



INTERCHANGE

American Society of Highway Engineers | Carolina Triangle Section

Dinner Meeting

When: Sept. 18- **Social:** 5:30pm, **Dinner:** 6:30pm

RSVP by Sept. 15, 4:30pm by contacting
mlcole@rkk.com or jbeville@rkk.com

Where: NCSU Faculty Club

Topic: "TTA, Its Past, Present, and Future"

Speaker: David King, General Manager of TTA

About the speaker:



David King joined the Triangle Transit Authority as its General Manager in October 2006. Prior to joining TTA, King had a 33-year career with NCDOT. As Deputy Secretary, Mr. King was responsible for the department's five multimodal divisions, including the Public Transportation Division and the Rail Division.

Since King's arrival, Triangle Transit has seen record ridership on its regional bus, vanpool and shuttle services. The agency is currently undertaking a \$7 million upgrade in amenities including new vehicles and improvements to transit stops. Triangle Transit is also an active participant in planning major transit expansions in the region as part of the Mayors' Regional Bus initiative along with recommendations from the Special Transit Advisory Committee appointed to look at long-range transit improvements.

During King's tenure at NCDOT, the Rail Division began daily service on the Amtrak Carolinian between Charlotte and New York and the Amtrak Piedmont between Charlotte and Raleigh.

Mr. King is on the board of Reconnecting America, an organization working to redefine national policies on intercity travel for a convenient, secure, financially viable and sustainable network. He has also served as Chair of the States for Passenger Rail Coalition, a 25-state organization working for improved rail passenger service.

King's additional past involvement includes the Transportation Research Board Strategic Transportation Research Study for Transit.

He received his BA in Economics at Davidson College and his MBA from the University of North Carolina at Chapel Hill. He is married with two teenaged children.

President's Message:

New Year Challenges



Len Hill, P.E. - 2008-2009 President

As we begin the 2008-2009 year a little reflection is in order. First I would like to thank all the officers, directors, and committee chairs who served this past year. I would especially like to thank Brenda Moore for serving as President. Her energy and dedication served the organization well and we all owe her our gratitude. I would also like to thank all who have agreed to serve for the upcoming year. I look forward to working with all of you to make this a successful year.

According to my count this will be the 18th year for the Carolina Triangle Section. I can still remember Bob Pearson personally recruiting individual members to join the organization. It was his tireless efforts that jump started the Carolina Triangle Section. That is why he is honored each year with the Bob Pearson Scholarship. Members are the lifeblood of the organization and I challenge all of us to honor Bob by recruiting one new member this year.

I also challenge each of you to be active in the organization. ASHE is always looking for volunteers to serve as officers, directors, and committee chairs. The Carolina Triangle Section has had a core group of people who have done a terrific job in running the organization. However it is vitally important for new people to become involved. I would challenge you to consider serving as an officer, director or committee chair. In addition I ask you to make efforts to attend the dinner meetings. I realize that family and work consume most of our daily lives. We have five dinner meetings during the year and good meeting attendance makes for a lively meeting and a vibrant organization. It is also a great time to share fellowship with professional peers. We look forward to a good mix of both general and technical topics this year. We start off on September 18th with David King, General Manager of the Triangle Transit Authority, discussing its past, present, and future.

I look forward to serving as President for the upcoming year and again challenge all of you to contribute to the organization and make this a great year! Thank you. ▼



www.carolinatriangle.org

2008-2009 CENTURY CLUB MEMBERS



Martin / Alexiou / Bryson, PLLC
Transportation Planning
Traffic Engineering



Rummel,
Klepper
& Kahl, LLP



Taylor Wiseman & Taylor
ENGINEERS | SURVEYORS | SCIENTISTS



www.carolinatriangle.org

5800 Faringdon Place, Suite 105
Raleigh, NC 27609

OFFICERS

REGION 8 DIRECTOR Candice H. Crago, E.I.

