

# AGENDA

## SUNDAY, SEPTEMBER 17, 2006

8:00 am – 5:00 pm	<b>Seismic Retrofitting Workshop</b> (Pre-Registration Required)	Bay Bridge Room
1:00 pm – 8:00 pm	<b>5NSC Conference Registration</b>	Boardroom
5:00 pm – 6:00 pm	<b>Pre-Conference Coordinators Meeting</b>	Boardroom
6:00 pm – 8:00 pm	<b>Ice Breaker Reception</b>	Hotel Lobby/Pool Area
7:00 pm – 10:00 pm	<b>Exhibitor Set-up</b>	Bay Bridge Room

## MONDAY, SEPTEMBER 18, 2006

8:00 am – 9:50 am	<b>Plenary Session I</b> Moderator: Jerome O'Connor, MCEER, University at Buffalo	Golden Gate Ballroom
8:00 am – 8:15 am	<b>Welcome</b> Phillip Yen, Federal Highway Administration	Golden Gate Ballroom
8:15 am – 8:40 am	<b>Innovations in Earthquake Engineering for Highway Structures</b> Myint Lwin, Federal Highway Administration	Golden Gate Ballroom
8:40 am – 9:05 am	<b>Seismic Safety – Challenges and Opportunities</b> Rick Land, California Department of Transportation	Golden Gate Ballroom
9:05 am – 9:50 am	<b>Enhancement of Seismic Performance of Bridges</b> K. Kawashima, Tokyo Institute of Technology	Golden Gate Ballroom
9:50 am – 10:15 am	<b>Break</b>	Bay Bridge Room

10:15 am – 12:00 pm <b>CONCURRENT TECHNICAL SESSIONS: 1A1 AND 1B1</b>	
Track A - Golden Gate A	Track B - Golden Gate B
<p><b>SESSION 1A1: DESIGN &amp; ANALYSIS OF MAJOR BRIDGES</b> Moderator: Kevin Thompson, California Department of Transportation</p> <p><b>Seismic Characteristics of Bridge Steel Pedestals</b> Monique C. Hite, Reginald DesRoches, Roberto Leon, Paul Liles, Jr. and Y. Stanley Kim</p> <p><b>Design and Analysis of Precast Concrete Bridges in Areas of High or Moderate Seismicity</b> Bijan Khaleghi</p> <p><b>Retrofit of a Historic Three-Hinge Arch Bridge</b> Sherif S. Morcos</p> <p><b>Seismic Retrofit of the Posey Tube: A Discussion of Soilcrete and the Construction of Large Diameter Triple Fluid Jet Grout Columns Over the Oakland Estuary in California</b> Marcia E. Kiese and Thomas S. Lee</p> <p><b>The Seismic Analysis and Design of a Steel Plate Girder Bridge with an Emphasis on Practical Considerations</b> Clint M. Krajnik</p>	<p><b>SESSION 1B1: FOUNDATIONS &amp; GEOTECHNICAL CONSIDERATIONS</b> Moderator: Michel Bruneau, MCEER, University at Buffalo</p> <p><b>Effect of Backfill Soil Type on Stiffness and Ultimate Capacity of Bridge Abutments: Large-scale Tests</b> A. Bozorgzadeh, Scott A. Ashford and Jose I. Restrepo</p> <p><b>Mechanical Axial Force Transfer within Cast-In-Steel-Shell Piles – Verification through Full-Scale Experimentation and Finite Element Analysis</b> Michael Gebman, Scott A. Ashford and José I. Restrepo</p> <p><b>Field Testing and Analytical Modeling of a Reinforced Concrete Embedded Pile Under Lateral Loading</b> Eric Ahlberg, Changsoon Rha, Jonathan P. Stewart, Robert L. Nigbor, John W. Wallace and Ertugrul Taciroglu</p> <p><b>Overcoming Hurdles that Limit the Application of Nonlinear Seismic Ground Response Analysis in Engineering Practice</b> Jonathan P. Stewart, On-Lei Annie Kwok, Youssef M.A. Hashash, Neven Matasovic, Robert Pyke, Zhiliang Wang and Zhaohui Yang</p> <p><b>Global and Structural Stability Assessments of Fort Mason Tunnel for Seismic Rehabilitation</b> Zia Zafir, Stephen Klein and Matthew DeMarco</p>

12:00 noon -1:00 pm	<b>Lunch</b>	Crystal Springs Room
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(Continued)

