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INSIDE: Registration for
Louisiana Civil Engineering
Conference and Show
in New Orleans
September 9-10, 2004
Section Annual Meeting
in New Orleans
September 10, 2004

FEATURE: Louisiana's experience with commercial truck operations

OPPORTUNITY: Order of the Engineer

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CONTENTS

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The Louisiana Section is located in ASCE Zone II, District 14. Zone II consists of Districts 6, 7, 9, 10 and 14. District 14 consists of the Louisiana, Mississippi, Alabama and Georgia Sections.

President's Message

Barbara E. Featherston, PE

As September draws closer, so does the end of the Section's administrative year that follows the installation of officers during the Section Annual Meeting, and with the installation the end of my term as your President. It hasn't been the most exciting administrative year I have experienced on the Board, but we — your Board of Directors — have quietly worked to provide assistance and funding to the branches and student chapters, and discussed extensively, kept you informed and acted when appropriate on emerging issues. These issues were most notable on the national ASCE level and the bills that were filed during the regular session of the 2004 Louisiana Legislature. Although these issues did not generate a lot of pomp and circumstance, they were nonetheless extremely important as they relate to you and/or our profession in Louisiana.

On behalf of the Section, I would like to thank all of the engineers in the Section who responded to the ASCE Key Alert, and the alerts issued by Louisiana Engineering Society and American Council of Engineering Companies of Louisiana. The House Bills that would have significantly degraded the way the engineering businesses and we as engineers would do business in Louisiana failed. I believe that because of the aforementioned response, these bills died an appropriate death. I believe very strongly in voicing one's opinions. The power of a collective voice on such matters can change things for the better.

We have the ability to give our two cents worth in the many media available such as letter writing, e-mail, telephone calls, and participating in membership meetings and voting. It is one of the single most important freedoms that we have in this country and I believe that it is something that we abuse frequently by simple neglect. It is our responsibility as citizens to let our elected representatives know how we feel about issues and what is important to us. They cannot lead us where we collectively want to go if we do not meet this responsibility.

Just recently there were elections for several different tax propositions here in Northwest Louisiana. One of the more important items on this ballot was a sales tax increase that would be dedicated to the Juvenile Justice System. Regardless of the amount of this tax or the issues involved, only 11,000 people out of the eligible 153,000 registered voters voted in this election. It would seem that we may have become lethargic and uncaring about our responsibilities as citizens and how our affairs are run by our representatives and governments. As soon as something goes wrong, it would also seem that we are quick to complain yet, as in this election, sometimes we do not exercise our responsibility to vote intelligently if at all, and the consequences can be a direct result of our complacency. By the time this message is delivered, we will have passed the deadline for voting in the national ASCE election. I sincerely hope our efforts to keep you informed served you well and that you took the time to vote in this election.

An issue that has been around for a while and is quietly winding its way through the ASCE to eventually emerge for action is ASCE Policy Statement 465. For those of you that have not been regularly following the news in your copy of *Civil Engineering, ASCE News* or this journal over the last 4 to 5 years, this is a policy the ASCE has adopted for academic prerequisites for engineering licensure and professional practice. It stipulates how much and what type of education is required to become a licensed professional civil engineer. The national Board of Direction adopted this Policy in 2001 and a national committee is working out the details — where the devil is usually found.

The Policy states that the Society "... supports the concept of the Master's degree or equivalent as a prerequisite for licensure and the practice of civil engineering at the professional level." The committee has basically focused on what it has identified as the Body of Knowledge (BOK) that is needed by civil engineers to practice as a professional engineer. The committee considered 3 questions:

- What should be taught?
- How is it taught?
- And who should teach it?

The focus of the committee has been mostly on what should be taught and this includes the standard contents you would expect such as math, science and engineering. However, other contents that are not as tangible were considered such as communications, teamwork, and ethics. Further, contents were identified as important yet they would appear to be difficult to teach in the classroom environment. They are subjects such as project management, construction, asset management, and business practices and public policy. All of this content is important, yet the answers to the *how* and the *who* would appear to be somewhat more problematic and they are continuing to evolve in the committee.