PRESIDENT Len Hill, PE
PAST PRESIDENT Brenda Moore, PE
1st VICE PRESIDENT Gary Lovering, PE
2nd VICE PRESIDENT Jay Stem, PE
SECRETARY Keith Skinner, PE
TREASURER Chris Werner, PE

DIRECTORS

Steve Browde, PE Scott Clark, PE Laura Cove, PE
Rhonda Early, PE Derrick Lewis, PE Drew Joyner, PE

COMMITTEE CHAIRS

PUBLIC RELATIONS Jonathan Hefner, EI
PROGRAM Gary Lovering, PE
MEMBERSHIP Katrina Washington, PE
NOMINATING Brenda Moore, PE
CONSTITUTION & BYLAWS Steve Browde, PE
PROFESSIONAL DEVELOPMENT Scott Clark, PE
Laura Cove, PE
EVENTS Barbara Benfield
Tim Van Gelder, PE
FINANCE Chris Werner, PE
FACILITIES David Bass, PE
LEGISLATIVE Pam Townsend, PE
SCHOLARSHIP Scott Boyle, PE
HISTORIAN Roland Robinson
GOLF TOURNAMENT Doug Saunders, PE
Tim Reid, PE

For Change of Address Contact:

ASHE Secretary
Keith Skinner
tel 878-9560
fax 790-8382
email kskinner@rkkengineers.com

ASHE National Website
www.highwayengineers.org

-Mission Statement-

The mission of the American Society of Highway Engineers is to promote the planning, design, construction, maintenance and operation of safe and efficient highways; to foster a general understanding of the value of highways and seek support for their fiscal viability; to stimulate and publicize technology advances in the highway field; to encourage communications among all segments of the highway industry; to stress the value of individuals; and to facilitate ethics, leadership, and career growth of the members.

A Bridge Building Machine in North Carolina: True Top Down Construction



View of north end of bridge on US 17 over Tar River. 0.5 miles on the north end of the structure is complicated by the separation into independent north and southbound spans in a horizontal curve. The north gantry features a wider transverse support beam straddling both northbound and southbound spans, and is thus capable of performing simultaneously all of the construction operations of both superelevated deck sections of the split structure.

By: Tom Shearin, PE and Wally Jordan, PE, Earth Tech

When the North Carolina Department of Transportation (NCDOT) began constructing a 6.8-mile bypass on US 17 around the city of Washington, NC, they had to contend with a major crossing of the Tar River as well as adjoining environmentally sensitive wetlands. The project, located on North Carolina's coastal plain in Beaufort County, features a 2.8-mile, 4-lane structure over the Tar River and wetlands.

NCDOT hired the Flatiron-United JV Design-Build team (Flatiron-United) to develop the design and construction of this challenging project, and a team from Earth Tech's North Carolina operations as the team's engineer of record.

To minimize the construction footprint in these environmentally sensitive areas, the Flatiron-United team developed a new and innovative top down construction approach using a unique overhead gantry. This approach results in minimal impact to the wetlands and accelerated construction schedule when compared to conventional construction techniques. This design-build project, the Department's largest design-build con-

tract to date, was awarded to Flatiron-United in February 2006 for \$192 million and is scheduled for completion in November 2010.

A pair of 592-ft. long, 750-ton gantries are now in operation, one at each end of the bridge and working towards the middle of the structure. The gantries were designed and fabricated by DEAL, an Italian firm, and Birmingham of Ontario, Canada, with direction from Flatiron's Vice President of Engineering, Elie Homsy.

The self-launching truss system performs the complete sequence of construction activities – from driving the 30-in. square prestressed concrete piling, to setting the pre-cast post-tensioned bent caps and 72-in. modified Bulb-T girders, to handling materials for construction of the cast-in-place concrete deck. The world's first application of the pile driving operation from an erection gantry is the most unique feature of the system and is the essential element that truly eliminates the need for equipment and temporary access trestles and ground work in the fragile wetlands.

Construction activities are on-going simultaneously across three spans (typically 120-ft in length) in an assembly line progression. As a span is completed and deck cured, the gantry is launched ahead to begin the pile driving on the next span. The dramatic reduction in wetland disturbance offered by this "true top down" construction operation was well received by the US Army Corps of Engineers, North Carolina Division of Water Quality, North Carolina Department of Natural Resources, US Coast Guard, and other environmental agencies during the permitting process.

More than 80% of the bridge (2.3 miles) is on tangent horizontal alignment with a continuous 70-ft. deck width (carrying four lanes of traffic), thus providing ideal repetitive conditions for this construction gantry operation (see photo on next page). However, the remaining 0.5 miles on the north end of the structure is complicated by the separation into independent north and southbound spans in a horizontal curve. As shown in the photo above, the north gantry features a wider transverse support beam straddling both

continued on page 4

Job Corner



Project Manager - Highways

PB is one of the largest and most successful engineering firms in the world. We are employee-owned with more than 10,000 employees in 150 offices worldwide. We are looking for a Supervising Highway Engineer for our Morrisville, NC office. Specific responsibilities and requirements include: managing all aspects of highway design from conceptual engineering to construction phase services; experience in the production of construction plans using Geopak and MicroStation; strong communication skills; experience in marketing, proposal preparation and client relations; minimum of 12 years of highway/roadway design and project management experience (NCDOT experience preferred); BS degree in Civil Engineering; and Registered Professional Engineer (in NC preferred).

