



Tacoma/Olympia Section Civil Engineer THE NEWSLETTER

October 2009

Remaking History: The Hood Canal Bridge Project

It's been nearly three decades since the SR104 Hood Canal Bridge has been cut in two. Mother Nature struck first, sinking the west half of the northwestern Washington bridge with hurricane winds in 1979. The 7,869-foot-long structure—the longest floating bridge over saltwater in the world—was made whole again in 1982 when the Washington State Department of Transportation (WSDOT) and General Construction joined forces to reconnect this vital link between the Olympic and Kitsap peninsulas.

Over the years, gale force winds, corrosive saltwater waves and huge tidal swings slowly chipped away at the original east half. Built in 1961 and spending its existence in this harsh marine environment, the section was quite literally falling apart. In 2003, WSDOT and Kiewit-General (A Joint Venture) beat Mother Nature to the punch and intentionally cut the structure in two—this time to remove and replace the east half of the bridge.

Here's what it entailed:

- Construction of 14 new floating concrete pontoons. After they were completed and joined, a conventional prestressed girder superstructure was constructed on top of the pontoons.
- Rehabilitation and retrofit of three existing pontoons that have been in storage for the past 25 years.
- Construction of 20 new reinforced concrete gravity anchors. These anchors were submerged to the bottom of the channel, filled with rock for ballast, and then attached to the pontoons with cables.
- Replacement of both existing steel girder approach spans with new prestressed girder approaches, and widening of the existing roadway deck on the west-half floating structure.

○ Replacement of both transition trusses, which connect the land-based approaches to the floating bridge structure. The new trusses, whose construction is modeled after offshore oil platforms, use welded hollow tubular sections.

○ As part of the movable bridge system, electrical and mechanical equipment was installed on the new east-half and upgraded on the existing west-half floating structure.

Keeping the Olympic Peninsula's lifeline open as long as possible was vital to the economic health of the region. With this in mind, major bridge components, such as pontoons, gravity anchors, trusses, and transition spans, were prefabricated and outfitted off-site.

These efforts culminated in a full bridge closure starting on 1 May 2009 to install prefabricated sub-assemblies of the bridge. This project was administered as a target price contract with a negotiated fixed fee for the contractor, incentives for meeting schedule milestones, and a process for identifying and incorporating cost-saving ideas into the project. Administering a contract of this nature required a close working relationship between WSDOT and the contractor. Despite losing three days during the closure because of inclement weather, the new bridge was opened to traffic on 3 June 2009, nine days ahead of schedule.

An overview of the construction activities highlights several aspects of a complex bridge project, involving a distinctive history and unique structures and contracting methods. ●

Joint Dinner Meeting
SEAW/ASCE
Wednesday, Oct. 21st



Hotel Murano

Downtown Tacoma
1320 Broadway Plaza
Tacoma, WA 98402

Social: 5:30pm
Dinner: 6:15pm
Program: 7:00pm

MENU:

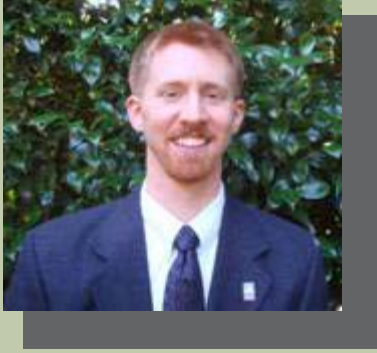
Cost: \$25 per person
students half/price. Cash or
checks payable to ASCE are
accepted. RESERVATIONS ARE
REQUIRED

**Please note on your reservation your dinner choice:
Chicken Cordon Bleu, Top
Sirloin, or Vegetarian.**

RSVP: by Monday, Oct. 19th.
phone:253.382.2936.
seawswchapter@comcast.net

Hosted by: SEAW SW Chapter,
P.O. Box 111480
Tacoma, WA 98411
www.seaw.org

President's Corner with Jason Moline



Jason Moline has worked for the City of Tacoma for the past seven years. He is currently a Professional Engineer for the Supply section of Tacoma Water. He holds degrees in Civil Engineering from Stanford (MS '02) and the University of Washington (BS '01).