The committee has determined that what is learned during the course of our pursuit of a BS in civil engineering does not give the graduate everything that is needed to obtain licensure — practice effectively as a professional engineer. I believe there should be agreement with this supposition if there is agreement with the current required 4-year internship in specified engineering work under the supervision of a licensed engineer prior to sitting for the PE examination. The premise of these 4 years of internship is that the additional training and experience gained plus the BS degree is required to become an effective professional engineer.

A conclusion of the committee is that the 4-year internship does not consistently or necessarily provide the BOK it has identified as necessary for licensure. The committee is currently tasked with evaluating different programs that would appear to encompass additional formal education that would meet all of the criteria of the defined BOK. In a nutshell, this means more schooling of some sort for the civil engineer that can be a Master's degree or the equivalent course work.

Fortunately, it is well understood that this process will take somewhere between 10 and 20 years to implement. My bet is on the latter. This will involve getting the Accreditation Board for Engineering and Technology and all of the state licensing boards — the National Council of Examiners for Engineering and Surveying — to accept the recommendations. It will also involve an implementation phase of grandfathering in all of the current licensees who have been through the current process of obtaining a license. This is an issue not likely to go away and the involvement of the breadth of the grassroots membership of the ASCE is absolutely necessary so that the resulting civil engineering education requirements that evolve are something that is feasible, practical and concisely meets the needs of the practicing civil engineer.

In closing, I would like to express my personal thanks to the Board for all of its hard work and dedication provided this year. It takes a lot of time and energy to commit to — and serve effectively on — the Board, and meet employment and family responsibilities. The involvement of everyone has been and is extremely important, and I know that balancing priorities around these often equally important responsibilities is not an easy task.

My experience on the Board over the last several years convinces me that the different voices and opinions of the Section membership expressed in the many ways suggested earlier allow the Board to understand and act in a manner that is most consistent with — and to the benefit of — all of the members. Through this message, I wish to personally thank you for allowing me the privilege to serve as your president. It has been a great year and a rewarding journey for me serving you on the Board over the previous years and I look forward to continuing my service in the ASCE.

About the cover: *The LSU ASCE Student Chapter concrete canoe competition team launches its competition canoe during the regional competition as part of the 2004 Deep South Conference hosted by the University of Mississippi on its campus in Oxford, Mississippi. The Chapter, whose news and activities are featured in this issue, placed a respectable second in the regional concrete canoe competition.*

Louisiana's experience with commercial truck operations

By Stephen W. Glascock, PE

When you have driven past some of the truck weight enforcement scales on the various Interstate highways in Louisiana, have you noticed recent changes in their roadside facilities? If so, you have probably noticed mounted off of the shoulder

- a series of new signs
- large poles with mast arms that extend over the roadway
- electronic message boards that flash messages to truck drivers and
- closed circuit television cameras.

There are other more subtle changes you may have also noticed.

The installation of this equipment is part of a comprehensive program spearheaded by the Louisiana Department of Transportation and Development (DOTD) that is designed to more effectively serve the commercial truck fleet that travels on Louisiana's Interstate highways. These outward changes reflect the implementation of related technologies that will effect substantial increases in the operational efficiencies of the DOTD in cooperation with other state and federal agencies, and of the motor carrier industry. In addition to operational efficiency the implementation of the new technologies is also making travel on the Interstate highways in the vicinity of the truck weight enforcement scales safer.

Problem with trucks

When is the last time you noticed the number of large commercial trucks that are traveling on the Interstate? The next time you are traveling on the Interstate — particularly on I-10, I-12 or I-20 — just count how many of them you see in a mile. There are more trucks than you would probably think. In fact, on some Interstate highway segments in Louisiana, nearly 3 out of every 10 vehicles are large commercial trucks. This has been the trend on the rural Interstate highway system across the country. This represents the nearly 40 percent growth in commercial truck traffic that has occurred in the last decade alone. Moreover, Louisiana ranks first nationally as having the highest proportion of large commercial trucks traveling on its state highway system other than its Interstate highway system.

