



Western Bridge Engineers' Seminar



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September 6–8, 2017

INNOVATIVE SOLUTIONS THAT STAND THE TEST OF TIME

Portland Marriott Downtown Waterfront
Portland, Oregon

Seminar managed by:



Conference Management

WASHINGTON STATE UNIVERSITY

Tuesday, September 5

6:00–8:00 PM ICEBREAKER RECEPTION

Wednesday, September 6

7:30 AM–5:00 PM EXHIBIT HALL OPEN

7:30–8:30 AM CONTINENTAL BREAKFAST

8:30–10:00 AM WELCOME & OPENING REMARKS

- **Funding for Oregon's Critical Highway Needs**
Travis Brouwer • Oregon DOT
- **Oregon's Innovative Bridge Solutions**
Bruce Johnson • Oregon DOT
- **Keynote: Overview of OR-18 Newberg-Dundee Bypass Project**
Matthew Stucker, Tony Snyder • Oregon DOT
Robert Goodrich • OBEC Consulting Engineers
Scott Schlechter • GRI

10:00–10:30 AM EXHIBIT BREAK

10:30 AM–Noon TECHNICAL SESSIONS

2A BRIDGE DESIGN AND CONSTRUCTION I

- **Design and Construction of the SR-520 West Approach Bridge-North**
Greg Knutson • HDR Engineering Inc.
- **Replacing the Aging US-52 Mississippi River Bridge**
Greg Hasbrouck • Parsons
Faith Duncan • Illinois DOT

- **A New Signature Bridge for the City of Los Angeles: The Sixth Street Viaduct**
Michael H. Jones, Michael Van Duyn, Rui Lu, Semyon Treyger • HNTB Corporation
Julie Allen • City of Los Angeles, Bureau of Engineering

2B BRIDGE DESIGN AND CONSTRUCTION II

- **Accelerated Bridge Construction Projects in California: I-10 Tex Wash Replacement**
Paul C. Chung, Jason Fang • CalTrans
- **A Signature Bridge on the Fast Track**
Christopher Vanek, Adrian Moon • WSP USA
- **Steel I-Girder Bridge Cross-Frame Strength and Stiffness Requirements**
Domenic Coletti • Michael Baker International
Michael Grubb • M.A. Grubb & Associates, LLC

2C BRIDGE DURABILITY AND MATERIALS

- **Historic Perspective on Galvanic Anode Use for Corrosion Protection of Bridges**
Eliseo Conciatori • Vector Corrosion Technologies, Inc.
- **Silane Concrete Water Repellents: An Innovative Solution That Stands the Test of Time**
Tim Woolery • Advanced Chemical Technologies, Inc.
- **Method of Improving Concrete Durability in Bridges and Structures**
Philip Rhodes • Hycrete Inc.



2D FOUNDATION DESIGN AND CONSTRUCTION

- **Drilled Shaft Quality Through Thermal Integrity Profiling**
James M. Schmidt • Terracon Consultant, Inc.
- **Innovative Large Shaft Repair for Abraham Lincoln Cable-stayed Bridge**
Claudio Osses, John Brestin • COWI North America, Inc.
- **Fairview Avenue Bridge | Slip Sliding Away: Challenges in Foundation Design with Flow Loads and Plastic Hinging**
Ellen Brenden, Kiva Lints • HNTB Corporation

Noon LUNCH

1:30–3:00 PM TECHNICAL SESSIONS

3A BRIDGE REHABILITATION

- **I-40 Willow Creek Bridge No. 5: Unique Bridge Deck Replacement Solution**
Christopher Labye, Ben C. Ansley • AECOM
- **Reviving a Piece of History: Healdsburg Avenue Bridge Over the Russian River**
Mark Weaver • Cornerstone Structural Engineering Group
- **Susitna River Bridge Substructure Repairs in Remote Alaska**
Jared Levings • Alaska DOT & Public Facilities

3B BRIDGE SEISMIC DESIGN

- **A New Type of EDD for the Seismic Retrofit of the Golden Gate Bridge Main Suspension Spans**
Michael Kochly, Ted Bush, Kuang Lim • HDR Engineering, Inc. Ewa Bauer-Furbush, John Eberle • Golden Gate Bridge, Highway and Transportation District
- **Seismic Design Challenges of West Mission Bay Drive Bridge Replacement**
Kumar Ghosh • T.Y. Lin International
- **Boeing Access Road Bridge Seismic Retrofit and Rehabilitation**
Kevin Kim, Hana D'Acci • Jacobs Engineering Inc.

