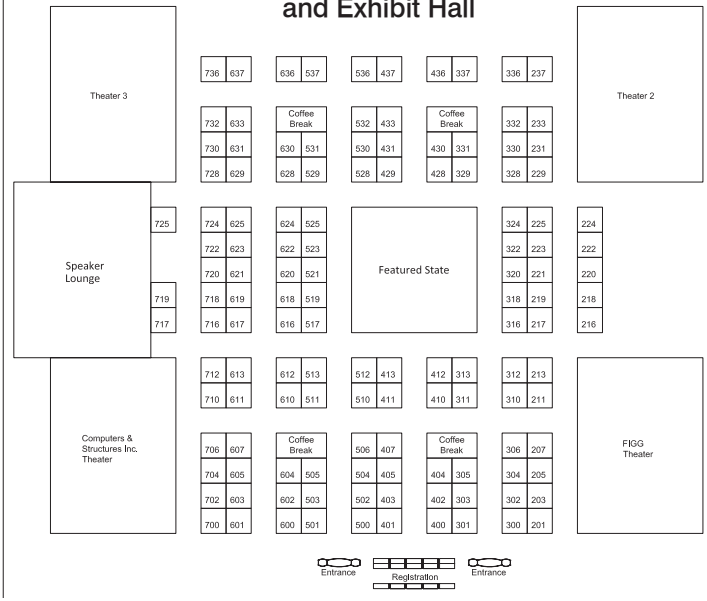
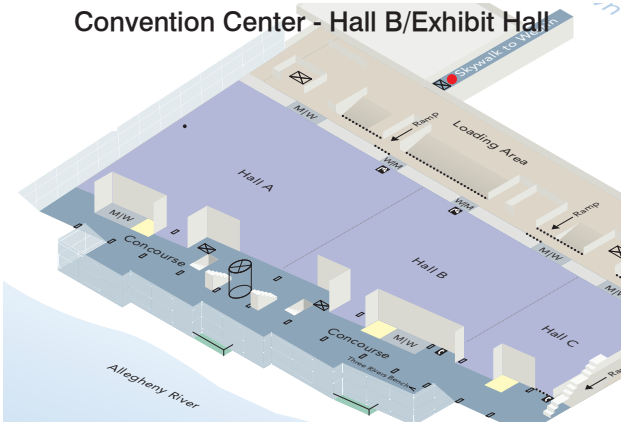
NOTES

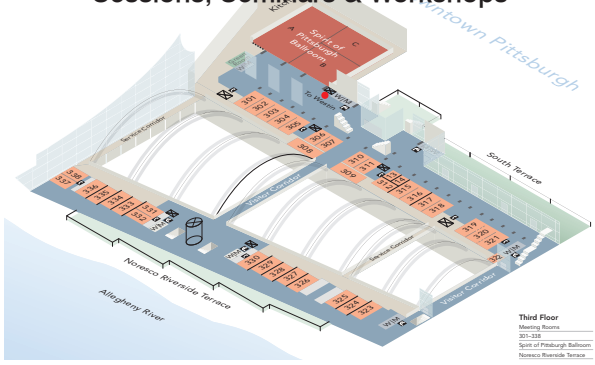
Hall B of the David L. Lawrence Convention Center - site of Theaters 2-3, Figg Theater & C&SI Theatre, IBC Technical Sessions, and Exhibit Hall



2nd Level Floor Plan of the David L. Lawrence Convention Center - Hall B/Exhibit Hall



3rd Level Floor Plan of the David L. Lawrence Convention Center - site for the Technical Sessions, Seminars & Workshops



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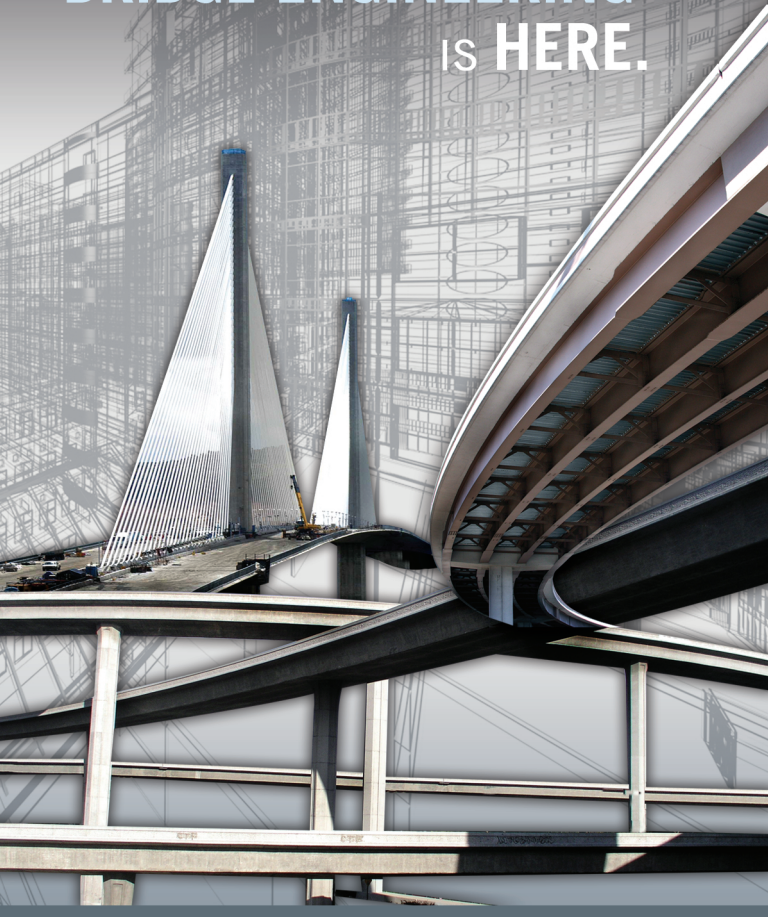

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