



2019 New York City Bridge Conference New York Hilton Midtown Hotel August 26th-7th, 2019

PLENARY SESSION



Management of NYCDOT Long Span Bridge Assets

Robert O. Collyer, PE
Deputy Commissioner & Chief Bridge Officer
New York City Department of Transportation, USA



Recent Developments in Health Monitoring of Bridges

Mike Forde
Carillion Professor,
School of Engineering, the University of Edinburgh, Scotland, UK



Risk-Based Assessment of Highway Bridge Systems

Michel Ghosn
Professor
The City College of New York, USA



Inspection and Maintenance of Bridges in France, Comparison with European Countries

Jean-Marc Tanis
Consultant, France

CABLE-SUPPORTED BRIDGES

The Bayonne Bridge: From Renderings to Reality J. LoBuono, HDR, USA

New Cable Stayed Bridge Across Storstrømmen in Denmark B. Macaulay & E. Stoklund Larsen, Danish Road Directorate, Hedehusene, Denmark

Maintenance and Preservation Strategies for Suspension Bridge Cables K. Mahmoud, BTC, New York City, USA

Hanger Cable Fatigue Life Assessment of a Major Suspension Bridge S. Durukan Accord Bridge Engineering, Istanbul, Turkey, S. Soyöz Bogazici University, Istanbul, Turkey

Optimizing Main Cable Dehumidification Systems M. L. Bloomstine, J. Fredrik Melén, Cowi A/S, Denmark

RELIABILITY-BASED ANALYSIS OF BRIDGES

Multi-Hazard Financial Risk Assessment of a Bridge-Roadway-Levee System A. Nikellis, K. Sett, T. Wu and A.S. Whittaker, University At Buffalo, the State University of New York, USA

Assessment of AASHTO LRFD Design Live Load Parameters for Reinforced Concrete Slab Bridges: A Statistical Approach A. Mahmood, University of Portsmouth, UK, S. Najjar, M. Mabsout, American University of Beirut, Lebanon and K. Tarhini, U.S. Coast Guard Academy, USA

Estimating Bridge Rehabilitation Activity Durations Under Uncertainty P. Rezakhani, and M. Maghfar, Georgia Southern University, USA

Performance-Based Engineering of Bridges for Extreme Events S. Marjanishvili, and F. Fayad, Hinman Consulting Engineers, Inc., USA

BRIDGE BEARINGS AND FOUNDATIONS I

The Benefits of Using Isolation Bearing and Seismic Analysis On a 4-Span Continuous Steel Girder Bridge (Ma-14) with Site Class F Soil V. Liang, B. Mcfadden and H. Lee, Gpi, USA

Selection and Use of Bridge Bearings A. Kutumbale, J. Bilotti, T. Destefani, Mageba, USA

High Profile Applications of Multi-Rotational Disk Bearings in the New York City Area R. J. Watson and K. M. Billanti, Rj Watson, USA

Finite Element Analysis To Evaluate the Performance of a Geosynthetic Reinforced Soil-Integrated Bridge System (Grs-Ibs) Under Working Stress Loading M. Abu-Farsakh, Louisiana Transportation Research Center and A. Ardah, G. Voyiadjis, Department of Civil & Environmental Engineering, Louisiana State University, Baton Rouge, La, USA

Numerical and experimental seismic evaluation of older highway bridges using steel mechanical bearings approaching design life X. Fan, Arup, New York City, and J. McCormick, University of Michigan, Ann Arbor, MI, USA

BRIDGE BEARINGS AND FOUNDATIONS II

Retrofit of Corroded Steel Bridge H-Pile Columns Using Confined Encased Concrete with Cfrp Having Shear Connectors M. Abdulazeez; and M. Elgawady, Missouri University of Science and Technology, Rolla, Mo, USA

Development of a Combined Pile-Cpt Method for Estimating the Ultimate Axial Capacity of Driven Piles M. Abu-Farsakh, Louisiana Transportation Research Center and M. Amirmojahedi, and G. Voyiadjis, Department of Civil & Environmental Engineering, Louisiana State University, Baton Rouge, La, USA

Evaluation and Case Studies of As-Built Drilled Shafts A. Ramakrishna and R. Mankbadi, Hardesty & Hanover, LLC, USA

Performance-Based Design Framework for Bridge Piers Subjected To Truck Collision R. Cao, A. K. Agrawal, the City College of New York, S. El-Tawil, X. Xu, University of Michigan and W. Wong, Fhwa, USA

