Papers presented at the
12th Annual International Bridge Conference
June 19, 20, 21, 1995

Monday, June 19, 1995

KEYNOTE SESSION
(Keynote Session presentations are not included in the Proceedings.)

Session Chairman: Arthur W. Hedgren, Jr., HDR Engineering, Inc., Pittsburgh, Pennsylvania

BRIDGES AS A CUSTOMER SERVICE TO SOCIETY
Charles L. Miller, Secretary of Transportation, West Virginia Department of Transportation,
Division of Highways, Charleston, West Virginia

FUTURE DIRECTIONS FOR BRIDGE STEEL AND DESIGN
John W. Fisher, Ph.D., Lehigh University, Bethlehem, Pennsylvania

EUROPEAN DESIGN PHILOSOPHY
Michel P. Virlogeux, Ecole Nationale Des Ponts et Chaussees, France

STUDENT PAPER COMPETITION WINNER:
DEVELOPMENT OF A COMPOSITE STEEL FLOOR SYSTEM FOR DECK GIRDER BRIDGES
Francesco M. Russo, Iowa State University, Ames, Iowa

FEATURED STATE SESSION:
WEST VIRGINIA

Session Chairman: James E. Sothen, Director, Structures Division, West Virginia Department of Transportation,
Division of Highways, Charleston, West Virginia

THE MOUNTAIN STATE AND ITS BRIDGES
James E. Sothen, Structures Division, West Virginia Department of Transportation, Division of Highways,
Charleston, West Virginia (IBC-95-5) (Slide presentation - not published).

RESTORATION OF THE FIRE DAMAGED HISTORIC COVERED TIMBER BRIDGE AT PHILIPPI,
WEST VIRGINIA
Emory L. Kemp, Institute for the History of Technical and Industrial Archaeology, West Virginia University,
Morgantown, West Virginia (IBC-95-6)

WEST VIRGINIA’S BRIDGE INSPECTION AND SMALL BRIDGE REPLACEMENT PROGRAM
Gary R. Klavuhn, West Virginia Division of Highways, Burlington, West Virginia; Joe B. Hayes,
West Virginia Division of Highways, Ronceverte, West Virginia (IBC-95-7)

REHABILITATION OF A SLOTTED ANODE BRIDGE DECK CATHODIC PROTECTION SYSTEM
Robert N. Amos, Jr., Melanie L. Neal, West Virginia Department of Transportation, Division of Highways,
Charleston, West Virginia (IWC-95-8)

INNOVATION IN BRIDGE DESIGN AND MATERIALS FOR A SMALL STATE - WEST VIRGINIA
James D. Shook, West Virginia Department of Transportation, Division of Highways, Structures Division,
Charleston, West Virginia (IBC-95-9)

THE NEW RIVER GORGE BRIDGE - MORE THAN JUST STEEL AND CONCRETE
Gregory L. Bailey, West Virginia Department of Transportation, Division of Highways, Structures Division,
Charleston, West Virginia (IBC-95-10)
Using the Highway Innovative Technology Evaluation Center to Bring New/Proprietary Products Into the Bridge Market


Bridge Strengthening with Shock Transmission Units (STUs)

D. Stephen Brown, Tech Star, Inc., Findlay, Ohio (IBC-95-12) (This paper not published in these Proceedings.)

Implementation of a Multimedia Information System for Bridge Safety

Albert Leung, Massachusetts Highway Department, Boston, Massachusetts; Daniel Kirchheimer, Trilon, Inc., New Brunswick, New Jersey; Avanti Shroff, Iffland Kavanagh Waterbury, P.C., New York, New York (IBC-95-13)

Bridge Scour During the 1994 Georgia and Texas Floods

Gordon G. Barksdale, American Inland Divers, Inc., Houston, Texas (IBC-95-14)

Moisture Cured Polyurethane Coatings

Arun Asarawala, The Valspar Corporation, Baltimore, Maryland (IBC-95-15)

Bridge Decks Minus Top Bars are More Durable


Tuesday, June 20, 1995

Tuesday Morning - Session A

Long Span Bridges

Session Chairman: Lisle E. Williams, Buchart Horn, Inc., Pittsburgh, Pennsylvania