The Interstate highway system provides the economic lifeblood of the United States in terms of the transportation of goods. In Louisiana, this is especially true given the presence and strength of its chemical and petroleum industries and the international traffic. The service the Interstate highway system provides the motor carrier industry is not only critical to the success of the industry, but also to Louisiana's economic structure that has become increasingly dependent on reliable, just-in-time delivery of goods — a substantial contributor to the rapid increase in large commercial trucks on the highways. In Louisiana alone, nearly half of its exported goods are moved by truck.

With the recent unparalleled growth of commercial truck travel and the resulting dependency on a reliable transportation system (highways) came the need of the state and federal agencies to seek ways to alleviate the apparent operational and safety deficiencies created by the obstruction of traffic and the resulting congestion that was occurring at truck weight enforcement scales and ports of entry. Studies showed that wait times at some scales was in excess of 5 minutes per truck and nearly 20 percent of the truck-related accidents being reported were due to the backups experienced at the truck weight enforcement scales using static weighing technology.

It has been publicized that the cost for such accidents in Louisiana runs into the billions of dollars with 1 out of 8 traffic fatalities involving a collision with a large commercial truck. In 2001, nearly 8 out of 10 of these fatalities in accidents involving large commercial trucks were the occupants of the smaller vehicles. Recognizing the serious need to increase both operational efficiency and safety of the large commercial truck fleet, and to preserve the integrity of the nation's highways by effective truck weight enforcement, the U.S. Department of Transportation began pursuing research efforts in the mid-1980s to ease congestion at the Interstate truck weight enforcement scales and to do so by investing in technology.

History

Since the late 1980s and through the early 1990s, the DOTD has been one of the pioneer agencies in the effort to implement advanced technologies aimed at streamlining commercial trucking operations through the services they deliver to the motor carrier industry and the public. This process began with early research and planning through the *Intelligent Vehicle Highway Systems* (IVHS) initiative that preceded the *Intelligent Transportation Systems* (ITS) program and was sponsored by the U.S. Department of Transportation and the Federal Highway Administration.

The DOTD and other state agencies,

- Department of Public Safety,
- Department of Revenue and
- Public Service Commission,

presumed with some confidence that legally loaded and credentialed trucks could be weighed and identified on the fly allowing them to bypass the static scale and/or inspection at the weigh station — also referred to herein as a scale house — located off the mainline roadway on the truck weight enforcement scale site. This could be accomplished by employing state-of-the-art technology on the highways, specifically at truck weight enforcement scales through the use of *weigh-in-motion* (WIM) and *automatic vehicle identification* (AVI) truck sorting systems. This ability would save significant time, improve safety, and promote economic growth through the efficiencies gained. Such automated systems that sort out the potential violators also give state enforcement agencies the ability to better concentrate their limited resources where they are most needed.

In the mid-1990s the DOTD built the first WIM facility in Louisiana on the I-12 truck weight enforcement scale site near Baptist just west of the I-12 interchange with I-55 as shown on the map in Figure 1. Soon after the Baptist scale went into service, the second WIM facility was built on the I-20 truck weight enforcement scale site near Greenwood located west of Shreveport as shown on the map in Figure 1. Since operations began at these truck weight enforcement scales in the late 1990s, over 15 million large commercial trucks that were within Louisiana's statutory legal weigh limits have been allowed to bypass these scales at the prevailing highway speed.