3C BRIDGE RESEARCH

- **Design Strategy to Minimize Seismic Residual Displacements and Damage in a New ABC Bridge Bent**
Marc Eberhard, John Stanton • University of Washington Travis Thonstad • National Institute of Standards and Technology David Sanders, Islam Mantawy • University of Nevada, Reno
- **ABC Low Damage in High Seismicity: Concept, Experimental Validation and Real-Life Application**
Mustafa Mashal • Idaho State University
- **Investigation of Macro-Defect Free Concrete for Accelerated Bridge Construction, including Robotic Construction**
Katelyn Freeseaman, Brent Phares • Iowa State University

3D BRIDGE DESIGN AND CONSTRUCTION

- **Design of the I-405/SR167 Flyover Bridge**
Alice Fong, Anthony Gasca • Jacobs Engineering Inc.
- **Designing Long Span Precast/Prestressed Concrete Bridge Girders for Lateral Stability**
Richard Brice • Washington State DOT
- **Design and Construction of 2nd Street Connector**
Ali Seyedmadani • WSP USA

3:00–3:30 PM EXHIBIT BREAK

3:30–5:00 PM TECHNICAL SESSIONS

4A BRIDGE DESIGN AND CONSTRUCTION

- **Design and Construction of the Rockingham Bridges 24N & 24S**
Nicholas Rodda • HDR Engineering Inc.
- **Using Single-Column Bents With Large Eccentricities to Avoid Straddle Bents**
Nicholas Murray, Kuan Go, Aamir Durrani • HNTB Corporation
- **California Incline Bridge Replacement Project, City of Santa Monica**
Curtis Castle • City of Santa Monica, Civil Engineering Scott Dendall • CALTROP Corporation Peter Smith • T.Y. Lin International

4B PEDESTRIAN BRIDGE PROJECTS

- **Minto Island Bicycle & Pedestrian Bridge: Design and Construction**
Bob Goodrich, Jim Bollman • OBEC Consulting Engineers
- **Through the Eye of the Needle (Scioto River Pedestrian Bridge)**
Dan Fitzwilliam, Mirek Olmer, Marwan Nader • T.Y. Lin International
- **Construction Methods for Rural Pedestrian Suspension Bridges**
Nathan Bloss • Bridging the Gap Africa (CH2M) Matthew Bowser • Bridging the Gap Africa (WSP)

4C BRIDGE TECHNOLOGY AND SOLUTION

- **Recent Innovations in WSDOT Bridge Design and Construction**
Bijan Khaleghi • Washington State DOT
- **Bridge Lighting Efficiencies for Bridges Spanning Navigable Water**
Rowan Plaxton, Lee Walker • Sealite USA, LLC
- **Using Bridge 3D Models After The Design Process**
Alexander Mabrich • Bentley Systems



4D BRIDGE MANAGEMENT

- **Structural Monitoring of Floor-beam/Stiffener Connections on the Benicia Martinez Bridge**
Maged Armanuse • CalTrans
Miguel Hernandez-Garcia • Alta Vista Solutions
- **Who Wants a Green-Certified-Platinum-Triple-Star Bridge? A Bridge Engineer's Introduction to Current Sustainability Rating Methods**
Kelly Burnell • Kleinfelder, Inc.

- **Evaluation of Gusset Plate Connections in Steel Truss Bridge**
Bo-Shiuan Wang • COWI North America, Inc.