This is my last President's corner column, as our new section officers will begin their terms this month. I would like to discuss the Puyallup Fair booth organized by Saint Martin's University students; a question about ASCE governance; and the section board.

Puyallup Fair Booth by Saint Martin's University Engineering Students

Kudos to the St. Martin's University student chapter for organizing an engineering booth at the Puyallup Fair on September 13th. The booth included portions of a concrete canoe and a steel bridge built by St. Martin's students. There was a model bridge with a meter to measure the stress at various elements in the bridge. In addition, a "Building Big" video was playing in the booth.

Fair participants were also encouraged to handle a non-Newtonian fluid consisting of a suspension of cornstarch in water. Most fluids are Newtonian, meaning that the relation between the shear stress and the strain rate is linear. The sudden application of force made this non-Newtonian fluid on display behave as a solid rather than a liquid. This is somewhat like the behavior of some asphalt pavements, which are strong enough to support semi trucks on the highway, but which begin to rut in parking stalls.



Society Governance

At the last section board meeting, I was asked a question about ASCE's governance structure. At the Society (National) level, there are 17 directors, including the current president, the past-president, the president-elect, 10 geographic directors, two Institute directors, and two at-large directors. Each of ASCE's ten geographic regions and one technical region is managed by its own board of governors. The technical region is worldwide and is comprised of members from each of ASCE's seven technical specialty Institutes.

The governing boards of the eleven regions nominate candidates for the national office of ASCE president-elect. Regions represented by the current president, president-elect and past-president are not be permitted to make nominations.

Section Board Officers

Ballots were recently distributed by e-mail for the 2009-2010 ASCE Tacoma/Olympia section board election. Please take the time to vote and return your ballot; your input is needed, and voting is easy!

I have genuinely appreciated serving as your section president. It has given me an opportunity to develop my public speaking, organizational, and leadership skills, which are very important for people interested in taking on a management role at some point in their career. Another perk is the occasional opportunity to travel to ASCE conferences and meet new people.

Think about serving on the board as a way to network, expand your skills, and meet other engineers. We are still looking for a president-elect (that is, the person who will be president in 2010-2011). We understand everyone's time is limited and would be happy to work with whatever interest you have. You can learn firsthand about the board by attending a board meeting. We typically meet at 6:00 pm on the first Monday of the month. Please contact one of the board members for more details.

Regards,

Jason Moline, P.E. 2008-2009
Tacoma/Olympia Section President

Tacoma/Olympia ASCE Section Officer Candidates 2009-2010

President:	Bruce McDonald, P.E.
Past-President:	Jason Moline, P.E.
Secretary:	Don Davis
Treasurer:	Gus Fant, P.E.
Director 2 yr term:	Brook Maples, P.E.
YM Chair:	Nina Cerruti

Speakers

Speakers for this month's joint meeting are:

Mark A. Gaines, PE,
Asst. Construction Engineer –
Bridge Washington State DOT

Mark Gaines has Bachelors and Masters Degrees in Civil Engineering from the University of Washington. He currently works as a Bridge Construction Engineer for the Washington State DOT.

Geoff D. Swett, PE, SE
Bridge Engineer
Washington State DOT

Geoff Swett has a Bachelors Degree in Civil Engineering from the University of Vermont and a Masters Degree in Civil Engineering from the University of Washington. He currently works as a Senior Bridge Design Engineer for the Washington State DOT Bridge and Structures Office.

Michelle L. Tragesser, PE
Project Engineer
KPF Consulting Engineers

Michelle Tragesser has Bachelors and Masters Degrees in Civil Engineering from Purdue University. She is a Project Engineer with KPF Consulting Engineers in Tacoma, Washington.