Interested candidates - please respond to the job advertisement at www.pbworld.com; People + Careers; Employment Opportunities; North America; Job ID No. 6434.



View of south end of bridge on US 17 over Tar River. More than 80% of the bridge (2.3 miles) is on tangent horizontal alignment with a continuous 70-ft. deck width (carrying four lanes of traffic), thus providing ideal repetitive conditions for this construction gantry operation.

continued from page 3

northbound and southbound spans, and is thus capable of performing simultaneously all of the construction operations of both superelevated deck sections of the split structure. A vertical clearance of 45 ft. is provided over the Tar River navigational channel.

The structure design is largely controlled by the construction equipment and operational loadings, as opposed to normal service load conditions. Since this area is often in the path of hurricanes making landfall on the North Carolina coast, the bridge and gantry were designed to withstand 100 mph wind loads during the construction period. Normal construction activities may proceed

until wind speeds reach 45 mph, at which time the gantry is secured in place in a short-term out of service condition. Once wind speeds exceed 64 mph, the gantry is retracted to a position over a completed span and securely anchored in place. This section of the Tar River is also subject to tidal action and the potential scour from storm surge intensifies the loading to the substructure elements. Earth Tech performed a sophisticated 2D Flow Model scour evaluation to predict this scour potential.

Flatiron/United's innovative, patent-pending, gantry operation, with its pile driving capabilities, is truly state of the art in bridge construction. ▼



Mulkey, Inc. is seeking a Transportation Services Manager & Bridge Design Engineer for our Columbia, SC office. SCDOT project experience preferred. Transportation mgr. candidates must have a bachelor's degree, min. of 6+ yrs exp. in civil engineering & a PE license. Bridge design engineer reqs. a min. of a bachelor's degree, 2+ yrs. exp. in bridge design & Microstation. To apply for these positions, please visit: www.mulkeyinc.com
EOE



Airports
Civil/Site
Design Build
Economics
Environmental Engineering
Feasibility Studies
Highway/Bridges
Hydraulics
Local Government Services

Public Transportation
Railway
Surveying
Toll Roads
Traffic & Parking
Transit
Transportation Planning
Urban & Regional Planning

Raleigh, NC
919.755.0583

High Point, NC
336.819.4200

www.WilburSmith.com

WilburSmith
ASSOCIATES

2008-2009 DINNER MEETING DATES

Thursday, September 18, 2008
Thursday, November 20, 2008
Thursday, January 22, 2009
Tuesday, March 17, 2009
Thursday, May 14, 2009

All meetings will be held at the University Club with a social at 5:30 p.m. followed by dinner and a presentation at 6:30 p.m.

UPCOMING EVENTS

October 6-7, 2008	ACEC-NCDOT JOINT CONFERENCE
-------------------	-----------------------------

JOIN ASHE!

Visit our Website to download an application form. Fill it out and mail it in with your \$60 dues. For more information contact Katrina Washington (kwwashington@ncdot.gov).

ASHE welcomes the following new members:

Andy Archer, E.I. - Arcadis
 Lynn Raynor, P.E. - City of Raleigh
 Louis Ostendorff, P.E. - So-Deep

ASHE Interchange Advertising and Job Posting Form

Job Postings			
Description	# of issues	Price	
Less than or equal to 100 words	2 issues	\$50	
Greater than 100 words	2 issues	\$100	

Advertisements			
Description	# of issues	Price	
Business Card	4 issues	\$100	
Quarter Page	4 issues	\$200	
Half Page	4 issues	\$300	
Full Page	4 issues	\$500	

	TOTAL:		
--	---------------	--	--

Make check payable to "ASHE Carolina Triangle Section"

Company:			
Contact:			
Address:			
City:	State:	ZIP:	
Phone:			
E-mail:			
Signature:			Date:

To place an advertisement or job posting in the ASHE Interchange, e-mail the posting or advertisement to Jonathan Hefner:

jhefner@stewart-eng.com

Then fill out this form and mail with payment to the following address:

Attn: Jonathan Hefner
 Stewart Engineering
 421 Fayetteville St. Suite 400
 Raleigh, NC 27601

Submissions will not be included until payment received.

Contact Jonathan Hefner for more information. Also feel free to contribute ideas for articles and other content you would like to see included in future issues of the newsletter.