# AGENDA

**MONDAY, SEPTEMBER 18, 2006** (Continued)

1:00 pm – 2:45 pm		<b>CONCURRENT TECHNICAL SESSIONS: 1A2 AND 1B2</b>
Track A - Golden Gate A	Track B - Golden Gate B	
<p><b>1A2: USE OF INNOVATIVE TECHNOLOGIES &amp; MATERIALS</b>            Moderator: Ian Buckle, University of Nevada Reno</p> <p><b>Multihazard-Resistant Highway Bridge Pier</b>            Michel Bruneau, Shuichi Fujikura and Diego Lopez-Garcia</p> <p><b>New Seismic Retrofit Technologies for a Historic Bridge in California</b>            Paul Chung, Mohammad Ravanipour and Ray Wolfe</p> <p><b>Seismic Design of Circular Bridge Columns with Unstressed Prestressing Strand for Transverse Reinforcement</b>            Andrew Budek, Chin Ok Lee and M.J. Nigel Priestley</p> <p><b>Rocking of Bridge Piers Subjected to Multi-Directional Earthquake Excitation</b>            Andres Espinoza and Stephen Mahin</p> <p><b>Retrofitting the Milford-Montague Truss: Challenges and Solutions</b>            Thomas P. Murphy and Michael C. Irwin</p>	<p><b>1B2: PERFORMANCE CRITERIA &amp; ECONOMIC CONSIDERATIONS</b>            Moderator: Elmer Marx, Alaska Department of Transportation</p> <p><b>A Comparative Performance-Based Seismic Assessment of Traditional and Enhanced-Performance Bridge Pier Systems</b>            Won K. Lee and Sarah L. Billington</p> <p><b>A Rational Method for Calibrating Appropriate Response Modification Factors for Seismic Design of Bridge Columns</b>            Abdallah Mechakhchekh and Michel Ghosn</p> <p><b>Implementation of Displacement Based Design for Highway Bridges</b>            Vinicio Suarez and Mervyn Kowalsky</p> <p><b>Implications of Future Seismic Bridge Design Provisions for Illinois</b>            Daniel H. Tobias, Ralph E. Anderson, Chad E. Hodel, William M. Kramer and Riyad M. Wahab</p> <p><b>Seismic Hazard for California Bridges Using Deterministic and Probabilistic Methods</b>            Fadel Alameddine and Mark Yashinsky</p>	
2:45 pm – 3:15 pm		Break <span style="float: right;">Bay Bridge Room</span>
3:15 pm - 4:15 pm		<b>CONCURRENT TECHNICAL SESSIONS: 1A3 AND 1B3</b>
Track A - Golden Gate A	Track B - Golden Gate B	
<p><b>1A3: EMERGING DESIGN &amp; RETROFIT TECHNOLOGIES</b>            Moderator: Daniel Tobias, Illinois Department of Transportation</p> <p><b>Seismic Design of Floating Bridges</b>            Michael J. Abrahams</p> <p><b>Seismic-Resistant Connections for Prefabricated Segmental Bridge Columns</b>            Yu-Chen Ou, Ping-Hsiung Wang, Kuo-Chun Chang and George C. Lee</p> <p><b>Proof-of-Concept Testing and Finite Element Modeling of Self-Stabilizing Hybrid Tubular Links for Eccentrically Braced Frames</b>            Jeffrey W. Berman and Michel Bruneau</p>	<p><b>1B3: EFFECTS OF NEAR-FIELD EARTHQUAKES ON BRIDGES</b>            Moderator: Hamid Ghasemi, Federal Highway Administration</p> <p><b>An Overview of the Project of Next Generation of Ground Motion Attenuation Models for Shallow Crustal Earthquakes in Active Tectonic Regions</b>            Brian Chiou, Maurice Power, Norman Abrahamson and Clifford Roblee</p> <p><b>Effects of Near-Fault Vertical Ground Motions on Seismic Response of Highway Bridges</b>            Emrah Erduran, Zeynep Yilmaz, Sashi Kunnath, Norman Abrahamson, Y. H. Chai, Mark Yashinsky and Li-Hong Sheng</p> <p><b>Selection of Forward-Directivity Motions for Non-Linear Analyses of Bridges</b>            Joanna L. Gillie, Adrian Rodriguez-Marek and Cole C. McDaniel</p>	
4:15 pm – 5:15 pm	<b>Open Discussion Panel on Multiple Hazard Design</b> Moderator: Frieder Seible, University of California San Diego	Golden Gate A
5:15 pm – 7:00 pm	<b>Poster Session/Reception</b> Moderator: Reginald DesRoches, Georgia Institute of Technology	Crystal Springs Room
7:15 pm – 10:00 pm	<b>Forum on Seismic Retrofitting (by Invitation)</b> Moderator: Glenn Smith, Federal Highway Administration	Lombard Room