Opportunities Opportunities Opportunities

op·por·tu·ni·ty

1 : a favorable juncture of circumstances

2 : a good chance for advancement or progress

ASCE Distance Learning Programs

In response to the desire expressed by members for convenient and economical education opportunities, ASCE has augmented its distance learning programs. This year it will be offering more than 200 live Web seminars (“webinars”) designed to address timely and important engineering topics and more than 48,000 individuals are expected to participate.

The Society has been offering webinars for more than six years now, and last year more than 175 of them were made available. This year will see webinars on many new topics in a variety of technical specialties. Anyone participating in a webinar can earn professional development hours (PDHs). ASCE is also developing new online courses that will be available at any time so that members can remain current and earn the PDHs needed for renewing a professional engineering license.

The popularity of ASCE’s webinars continues to grow. In 2008 the total enrollment exceeded 40,000. The most popular webinars included *Preparing and Implementing Construction Site Storm-Water Pollution Prevention Plans* (860 participants); *Ethics: The Road All Engineers Must Follow* (844 participants); and *Traffic Impact Studies* (776 participants).

Webinars typically run 60 to 90 minutes and are designed to be practice oriented and to address topics of current interest. Participants pay a single site registration fee that permits an unlimited number of engineers to attend at that site. Participants view the instructor’s PowerPoint slides while he or she is lecturing. They can also interact with the instructor and other participants and can receive immediate answers to their questions.

Upcoming Live Interactive Webinars:

October 13 - Reinforced Masonry: Design and Construction

October 14-26 - Creating a Positive and Productive Workplace in a Difficult Business Environment - Two Part Series

New Webinar October 15 - An Introduction to Passive Solar Buildings

New Webinar October 16 - Keeping Airports Functioning During Disaster

October 19 - An Introduction to HEC-RAS Culvert Hydraulics

October 21 - Green Highways and Green Streets for 21st Century Infrastructure: Strategies, Technologies and Funding

New Webinar October 21 - The Seven Qualities of Effective Leaders

New Webinar October 22 - Wind and Seismic Retrofit of Wood-Framed Buildings

New Webinar October 23 - Developing Effective Teams

October 27 - Fish Friendly Infrastructure Design - New Webinar

October 28 - Design of Masonry Shear Walls

October 29 - EDCs and Pharmaceuticals: Treatment Tools and Public Awareness

November 2 - Engineered Rainwater Collection and Case Studies for Sustainable Water Management

New Webinar November 3 - Strengthening Concrete Buildings

November 4 - Mentoring: Guidance for Mentors, Proteges, and Organizations

For additional information on ASCE’s webinars and online courses, visit <http://www.asce.org/conted>

ASCE Continuing Ed

The following in-depth, practice-oriented programs are produced by ASCE’s Continuing Education Department and will be held within ASCE Region 8: Detailed descriptions of the seminars (by title) are available on ASCE’s website at [_www.asce.org/conted/seminars](http://www.asce.org/conted/seminars)

Questions? Contact: Kelly Jarvis, Continuing Education Registrar at kjarvis@asce.org or **Michael Cook** at mcook@asce.org.

November 12-13, 2009, Las Vegas, NV
Storm Sewer System Design using SWMM (Hydraulics)

November 19-20, 2009, Scottsdale, AZ
Design and Strengthening of Shallow Foundations for Conventional and Pre-Engineered Buildings (Structural)

December 3-4, 2009, Portland, OR
Pumping Systems Design for Civil Engineers (Hydraulics)

December 10-11, 2009, Las Vegas, NV
Finite Elements in Geotechnical Engineering (Geotechnical)

December 10-11, 2009, Portland, OR
Leadership Development for the Engineer - Newly Updated! (Management)

January 4-5, 2010, Las Vegas, NV
Upgrading Treatment Plants and Pumping Stations - Newly Updated! (Hydraulics)

January 6-8, 2010, Las Vegas, NV
Pumping Systems Design for Civil Engineers (Hydraulics)

January 21-22, 2010, Las Vegas, NV
Bridge Rehabilitation (Structural)

January 28-29, 2010, Scottsdale, AZ
Design of Waste Containment Liner and Final Closure Systems (Geotechnical)