BRIDGE ANALYSIS

Quality specifications for roadway bridges. Standardization at a European level J.R. Casas UPC-BarcelonaTech, Barcelona, Spain and J.C. Matos, University of Minho, Guimaraes, Portugal

Analysis of Metamaterial Bi-Stable Elements As Energy Dissipation Systems Y. Darwish, M. A. Elgawady, Missouri University of Science and Technology, Rolla, Mo, USA

Estimation of transitory changes in bending stiffness using the Hilbert-Huang transform A. González & H. Aied, School of Civil Engineering, University College Dublin, Dublin, Ireland

Effect of Railing Deterioration On Load Carrying Capacity of One-Lane and Two-Lane Concrete Slab Bridges F. Darwich, K. Tarhini, and M. Mabsout, American University of Beirut, Lebanon

Lessons From a Forgotten Aluminum Bridge C. Birnstiel, Consultant, Pennsylvania, USA

Experimental and Fem Studies On the Innovative Steel-Concrete Hybrid Girder Bridge M. Hamid Elmy, Nangarhar University, Afghanistan, and S. Nakamura, Tokai University, Japan

Numerical Studies On Concrete Barriers Subject To Mash Truck Impact R. Cao, the City College of New York; S. El-Tawil, University of Michigan, A. K. Agrawal, the City College of New York, and W. Wong, Ghwa, USA

BRIDGE LOADS & FATIGUE ANALYSIS

Bridge Performance Screening for the Specialized Hauling Vehicles and the Fast Act's Emergency Vehicles in New York State E. Senturk, B. Sivakumar, HNTB, New York, and M. Debessay, New York State Department of Transportation, Albany, NY, USA

Highway Traffic Loading – AASHTO Compared To Other Codes of Practice S. Rhodes, B. Donoghue, Lusas UK, and T. Cakebread, Lusas USA

Impact of Fatigue Damage From Overloads On Bridge Life-Cycle Cost Analysis B. Jang, Sharma & Associates, Inc, Countryside, IL, USA and J. Mohammadi, Illinois Institute of Technology, Chicago, IL, USA

Fatigue Assessment of the Gusset-Less Connection in a Vertical Lift Steel Bridge Using Field Collected Data and Three-Dimensional Multi-Scale Finite Element Model M. Mashayekhi, E. Santini-Bell, University of New Hampshire, Durham, USA

The Assessment and Repair of Cracked Stringer-to-Floorbeam Connections of the Major Deegan Expressway, Bronx, New York S. Roy, Rutgers, the State University of New Jersey, J. R. Bellenoit, R. W. Laime, AECOM, and T. Bashir, NYSDOT, Region 11, New York

FORENSIC ANALYSIS OF BRIDGE FAILURES

Predicting the Unpredictable in Bridge Management Systems By Use of Recent Bridge Failures in Turkey A. Caner, Middle East University, Turkey

Numerical Study On the Collapse of the Morandi Bridge, Italy D. Malomo, University of Pavia, N. Scattarreggia, Istituto Universitario Di Studi Superiori (Iuss), Pavia, Rui Pinho, Modelling and Structural Analysis Konsulting (Mosayk Ltd), Pavia, Italy, M. Moratti, Studio Calvi Ltd, Pavia, and G. Calvi, European Centre for Training and Research in Earthquake Engineering (Eucentre), Pavia, Italy

The Failure of the Tacoma Narrows Bridge K. Gandhi, Gandhi Engineering, Inc., New York City, USA

The Two Collapses of the Ontario & Western Railway's Three-Span Bridge At Fish's Eddy D. Mazurek, U.S. Coast Guard Academy, USA

BRIDGE PERFORMANCE I

Impact Resistance Performance of Reinforced Concrete Bridge Piers in Drying-Wetting Cycle and Corrosive Environment F. Congqi, Y. Shuai, D. Wenyan, Shanghai Jiaotong University, Shanghai, China

Effect of Thermal Loading on the Performance of Horizontally Curved I-Girder Bridges G.W. William, AECOM, Morgantown, West Virginia, S.N. Shoukry and K.C. McBride, West Virginia University, Morgantown, West Virginia, USA

Influence of the Calcium Content of the Fly Ash On the Workability and Compressive Strength of the Alkali Activated Mortar E. Gomaa, A. Gheni, and M. Elgawady, Missouri University of Science and Technology, USA