The Normandy Bridge, the Steel Main Span

Lars T. Sorensen, Monberg & Thorsen A/S, Copenhagen, Denmark (IBC-95-17)

Experiences in Wind Tunnel Testing of Long Span Bridges

Peter A. Irwin, Jiming Xie, Stoyan T. Stoyanoff, Gordon E. Dunn, Rowan Williams Davies & Irwin, Inc., Guelph, Ontario, Canada (IBC-95-18)

The New Haeng Ju Bridge, Korea


Alternate Foundation Designs for the Monongahela River Bridge

Thomas Macioce, Chun S. Cai, Morad G. Ghali, Raju Penmatsa, Michael Baker Jr., Inc., Coraopolis, Pennsylvania (IBC-95-20)

The Great Belt Link Denmark - the East Bridge

Erik Skettrup, RH&H Consult, Copenhagen, Denmark (IBC-95-21) (This paper not published in these Proceedings.)

Design and Analysis: Inclined Arch Bridge Versus Parallel Arch Bridge

Chun S. Cai, Thomas Macioce, Morad G. Ghali, Michael Baker Jr., Inc., Coraopolis, Pennsylvania (IBC-95-22)

Design Review of a Post-Tensioned Cable Stay to Edge Girder Connection

Morad G. Ghali, Thomas Macioce, William Hess, Michael Baker Jr., Inc., Coraopolis, Pennsylvania (IBC-95-23)

Tuesday Morning - Session B

Load Testing and Instrumentation Systems

Session Chairman: Gerald J. Pitzer, GAI Consultants, Inc., Monroeville, Pennsylvania

Cross Frames in Steel Girder Bridges - Their Role During and After Construction

Atorod Azizinamini, Department of Civil Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska (IBC-95-24)
EXAMINATION OF FATIGUE STRENGTH (SRN) CURVES FOR RIVETED BRIDGE MEMBERS
Y. Edward Zhou, Greiner, Inc., Timonium, Maryland; Ben T. Yen, John W. Fisher, Lehigh University, Bethlehem, Pennsylvania; Robert A.P. Sweeney, CN North America, Montreal, Canada (IBC-95-25)

LIVE LOAD SPECTRA FOR GIRDER BRIDGES
Hani H. Nassif, Civil Engineering and Construction Department, Bradley University, Peoria, Illinois; Andrzej S. Nowak, Department of Civil and Environmental Engineering, University of Michigan, Ann Arbor, Michigan (IBC-95-26)

WILLIAMSBURG BRIDGE - ORTHOTROPIC DECK FATIGUE TEST
Mark R. Kaczinski, Frank E. Stokes, Peter Lugger, John W. Fisher, Lehigh University, Bethlehem, Pennsylvania; Ruben B. Gajer, Jay Patel, New York City Department of Transportation, New York, New York (IBC-95-27)

RELIABILITY BASED DETERMINATION OF DESIGN TRAFFIC LOADS ON THE ØRESUND BRIDGE
Max Karlsson, Torben Arnbjerg-Nielsen, RH&H Consult, Copenhagen, Denmark; Finn Ennemark, Øresundskonsortiet, Copenhagen, Denmark (IBC-95-28)

REMAINING PRESTRESS FORCE IN 28-YEAR-OLD CONCRETE I-BEAMS
Stephen Pessiki, Mark Kaczinski, Herbert Wescott III, Lehigh University, Bethlehem, Pennsylvania (IBC-95-29)

USING IN-SITU PILE LOAD TESTING TO REDUCE BRIDGE REHABILITATION COSTS

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REHABILITATION AND STRENGTHENING I

Session Chairman: Gary A. Runco, Parsons Brinckerhoff, Pittsburgh, Pennsylvania

RESTORING THE MICHIGAN AVENUE BASCULE BRIDGE

SCHENLEY PARK BRIDGE REHABILITATION - AN HISTORIC RESTORATION

REPLACEMENT OF PINS IN THE ANCHOR SPAN OF THE SILAS N. PEARMAN BRIDGE
Tuhin K. Basu, Daniel P. Walsh, Simon Simon, Sverdrup Civil, Inc., Falls Church, Virginia (IBC-95-33)