February 3-5, 2010, Phoenix, AZ
Structural Design of Buildings and Industrial Facilities for Blast Loads and Accidental Chemical Explosions (Structural)

February 4-5, 2010, Portland, OR
Low Impact Development Applications for Water Resource Management (Hydraulics/ Environmental)

February 4-5, 2010, Las Vegas, NV
Ownership Transition Planning, Company Valuations and Strategic Planning - Newly Updated! (Management)

February 11-12, 2010, Seattle, WA
Slope Stability Probabilistic Analysis and Instrumentation (Geotechnical)

February 18-19, 2010, Salt Lake City, UT
Structural Condition Assessment of Existing Structures (Structural)

February 24-26, 2010, Phoenix, AZ
Techniques for Pavement Rehabilitation (Transportation)

February 25-26, 2010, Portland, OR
Bridge Rehabilitation (Structural)

March 17-19, 2010, Phoenix, AZ
Design of Foundations for Dynamic Loads (Structural)

March 18-19, 2010, Las Vegas, NV
Water Hammer in Transmission and Distribution Systems (Hydraulics)

March 25-26, 2010, Phoenix, AZ
Design and Installation of Buried Pipes (Geotechnical)

March 25-26, 2010, Las Vegas, NV
Leadership Development for the Engineer - Newly Updated! (Management)

SECTION CALENDAR and ENGINEERING RESOURCES



Section Calendar

Tacoma/Olympia ASCE Section Meetings/Activities

Meetings are **generally** held the second Tuesday of each month*. This is a tentative meeting schedule. Please call any board member if you have questions.

Wednesday, October 21, 2009 - ASCE/SEAW joint dinner meeting in Tacoma

Tuesday, November 10, 2009 - Lunch meeting at St. Martin's University

Wednesday, December 9, 2009 - Joint dinner meeting with ASCE Seattle section in Tukwila

*DATE/TIMES/LOCATIONS TO BE ANNOUNCED/VERIFIED

Tacoma/Olympia ASCE Board Meetings:

Local Board Meetings are open and generally held the first Monday of the month at 5:30pm. Locations vary. Please check the WEB site, this calendar, or contact the president for confirmation.

Younger Member Forum Activities And Update

Younger Member Newsletter

www.asce.org/inside/cym_pubs.cfm

For more information on Upcoming Events & Activities for Younger Member programs, contact: Brook Maples at brookm@gmail.com

TRANSPEED Courses

For a complete list of courses, visit the website at <http://www.engr.washington.edu/epp/Transpeed/index.html> for specific course descriptions and dates. Click on the specific course link to view the course outline.

or contact:

Julie Smith

Engineering Professional Programs

Phone: 206-543-5539

Toll-Free: 1-866-791-1275

2009 Professional Development Short Courses

For a complete description of the course and registration information visit our website

<http://www.engr.washington.edu> or call us

at: Engineering Professional Programs, University of Washington, phone: 206.543.5539

(fax) 206.543.2352 or

(toll free) 1.866.791.1275

Stephanie Strom, Program Mgr: ssstrom@u.washington.edu

“Engineers Make the *Difference*...
They Provide the *Quality* of Life!”



Tacoma/Olympia Section Board 2009 - 2010

<http://sections.asce.org/tacoly/html/board.htm>

President

Bruce McDonald, P.E...253.858.5552

bmcDonald@anchorqea.com

President-Elect

vacant

contact any board member for info

Secretary

Don Davis...253.474.9449

DonDavis@sitts-hill-engineers.com

Treasurer

Morris J. "Gus" Fant, P.E...253.922.2332

fusgant@aol.com

Director

Lyle Stone, P.E....(...) ...~....

lstone@geoengineers.com

Director (2-year)

Brook Maples, P.E....

brookm@gmail.com

Region 8 Governor

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Ron.Borowski@Seattle.Gov

Younger Member Chair

Nina Cerruti...

Past-President

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For address changes/corrections, notify the Newsletter Editor or the WEBmaster.



We're on the Web at

<http://sections.asce.org>

<http://www.asce.org/>