5:00–8:00 PM EXHIBITOR RECEPTION & POSTER SESSION

Thursday, September 7

7:30 AM–3:30 PM EXHIBIT HALL OPEN

7:30–8:30 AM CONTINENTAL BREAKFAST

8:30–10:00 AM TECHNICAL SESSIONS

5A BRIDGE DESIGN AND CONSTRUCTION

- **Spliced Precast Concrete Girder Bridges: 20 Years of Lessons Learned in Design and Construction**
Gregg Reese • Modjeski and Masters/Summit Engineering Group
- **Sellwood Bridge Replacement Project**
Eric Rau • T.Y. Lin International
Ian Cannon • Multnomah County (OR)
- **Riverside Drive Viaduct Replacement**
Y. Nien Wang, Jiahwa Wang • HNTB Corporation
Shirley Lau • City of Los Angeles, Bureau of Engineering

5B BRIDGE REHABILITATION

- **Kotzebue Slough Bridge Underwater Pile Repair in Remote Alaska**
Jared Levings • Alaska DOT & Public Facilities
- **Reconstruction Challenges of a Nationally Historic Arch Bridge in San Diego**
Ebrahim AmiriHormozaki, Nathan Johnson • Kleinfelder
- **WSDOT Experience Resurfacing Existing Bridge Decks with Hot-Mix Asphalt**
Dick Stoddard • Washington State DOT

5C SUBSTRUCTURE ANALYSIS AND CONSTRUCTION

- **US-20 | Pioneer Mountain: Eddyville Construction Innovation and Engineering**
Jaimé Viramontes Sr., Derryl James • Oregon DOT
- **Applications and Implications of AASHTO for Assessment of Vessel Collision Risk and Vulnerability for New and Existing Bridges**
Michael Roberts • HDR Engineering Inc.
- **Repair of Large Diameter Non-Redundant Drilled Shaft**
Alan Marchman, Kuan Go • HNTB Corporation

5D BRIDGE TECHNOLOGY AND SOLUTION

- **Incorporating Innovative Materials into a Seattle, WA Bridge to Improve Seismic Resilience**
Jedediah Bingle • Washington State DOT
- **High Load Multirotational Bearing for the Tilikum Crossing**
Ronald J. Watson • R. J. Watson, Inc.
- **Fiber Reinforced Polymer Decks and Challenging Micropile Installation for Pedestrian Bridges in Difficult Terrain**
JP Loomis • CH2M
Michael Mayberry • Nevada DOT

10:00–10:30 AM EXHIBIT BREAK

10:30–Noon TECHNICAL SESSIONS

6A BRIDGE DESIGN AND CONSTRUCTION

- **Helpful Hints for Designing in Alaska**
Leslie Daugherty • Alaska DOT & Public Facilities
- **Issues in Cofferdam Design and Construction**
Michael Garlich • Collins Engineers, Inc.
- **The Design of The Chena River Bridge at University Ave.**
Jesse Escamilla III • Alaska DOT & Public Facilities

6B BRIDGE DURABILITY AND MATERIALS

- **Case Studies for 125-Year Service Life Utilizing High Strength Low Chromium Reinforcing Bars**
Neal Berke, Ranjani M. Vijayakumar, Justin Thomson • Tourney Consulting Group, LLC
- **Accelerating Construction and Improving Service-Life using UHPC in Bridge Infrastructure Projects**
Gregory Nault • LafargeHolcim - Ductal
- **Specifying Lightweight Concrete for Bridges: Reduced Density and Enhanced Durability**
Reid Castrodale • Expanded Shale Clay and Slate Institute



6C LIGHT RAIL BRIDGE PROJECTS

- **Design-Build of the First Ten Miles of Honolulu Rail Transit Project**
Kuan Go, Alan Marchman • HNTB Corporation
- **Light Rail Transit Bridges: Crenshaw/LAX Transit Corridor Design-Build**
Aamir Durrani, Murali Hariharan, Hoda Emami • HNTB Corporation
Kevin Acosta • ARUP
- **Sound Transit Eastlink and Lynnwood Link Aerial Guideway**
Joshua Schettler, Kent Ferguson • Jacobs Engineering Inc.
Steve Gleaton • Sound Transit
Matt Vaggione • HNTB Corporation