Strength and Deformation Based Performance Evaluation of Existing Bridges E. Namlı, D.H. Yildiz, and N. Çilingir, Emay International Engineering and Consultancy Inc., Istanbul, Turkey

Corrosion Protection of Bridge Expansion Joints – the Case for Hot Dip Galvanizing S. Hoffmann, T. Destefani, D. Della Ca, Mageba, USA

Development and Application of Titanium Alloy Bars for Shear and Flexural Strengthening Reinforced Concrete Bridges C. Higgins, Oregon State University, USA

BRIDGE PERFORMANCE II

Structures Performance of Continuous Slab-On-Steel Girders Bridge Subjected To Extreme Climate Loads B. Kadhom, National Research Council Canada

Assessment and Strengthening Experience of Bridges in Germany W. Eilzer, B. Kratzke, Leonhardt, André und Partner Beratende Ingenieure VBI AG, Germany

Small-Movement Expansion Joints for Bridges and Other Structures – Types and Selection Criteria T. Destefani, D. Della Ca, J. Bilotti, Mageba, USA

Noise From Bridge Expansion Joints – Evaluation Considerations and Possible Reduction Measures D. Della Ca, S. Hoffmann, F. Kovach, Mageba, USA

Structural and Corrosion Performance of Continuous Galvanized Rebar (Cgr) A. Patnaik, the University of Akron, Oh, USA

BRIDGE DESIGN

Creative Solutions for a Tightly Constrained Urban Interchange Reconfiguration in New Jersey M. Sidani, J. Romano, R. Dunne, L. Yin, Michael Baker International, USA

North Avenue - Design of a Complex Street Overpass Crossing A. Gennaway, Jacobs, USA

New Signature Bridge Over the Crati River S. Geyer, C. Pin, D. Lombardini, Redaelli Tecna, Milan, Italy

Connections for Adjacent Precast Concrete Box-Beam Bridges A. Patnaik, the University of Akron, Oh, USA

Longest Simple Span Steel Plate Girder Bridges in Florida – I-75 Over Sr50 Twin Bridges L. E. Rodriguez and H. C. Sinson, Hardesty & Hanover, LLC, USA

41st Street Steel Arch Pedestrian Bridge, Chicago, IL D. Vimawa, Aecom, USA

A Footbridge in Cannel Des Maures – French Riviera M. Allafort, Bg Ingénieurs Conseils Sas, Lyon, France

Structural Engineering in the La Paz Cable Car System S. Delgado, Bridge and Structural Consultant, La Paz, Bolivia

BRIDGE AERODYNAMICS

Peculiar aerodynamic advantages and problems of twin-box girder decks for long span crossings A. Zasso, T. Argentini, S. Omarini & D. Rocchi, Dept. of Mechanical Engineering, Politecnico di Milano, Italy and O. Øiseth, Norwegian University of Science and Technology, Norway

Strategies for the Reduction of Risk Associated with Ice and Snow Accretions On Bridge Cables C. T. Georgakis, Department of Engineering, Aarhus University, Denmark

Time-Domain Analysis of Coupled Aerodynamic and Hydrodynamic Response of a Long-Span Bridge with Floating Towers Under a Hurricane Event S. Li, T. Wu, University At Buffalo, New York, USA

Aerodynamic Problems of Parallel-Deck Cable Stayed Bridges S. Stoyanoff, Pierre-Olivier Dalaire, Z. Taylor, and G. Larose, Rwdi, Canada

Effect of Climate Change On Flexural Reliability of Highway Continuous Girder Bridges Under Wind Load Y. Wang, J. Gong, and J. Zheng, Beijing Jiaotong University, Beijing, China

ASSET MANAGEMENT OF BRIDGES

Implementation of a Bridge Management System in the Ukraine L. Bodnar, M.P. Shulgin State Road Research Institute State Enterprise, Kyiv, Ukraine and M. Koval, Scientific-Industrial Enterprise "Triada" Ltd., Co, Lviv, Ukraine

Blatnik Bridge Asset Management Strategies A. Foden, L. Amundson, Wsp USA, N. Haltvick, and K. Molnau, Minnesota Dot, USA

Asset Management of Honshu-Shikoku Bridges Based On the Idea of Preventive Maintenance R. Uchino and N. Toyama, Honshu-Shikoku Bridge Expressway Co., Ltd., Kobe, Japan

Asset Management Through Combined Uas & Rope Access J. A. Zuleger & A. Mcconnell, Michael Baker International, USA