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Avanti Shroff, Iffland Kavanagh Waterbury, P.C., New York, New York; George Romack, Federal Highway Administration, Washington, DC; Sanjiv Nathwani, Trilon, Inc., New Brunswick, New Jersey; Mike Rice, Maryland State Highway Administration, Baltimore, Maryland (IBC-95-35)

INNOVATIVE BRIDGE RECONSTRUCTION UNDER TRAFFIC: THE FRANKFORD ELEVATED SINGLE COLUMN BENT CONTRACT

THE COST OF MEETING REGULATIONS WHEN REPAINTING STEEL STRUCTURES
L. Brian Castler, Connecticut Department of Transportation, Newington, Connecticut (IBC-95-37)

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Session Chairman: Dr. Reidar Bjorhovde, University of Pittsburgh, Pittsburgh, Pennsylvania

ISSUES IN SEISMIC DESIGN AND RETROFITTING OF LONG-SPAN BRIDGES
Ian M. Friedland, Ian G. Buckle, National Center for Earthquake Engineering Research, Buffalo, New York; James D. Cooper, Federal Highway Administration, McLean Virginia (IBC-95-38)
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Session Chairman: John R. Kenny, Gannett Fleming, Columbus, Ohio

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Wednesday Afternoon - Session A

REHABILITATION AND STRENGTHENING II

Session Chairman: Peter Florian, Department of Aviation, Allegheny County, Pittsburgh, Pennsylvania

DEVELOPMENT OF A CONTINUOUS, JOINTLESS BRIDGE WITH INTEGRAL APPROACH SLABS


THE BAY OF QUINTE SKYWAY: THE PLANNING, DESIGN AND CONSTRUCTION OF HIGH LEVEL PIER REPLACEMENTS

Anthony S. Wing, McCormick Rankin Consulting Engineers, Ottawa, Ontario, Canada; Dr. Roy Skelton, McCormick Rankin Consulting Engineers, Mississauga, Ontario, Canada; Harold S. Kleywegt, Edward C. Lane, Ministry of Transportation Ontario, Kingston, Ontario, Canada (IBC-95-59)

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Charles A. Baumgartner, William E. Beyer, HNTB, Cleveland, Ohio (IBC-95-60)

COMPARISONS AMONG ARIZONA'S FATIGUE DAMAGED HIGHWAY BRIDGES

William J. Amrhein, Florida Department of Transportation, Tallahassee, Florida; John Misik, Jr., Michael Baker Jr., Inc., Phoenix, Arizona (IBC-95-61)

REINFORCEMENT OF THE BRONX-WHITESTONE EYEBARS


RECONSTRUCTION OF THE HISTORIC MENDOTA BRIDGE

Jeffrey T. Wetmore, Edwards and Kelcey, Inc., Minneapolis, Minnesota (IBC-95-63)

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Michael J. Chajes, William W. Finch, Jr., Dennis R. Mertz, University of Delaware, Newark, Delaware (IBC-95-64)

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Session Chairman: Victor Bertolina, SAI Consulting Engineers, Pittsburgh, Pennsylvania

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Joseph E. Prickett, John M. Kulicki, Modjeski and Masters, Inc., Harrisburg, Pennsylvania; Roger A. Dorton, Buckland and Taylor Ltd., Willowdale, Ontario, Canada; Brian Morgenstern, Buckland and Taylor Ltd., N. Vancouver, British Columbia; Barney T. Martin, Jr., Modjeski and Masters, P.C., Poughkeepsie, New York (IBC-95-65)

LRFD/METRIC BRIDGE SOFTWARE


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Chad M. Clancy, Scott R. Eshenaur, John M. Kulicki, Boyd P. Strain, Jr., Modjeski and Masters, Inc., Harrisburg, Pennsylvania; Rebecca S. Burns, Pennsylvania Department of Transportation, Harrisburg, Pennsylvania (IBC-95-67)
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