6D PEDESTRIAN BRIDGE PROJECTS

- **Spiraling Toward the Beach: The Idaho Avenue Pedestrian Bridge**
Hunter Ruthrauff, Peter Smith • T.Y. Lin International
- **Tiger Mountain Lower High Point Steel Truss Bridge Design and Construction**
Jane Li • RHC Engineering, Inc.
Jim Patton • Washington State DOT
- **Reuse of Unreinforced 1920s Railroad Piers for New Pedestrian Bridge**
Lucas Miner • Psomas
Wenn Chyn • City of Los Angeles, Department of Public Works

Noon **LUNCH**

1:30 – 3:00 PM **TECHNICAL SESSIONS**

7A BRIDGE DESIGN AND CONSTRUCTION

- **240'-Long Precast Single Span Bridge: Chief Joseph Dam Bridge Replacement Project**
Jian Xu • Jacobs Engineering
Tom Whiteman • KPFF Consulting Engineers
Aaron Simmons • Douglas County (WA)
- **Broadway Bridge Tied Arches: Value Engineering**
Natalie McCombs • HNTB Corporation
- **I-15 Capitol/Cedar Interchange (Helena, MT): Front-end Planning Mitigates Construction Risk**
Dustin Hirose • HDR Engineering Inc.
Stephanie Brandenberger • Montana DOT

7B ACCELERATED BRIDGE CONSTRUCTION

- **Accelerated Bridge Construction: National Perspective and ABC-UTC Activities**
Atorod Azizinamini • Florida International University
- **Seismic Behavior of Columns with Grouted Bar Couplers in Idaho ABC Applications**
Arya Ebrahimpour • Idaho State University
Leonard Ruminski • Idaho Transportation Department

- **Rapid Cost Effective Bridge Replacement Technology: Geosynthetic Reinforced Soil-Integrated Bridge System**
Alan Cukurs • J-U-B Engineers Inc.

7C BRIDGE RESEARCH

- **Design and Configuration of Jointless Bridges for ABC Applications**
Behrouz Shafei, Brent Phares, Michael Dopko, Shahin Hajilar • Iowa State University
- **Performance of General Anchorage Zone for Post-tensioned Box Girder Bridges**
Ahmed Maree, David Sanders • University of Nevada, Reno
- **Standards to Control Fracture in Steel Bridges Through the Use of High-Toughness Steel and Rational Inspection Intervals**
Ryan J. Sherman • University of Nevada, Las Vegas
William Collins • University of Kansas
Robert Connor • Purdue University

7D BRIDGE MANAGEMENT AND DESIGN POLICIES

- **MASH Implementation for California Bridge Railings**
Tom Ostrom, Gregory Kaderabek • CalTrans
- **Successful Preservation Practices for Steel Bridge Coatings**
Raymond Bottenberg • Oregon DOT
- **Seismic Risk Analysis of Ferry Terminal Bridge Structures**
Jeri Bernstein, Chris Stearns • Washington State DOT

3:00 – 3:30 PM **EXHIBIT BREAK**

3:30 – 5:00 PM **TECHNICAL SESSIONS**

8A BRIDGE DESIGN AND CONSTRUCTION

- **Constructing the SR-520 Floating Bridge**
Jason Pang, Greg Hess • KPFF Consulting Engineers
- **Design of Pre-Cambered Concrete Girders with Moderate to High Levels of Pre-Camber**
Amanda Wong, Claudio Osses • COWI North America, Inc.
- **Predicting Major Bridge Construction Costs**
Ken Saindon • EST, Inc.

8B BRIDGE RESEARCH

- **Steel I-Girder Bridge Fit Research**
Domenic Coletti • Michael Baker International
Don White • Georgia Tech
Thanh Nguyen • RS&H
Brandon Chavel • HDR Engineering Inc.
Michael Grubb • M.A. Grubb & Associates, LLC
Calvin Boring • Brayman



- **Concrete-Filled Tubes for Improved Seismic Performance and Constructability**
Dawn Lehman, Charles Roeder • University of Washington
Bijan Khaleghi • Washington State DOT
- **Alternative ABC Connections Using UHPC**
Mohamadreza Shafieifar, Mahsa Farzad, Atorod Azizinamini • Florida International University

8C BRIDGE SEISMIC DESIGN

- **Earthquake Duration Effect on Collapse Capacity of Reinforced Concrete Bridge Columns**
David Sanders • University of Nevada, Reno
Mohammed Mohammed • Dynamic Isolation Systems
- **I-5 Overcrossing (Cook, Over PNWR) Seismic Retrofit Design and Phase II Construction**
Michael Roberts, Mark Libby • HDR Engineering Inc.