BRIDGES FOR RAILWAY & HIGH SPEED RAIL

Analysis and Design of a Pergola for California High Speed Rail H. Al-Khateeb and A. Ranasinghe, Jacobs, USA

Large-Scale Vulnerability Analysis of Girder Railway Bridges D. Bellotti, A. Famà and B. Borzi, European Centre for Training and Research in Earthquake Engineering, Italy

Overview of Nonlinear Analysis of the First Concrete Network Tied Arch Bridge for California High Speed Rail Requirements E. Honarvar, H. Al-Khateeb, Jacobs, USA

Development of Web-Based Tools for Large-Scale Post-Seismic Emergency Management of Railway Infrastructures D. Bellotti, B. Borzi, A. Famà, D. Quaroni, A. Vecchi, A. Mauro, L. Vergara, M. Tisalvi, and F. Iacobini, European Centre for Training and Research in Earthquake Engineering, Italy

Advanced Nonlinear Seismic Analysis and Design of An Irregular Complex Bridge for California High Speed Rail Requirements E. Honarvar, M. Senhaji, Jacobs, USA

Multi-Frame Multi-Span Curved Light Rail Bridges: Analysis and Design for Nonlinear Rail-Structure Interaction Effects E. Honarvar, M. Senhaji, Jacobs, USA

BRIDGE CONSTRUCTION

Design and Construction of the New Frederick Douglass Memorial Bridge, Washington, D.C. K. V. Butler, and N. M. Porter, Aecom, USA

A Cost-Effective, Rapid and Durable Full Depth Precast Deck System E. He, Accelbridge, USA

The Design and Construction of Kozlupinar Bridge Ş. Caculi, E. Namlı, Emay International Engineering and Consultancy Inc., Istanbul, Turkey

Update On Five (5) Mile Belt Parkway Reconstruction Project - Six (6) Bridges Between Pennsylvania Avenue and Knapp Street, Brooklyn, NY D. Hom, New York City Department of Transportation (Nycdot), W. Ferdinandsen, Greenman Pedersen, Inc., and P. Dombrowski, Aecom

Reconstruction of Harlem River Drive Over East 127th Street - NYCDOT Bridge S. A. Garcia, Hardesty & Hanover, USA

BRIDGE SCOUR & HYDRAULICS

Structural Vulnerability of Coastal Bridges Under Extreme Hurricane Conditions R. Nasouri, A. Matamoros, A. Montoya, F. Y. Testik, University of Texas At San Antonio, USA

Redesign of Collapsed River Bridges Due To Flood and Scour E.E. Laçın, A. Çiçek, M.C. Dönmez, İ.N. Çilingir, S. Caculi, Emay International, Turkey

A Bridge Asset Management Strategy for Hydraulic Vulnerability G. M. Shields, New York City College of Technology – Cuny, USA

STRUCTURAL HEALTH MONITORING OF BRIDGES

A Convolutional Cost-Sensitive Crack Localization Algorithm for Automated and Reliable RC Bridge Inspection S. Omid Sajedi1, X. Liang, University At Buffalo, New York, USA

Bridge Health Index and Asset Management of Bridge Inventories M. Loureiro, Jacobs, USA

Fracture Detection in Steel Girder Bridges Using Self-Powered Wireless Sensors M. Abedin, S. Farhangdoust, and A. Mehrabi, Florida International University, USA

Managing Big Data in a Comprehensive Structural Health Monitoring System T. Weinmann, Geocomp Corporation, USA

Multi-Sensor Measurement of Dynamic Deflections and Structural Health Monitoring of Flexible and Stiff Bridges S. Stiros, Patras University, Greece, P. Psimoulis, Nottingham University, UK, F. Moschas, V. Saltogianni, Gfz, Potsdam, Germany P. Triantafyllides, I. Fradelos, E. Tsantopoulos, Patras University, Greece

SEISMIC ANALYSIS & DESIGN

Condition Factor for Seismic Performance of Deteriorated Bridge E. Canan Ocak and Alp Caner, Middle East Technical University, Ankara, Turkey

Simplified Seismic Vulnerability Assessment of Railway Masonry Arch Bridges P. Morandi, C. Filippo Manzini, B. Borzi, A. Mauro, A. Vecchi, M. Tisalvi, and F. Iacobini, European Centre for Training and Research in Earthquake Engineering, Italy

Comparative Study of Spatially and Non-Spatially Varying Ground Motions in Design-Oriented Seismic Analysis of Bridges R. Botero, A. Taghavi, M. Davidson, G. Consolazio, Engineering School of Sustainable Infrastructure & Environment, University of Florida, USA