Beyond the WIM technology for weighing trucks, public-private partnerships for using AVI technology were being established with the state departments of transportation during the mid-1990s to improve administrative and operational efficiencies of the motor carrier industry. One such partnership was established in 2001 between DOTD and the Heavy Vehicle License Plate, Inc. (HELP) Board to implement the

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Stephen W. Glascock earned his BS degree in civil engineering from Louisiana State University in 1987 and his MS degree in civil and transportation engineering from Texas A&M University in 1991. Glascock is a licensed engineer in Louisiana and a certified professional traffic operations engineer. He is currently employed by the Louisiana DOTD and serves as its Administrator of the Traffic Operations Section overseeing statewide operation and maintenance of traffic signals on the state highway system, traffic signing and pavement markings on the Interstate system, and the DOTD telecommunications and intelligent transportation systems program. Prior to employment with the DOTD, Glascock was employed in private practice and with the East Baton Rouge City-Parish DPW where he was responsible for transportation planning and traffic engineering work.

PrePass AVI system at each of the truck weight enforcement scales located on the Interstate highway system in Louisiana. The mission of HELP in concert with DOTD is to develop and deploy technologies that create a cooperative operating and regulatory environment that improves the efficient and safe movement of commercial trucks and the performance of the highway transportation network as a result. Participating trucks are pre-certified in the *PrePass* program. The motor carrier's safety record and credentials are routinely verified with state and federal agencies responsible for their regulation.

HELP, through its contractor, ACS, Inc., began installing the *PrePass* AVI systems at each of the truck weight enforcement scales on the Interstate highway system in Louisiana in mid-2001 and the project was completed by mid-2003. Currently, HELP enrolls over 200,000 large commercial trucks in its PrePass program and it operates its *PrePass* AVI system on the 11 truck weight enforcement scale sites located on the Interstate highway system in Louisiana.

How the AVI and WIM work

The integrated AVI/WIM system operates in a series of three distinct *technology gauntlets* that stretch approximately 1/2 mile upstream of a typical weigh station entrance or its exit gore as shown in the schematic provided in Figure 2. The first gauntlet of devices pictured in Figure 3 consists of

- a WIM scale
- an axle sensor
- a height sensor
- a closed circuit television camera and
- a pole-mounted advance AVI antenna.

The second gauntlet of devices pictured in Figure 4 is located approximately 1,000 feet upstream of a typical weigh station entrance. They include

- changeable message signs
- loop sensors that trigger the changeable message sign
- closed circuit television camera, and
- a pole-mounted in-cab notification AVI antenna.

The third gauntlet of devices pictured in Figure 5 is located at the weigh station entrance. They include

- loop sensors
- closed circuit television camera and
- a pole-mounted compliance AVI antenna.

As a truck enters the first gauntlet, it passes over the WIM scale in the road as shown in Figures 6 and 8 and underneath the advance in-cab AVI reader (receiver) antenna. The truck's axles are weighed and its axle spacings are measured. From this, the steering axle, tandem axle and gross truck weights; their corresponding legal weights, and vehicle classification are determined. The maximum height of the truck is measured and a video picture of the truck is taken. The in-cab transponder signal is read by the advance AVI reader antenna, that includes an identification number to verify motor carrier, the truck, and driver safety credentials in the *PrePass* system database. As the truck proceeds downstream, its height, weight and credentials are processed and compared with authorized/legal limits and rules to determine if it is eligible to bypass the weigh station for a more accurate static scale weight and/or an inspection. The credentials verification performed by the *PrePass* AVI system and its database are for the following programs:

- temporary operating permits
- hazardous materials permits
- international registration plan administered by the Department of Public Safety, Office of Motor Vehicles (interstate and intrastate motor carrier registration)
- international fuel tax agreement, administered by the Department of Revenue (national fuel tax database for motor carriers)
- single state registration system, administered by Public Service Commission (licensing of trucks traveling across multiple jurisdictions) and
- international safety screen, administered by Department of Public Safety, Office of the State Police (safety rating of the truck and driver)

The *PrePass* AVI system obtains information concerning these different programs from the responsible state agencies noted and updates its records on the database monthly.