# AGENDA

**TUESDAY, SEPTEMBER 19, 2006**

8:00 am – 9:50 am	<b>Plenary Session II</b> Moderator: George C. Lee, MCEER, University at Buffalo	Golden Gate Ballroom
8:00 am – 8:35 am	<b>Life Cycle and Performance Based Seismic Design of Major Bridges</b> Lichu Fan, Tongji University	Golden Gate Ballroom
8:35 am – 9:10 am	<b>Seismic Design Issues for Long-Span Bridges</b> T.J. Zhu, Buckland and Taylor, Ltd.	Golden Gate Ballroom
9:10 am – 9:50 am	<b>Pushing the Span Limits for Long-Span Bridges – A State of the Art Review</b> Lars Hauge, COWI	Golden Gate Ballroom
9:50 am – 10:15 am	<b>Break</b>	Bay Bridge Room
10:15 am – 12:00 pm	<b>CONCURRENT TECHNICAL SESSIONS: 2A1 AND 2B1</b>	
Track A - Golden Gate A		Track B - Golden Gate B
<p><b>2A1: DESIGN &amp; ANALYSIS OF MAJOR BRIDGES</b> Moderator: Stephen Maher, Transportation Research Board</p> <p>Geotechnical Earthquake Engineering Experience from Seismic Retrofit and New Design Projects of Major Toll Bridges in California Hubert K. Law and Ignatius Po Lam</p> <p>Analytical Assessment of a Major Bridge in the New Madrid Seismic Zone Amr Elnashai, Aman Mwafy and Oh-Sung Kwon</p> <p>Seismic Analysis and Design of a Multi-Span Bridge in a Region of High Seismicity using SCDOT Seismic Specifications Amos Liu, William Stiller and Lucero Mesa</p> <p>Collapse Simulation of RC Frame under Earthquakes. II: Verification Studies - Collapse of Cypress Viaduct Yan Zhou, Leiming Zhang and Xila Liu</p> <p>Seismic Response of Precast Segmental Bridge Superstructures with Bonded Tendons Marc Veletzos and Jose Restrepo</p>		<p><b>2B1: SOIL-STRUCTURE INTERACTION &amp; FOUNDATIONS</b> Moderator: Lucero Mesa, South Carolina Department of Transportation</p> <p>Seismic Energy Dissipation by Foundation Rocking for Bridge SFS Systems Bruce Kutter, Boris Jeremic, Jose Ugalde, Sivapalan Gajan and George Hu</p> <p>Three-Dimensional Nonlinear Finite-Element Soil-Abutment Structure Interaction Model for Skewed Bridges Anoosh Shamsabadi, Mike Kapuskar and Amir Zand</p> <p>Comparison of Direct Method Versus Substructure Method for Seismic Analyses of a Skewed Bridge Anoosh Shamsabadi, Hubert K. Law and Geoffrey R. Martin</p> <p>Passive Force-Deflection Relationships from Full-Scale Tests Kyle M. Rollins and R.T. Cole</p> <p>Nonlinear Seismic Soil-Abutment-Structure Interaction Analysis of Skewed Bridges Anoosh Shamsabadi, Mike Kapuskar and Geoffrey R. Martin</p>
12:00 noon - 1:00 pm	<b>Lunch</b>	Crystal Springs Room
1:00 pm – 2:45 pm	<b>CONCURRENT TECHNICAL SESSIONS: 2A2 AND 2B2</b>	
Track A - Golden Gate A		Track B - Golden Gate B
<p><b>2A2: INSTRUMENTATION &amp; MONITORING SYSTEMS</b> Moderator: Robert Stott, California Department of Transportation</p> <p>Real-time, State-of-the-Art Seismic Monitoring of the Integrated Cape Girardeau Bridge Array, Data and Analyses Mehmet Çelebi</p> <p>Lateral Deformation Capacity of Concrete Bridge Piers Sungjin Bae and Oguzhan Bayrak</p> <p>Caltrans / CGS Downhole Geotechnical Arrays Pat Hipley, Anthony Shakal and Hamid Haddadi</p> <p>Seismic Instrumentation at the I-40 Bridge in Memphis, Tennessee Shahram Pezeshk and Mitch Withers</p> <p>ShakeCast: Facilitating the Use of ShakeMap for Post-Earthquake Decision-Making and Response within Caltrans and other Critical Lifeline Communities David J. Wald, Kuo-Wan Lin, Bruce Worden and Loren Turner</p>		<p><b>2B2: LIQUEFACTION &amp; MITIGATION STRATEGIES</b> Moderator: E.V. Leyendecker, US Geological Survey</p> <p>Lateral Response of Isolated Piles in Liquefied Soil with Lateral Soil Spreading Mohamed Ashour, Gary Norris and JP Singh</p> <p>Evaluation of Methods for Analyzing the Seismic Response of Piles Subjected to Liquefaction-Induced Loads S.R. Rajapathy and T.C. Hutchinson</p> <p>Numerical Simulation of Soil-Foundation Interaction Subjected to Lateral Spreading Yohsuke Kawamata, Scott A. Ashford and Teerawut Juirnarongrit</p> <p>A Probabilistic Design Procedure that Incorporates the Pile-Pinning Effect in Bridge Foundations Undergoing Liquefaction-Induced Lateral Spreading Christian Ledezma and Jonathan D. Bray</p> <p>Liquefaction Mitigation using Stone Columns and Wick Drains for Utah Bridges Kyle M. Rollins, Bradford E. Price, Emily Dibb and Jim B. Higbee</p>