Seismic Retrofit of Hollow-Core Composite Bridge Columns Having Inner Steel Tube with High Diameter To Thickness Ratio M. Abdulazeez; and M. Elgawady, Missouri University of Science and Technology, Rolla, Mo, USA

Seismic Fragility of Bridges Subjected To Corrosion H. Wang, P. Okumus, and R. Ranade, University At Buffalo, State University of New York, USA

ORTHOTROPIC BRIDGE DECK & WELDING TECHNOLOGY

Staging the Installation of An Orthotropic Deck for the Throgs Neck Bridge C. Clark, S. Summerville, Thornton Tomasetti, E. Knightly, Y. Chen, Mta Bridges & Tunnels, New York City, USA

Performance Characteristics of Epoxy Asphalt Paving Material for Thin Orthotropic Bridge Decks C. Chen and J. Bors, Chemco Systems Inc., USA

New FHWA Bridge Welding Manual R. D. Medlock, High Steel Structures, H. Gilmer, HRV, D. Miller, Lincoln Electric Company and A. Ream, HDR, USA

Research on Assembly Deviation of the Longitudinal Rib of Orthotropic Steel Bridge Deck Structure L. Zhang and H. Gao, School of Transportation of Science and Engineering, Harbin Institute of Technology, Harbin City, China

BRIDGE PRESERVATION & REHABILITATION

Preserving the Historic Arlington Memorial Bridge for Future Generations K.V. Butler, S. A. Matty, Aecom, D. Marcic, Hardesty & Hanover, J. Fabis, R. Satasiya, G. Choubah, Federal Highway Administration, USA

Duplex Zinc Coatings for Corrosion Protection of Steel Bridges M. Gagné, M. Van Leeuwen, F. E. Goodwin, International Zinc Association

The Rehabilitation of the McIlraith Bridge in Ottawa, Canada L. Gong, City of Ottawa, Canada
Rapid Bridge Deck Restoration with Fast Track Hydrodemolition P. Martens, Bridge Preservation and Inspection Services

Gusset Plate Evaluations in Historical Truss Bridges: a Case Study – the Marine Parkway Lift Bridge C. P. Quaglia, A. J. Rocka, K. Shaha, E. Senturk, and T. P. Zoli, Hntb, USA

Rehabilitation of the Rocker Bent At Pulaski Skyway Span 97 J. Strafaci, G. Ricks, X. Li, and R. Schaefer, Hntb, USA

Application of Heat Straightening Repair of Impacted Highway Steel Bridge Girders W. Zatar, and H. Nguyen, Marshall University, West Virginia, USA

MOVABLE BRIDGES

Swing Span Swap-Out of Csx's Bayou Sara Bridge D. Knickerbocker, Hdr, USA

Construction Management At Risk for the Curtis Creek Bridge Rehabilitation D. Marinelli Hardesty & Hanover, LLC, Annapolis, Md, USA

Design and Construction of Unionport Bridge W. Nyman, C. Tilson, and S. Savva, Hardesty & Hanover, LLC, USA

BRIDGE MAINTENANCE & REPLACEMENT

Replacement Strategies of Existing Highway Bridges in Germany M. Schumm, Leonhardt, André und Partner Beratende Ingenieure VBI AG, Germany

Superstructure Replacement of Route 676 Bridges Over North Branch of Newton Creek Utilizing Accelerated Bridge Construction M. L. Alboum, Dewberry Engineers Inc., USA

NYSDOT's Route 32 Over Route 17 Bridge Replacement: Integral Pier Solution P. D'ambrosio, G. Decorges, Hntb, USA

Replacement of Palisades Interstate Parkway Helix Ramp A. Rogers, Port Authority of NY&NJ, W. Mcmenamin, Greenman-Pedersen, Inc., USA

A New Protection System Against Falling Rocks or Avalanches M. Allafort, Bg Ingénieurs Conseils Sas, Lyon, France

BRIDGE HISTORY & AESTHETICS

Florianopolis Australis – the Walter Taylor Bridge: David B Steinman's Australian Legacy S. Rothwell, Stuart Rothwell & Associates, Brisbane, Australia

The Determination of Aesthetical Fundamentals of the Bridge Design in Turkey M. Serkan Yatağan, Istanbul Technical University, Turkey

Eugène Freyssinet, Father of Prestressed Concrete K. Gandhi, Gandhi Engineering, Inc., New York City, USA