- **Dynamic Interaction of Bridge Superstructure and Light Rail Vehicle**
Aamir Durrani, Hao Luo • HNTB Corporation
Xiaoyun Wu • IDC

8D BRIDGE ANALYSIS AND DESIGN

- **Foundation Restrained Analysis of Bridge Structures for Liquefaction Induced Lateral Spreading Soil Load**
Ahilan Selladurai • T.Y.Lin International
- **A Case Study on Extreme Scour at an Alaska Bridge and the Monitoring Efforts Used to Track the Changing Conditions**
Michael Knapp • Alaska DOT & Public Facilities
Jeff Conaway • USGS Alaska Science Center
- **Arch Bridge Buckling Analysis Methods**
Benjamin Blasen • CH2M

Friday, September 8

7:30–8:30 AM CONTINENTAL BREAKFAST

8:30–10:00 AM TECHNICAL SESSIONS

9A BRIDGE DESIGN AND CONSTRUCTION

- **Design and Construction of the Tilikum Crossing in Portland, Oregon**
Norman Smit, Kevin Almer • T.Y.Lin International
- **Structural Design of Main Post Cut & Cover Tunnels: Presidio Parkway**
Allen Rejaie • HNTB Corporation
- **Balancing Innovation, Constructability, and Maintenance to Cross the San Diego River**
Nathan Johnson, Kelly Burnell • Kleinfelder

9B ACCELERATED BRIDGE CONSTRUCTION

- **SH-97, I-90 OPASS IC #22**
Shawn Metts • HMM Engineering
John Vaudreuil • Idaho Transportation Department
- **“I Didn’t Know It Would Be That Fast!” ABC Advancements and Advantages with Buried Bridges**
Joel Hahm • Big R Bridge
- **Ohio’s ABC Demonstration Project with Rapid Bridge Replacement with Tub Girders Integrated with SPS Bridge Deck. Self-Performing Installations of Short Span Bridges with SPS Bridge Decks.**
Rolando Moreau, Kay Jimison • SPS North America

9C FOUNDATION DESIGN AND CONSTRUCTION

- **Sellwood Bridge Replacement: Landslide Mitigation**
Tom Westover • Cornforth Consultants, Inc.

- **Changes to AASHTO LRFD & CalTrans Design Criteria for Design of Retaining Structures over the Last Decade**
Ahilan Selladurai • T.Y.Lin International

- **Lightweight Embankment Materials for Bridge Approaches**
Murali Hariharan, Aamir Durrani • HNTB Corporation

9D PEDESTRIAN BRIDGE PROJECTS

- **Design and Construction of Long Span Pedestrian Bridges in Remote Sites with Difficult Access**
Douglas Sarkkinen • Otak, Inc.
- **Truckee River Bridge (Tahoe City, CA): A Unique Cellular Abutment Approach Provides Significant Reduction of Cost and Bridge Deck Area as Well as a Pleasant Trail User Experience**
John Rohner • CH2M
- **UP, OVER, DOWN | The Bridge Architecture of Pedestrian Overpasses: Two Case Studies**
Noel Shamble • T.Y. Lin International

10:00–10:30 BREAK

10:30–Noon GENERAL SESSION: OREGON’S INNOVATIONS

- **Keynote: Renewal of Aging and Deteriorated Reinforced Concrete Bridges with Titanium Alloy Bars**
Chris Higgins • Oregon State University
- **Keynote: Achieving Operational Seismic Performance of Existing Highway Bridges with Ductile Fuse Retrofit**
Peter Dusicka • Portland State University
- **Closing Remarks & Invitation to 2019 Conference**
Matt Farrar • Idaho Transportation Department