# AGENDA

**TUESDAY, SEPTEMBER 19, 2006** (Continued)

2:45 pm – 3:15 pm	<b>Break</b>	Bay Bridge Room
3:15 pm - 5:00 pm	<b>CONCURRENT TECHNICAL SESSIONS: 2A3 AND 2B3</b>	
Track A - Golden Gate A	Track B - Golden Gate B	
<b>2A3: LESSONS LEARNED FROM RECENT EARTHQUAKES</b> Moderator: Arun Shirole, Arora Associates <b>Seismic Response of the Hwy 46/Cholame Creek Bridge During the 2004 Parkfield Earthquake</b> Tom Boardman and Anthony V. Sanchez <b>Lessons Learned from the Seismic Retrofit of the Posey and Webster Street Tubes in Alameda County, California</b> Thomas S. Lee, Randy Anderson and Rod Murray <b>Post Seismic Inspection and Capacity Assessment of Reinforced Concrete Bridge Columns</b> Marc J. Veletzos, Marios Panagiogou, Jose I. Restrepo and Stephen Sahs <b>Study on the Seismic Settlement of the Alaskan Way Viaduct after the February 28, 2001 Nisqually Earthquake</b> Hongzhi Zhang	<b>2B3: EMERGING DESIGN &amp; RETROFIT TECHNOLOGIES</b> Moderator: Genda Chen, University of Missouri Rolla <b>Damping-Enhanced Seismic Strengthening of RC Columns for Multiple Performance Objectives</b> Genda Chen and Kazi R. Karim <b>Use of Partially Prestressed Reinforced Concrete Columns to Reduce Post-Earthquake Residual Displacements of Bridges</b> Stephen Mahin, Junichi Sakai and Hyungil Jeong <b>Seismic Performance and Design of Bridges with Curve and Skew</b> J. Jerry Shen and W. Phillip Yen <b>NCHRP 12-74 Development of Precast Bent Cap Systems for Seismic Regions – Background and Progress</b> Matthew J. Tobolski, Eric E. Matsumoto and José I. Restrepo <b>Improved Seismic Performance of Precast Segmental Bridges Using Jointed Column Connections and Unbonded Tendons</b> Marc J. Veletzos and Jose I. Restrepo	
6:30 pm – 9:00 pm	<b>Banquet</b> Cash Bar Opens at 6:30 pm Master of Ceremonies: Phillip Yen, Federal Highway Administration Guest Speaker: Charles "Chuck" Seim, Consultant <i>Bridge Engineering – We've Come a Long Way</i>	Golden Gate Ballroom

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# AGENDA

**WEDNESDAY, SEPTEMBER 20, 2006**

8:00 am – 9:50 am	<b>Plenary Session III</b> Moderator: Myint Lwin, Federal Highway Administration	Golden Gate Ballroom
8:00 am – 8:45 am	<b>Seismic Assessments of Bridges with Rubber Bearings during 1999 Taiwan Chi-Chi Earthquake</b> K.C. Chang, National Taiwan University	Golden Gate Ballroom
8:45 am – 9:25 am	<b>The Legacies of Jim Cooper &amp; Jim Roberts</b> Roy Imbsen, Consultant	Golden Gate Ballroom
9:25 am – 9:35 am	<b>Presentation of Jim Cooper and Jim Roberts Best Paper Awards</b>	Golden Gate Ballroom
9:35 am – 9:50 am	<b>Remarks</b> Phillip Yen, Federal Highway Administration	Golden Gate Ballroom
9:50 am – 10:15 am	<b>Break</b>	Bay Bridge Room
<b>10:15 am – 12:00 pm CONCURRENT TECHNICAL SESSIONS: 3A1 AND 3B1</b>		
Track A - Golden Gate A		Track B - Golden Gate B
<b>3A1: SEISMIC RISK ASSESSMENT OF HIGHWAY NETWORKS</b> Moderator: Amr Elnashai, Mid America Earthquake Center <b>Probabilistic Seismic Hazard Assessment for Spatially Distributed Systems</b> Renee Lee and Anne S. Kiremidjian <b>Seismic Vulnerability of Typical Multiple-span California Highway Bridges</b> Kevin Mackie and Bozidar Stojadinovic <b>Evaluation of Bridge Retrofit in Regions of Low-to-Moderate Seismicity</b> Jamie Ellen Padgett and Reginald DesRoches <b>Seismic Analysis of a Roadway System in the Los Angeles, California Area</b> Stuart D. Werner, Sungbin Cho, Craig E. Taylor, Jean-Paul Lavoie and Charles K. Huyck <b>Seismic Vulnerability Assessments of Bridges in Areas of Low to Moderate Seismic Activity</b> Joseph B. Matarazzo, Artur Kasperski, José Santos, Gary Wang and Chris S.C. Yiu		<b>3B1: INTERNATIONAL TECHNOLOGIES &amp; PRACTICES</b> Moderator: Roland Nimis, California Department of Transportation <b>Seismic Design Practice of Steel Bridges in California</b> Lian Duan <b>Seismic Design of Coronilla Viaduct</b> Joaquín Mejía Ramírez and Jose de Jesus Alvarez <b>China-U.S. Comparative Study on Seismic Design Philosophy and Practice for a Long Span Arch Bridge</b> Yan Xu, George C. Lee, Li-chu Fan and Shi-de Hu <b>New International Standard for Elastomeric Seismic-Protection Isolators</b> Nobuo Murota, James M. Kelly, Keith Fuller, Fu Lin Zhou, Toshio Nishi, Toshikazu Yoshizawa, Chiaki Sudou and Fumihiko Yazaki <b>Inelastic Response of the San Antonio Viaduct Subjected to Synthetic Ground Acceleration Records</b> Héctor Sánchez Sánchez and Marcelino Cruz González
12:15 pm – 7:30 pm	<b>Optional Technical Tour: Bay Bridges by Boat</b> (Pre-registration Required) Tour Coordinators: Mike Keever, Bob Tanaka, Richard Heninger, Steve Mitchell	Meet at Hotel Front Door

# AGENDA

## PROGRAM AT A GLANCE

	Sunday 9/17/2006	Monday 9/18/2006	Tuesday 9/19/2006	Wednesday 9/20/2006
	The Technical Exhibition will be open daily from 7:30 am.			
8:00 am	Seismic Retrofitting Workshop (pre-registration required)	Plenary Session	Plenary Session	Plenary Session
		2 Concurrent Sessions	2 Concurrent Sessions	2 Concurrent Sessions
		Lunch Break Noon - 1:00 pm		
		2 Concurrent Sessions	2 Concurrent Sessions	Boat Tour
		2 Concurrent Sessions	2 Concurrent Sessions	
5:00 pm		Multi-Hazard Discussion Panel (4:15 - 5:15 pm)		
	Ice Breaker Reception (6:00 - 8:00 pm)	Poster Session / Reception (5:15-7:00 pm)	Banquet (7:00 - 9:00 pm)	

## HOTEL MAP