Once a screening decision is made for the truck, the results are transmitted back to the roadside. As the truck enters the second gauntlet, it passes over the loop detector that activates the changeable message sign as shown on Figure 7 with the appropriate message displayed — *TRUCK OK TO BYPASS WEIGH STATION or TRUCK MUST EXIT TO WEIGH STATION.* Also, the in-cab notification AVI reader (receiver) and transmitter antenna identifies the truck and transmits the same message to the in-cab transponder in the form of a green light and a tone signal to bypass the weigh station or a red light and different tone signal to pull in to the weigh station.

As the truck enters the third gauntlet at the weigh station entrance or its exit gore, a closed circuit television camera makes an image of the truck and the AVI reader (receiver) and transmitter antenna identifies the truck and transmits the screening decision message again to determine if the truck is complying with the message.

The WIM system is owned exclusively by the DOTD and the AVI system is owned exclusively by HELP. However, the weight enforcement personnel manning the truck weight enforcement scale monitor and control both systems.

Technology

WIM systems

The WIM technology available has been proliferating over the past 10 years and simulta-

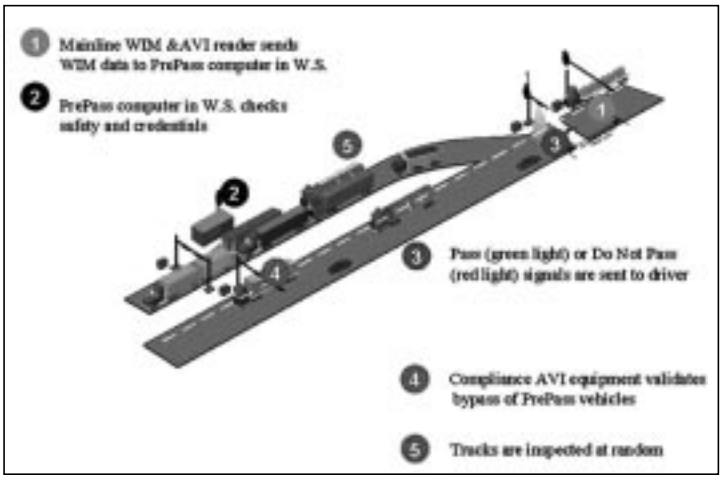


Figure 1 (left). Map of Louisiana showing the locations of the truck weight enforcement scales on the Interstate highway system that have AVI systems and existing or planned WIM systems.
Figure 2 (above). A schematic diagram showing the location and the components of the three technology gauntlets for the WIM and AVI systems and a brief explanation of their functions.

Figure 3. This view of the first technology gauntlet from the shoulder of the opposing roadway shows from the left pole-mounted closed circuit television cameras, the over height vehicle detector

Figure 4. This view of the second technology gauntlet from the median shows from the left the in-cab notification antenna and wireless communication antenna cantilevered over the roadway, 2 pole-mounted changeable message signs, and a pole-mounted closed circuit television camera.

Figure 5. This view of the third technology gauntlet from the median shows from the left the compliance AVI antennae and the wireless communication antenna cantilevered over the roadway, and a pole-mounted closed circuit television camera.

neously, the equipment has become more reliable and accurate. The WIM systems come as a package that can collect data such as truck weight, volume, speed, load distribution, and height and length. With changeable message signs in the AVI system present to communicate with truck drivers, the trucks for all practical purposes can be sorted instantaneously and properly routed through the truck weight enforcement scale site based on this data collected and compared at the prevailing highway speed. The functioning components of the WIM system package are

- *vehicle classification detector* — inductive loops and piezoelectric sensors to measure axle spacings to classify the trucks and determine the maximum legal weights governed by the AASHTO Bridge Formula.
- *over height truck detector*
- *WIM detector*
- *changable electronic message board* — instructions to truck drivers
- *sorting decision algorithm* — instruction to either enter or bypass the weigh station
- *tracking and violation detectors* — locates trucks in the scale area using the closed circuit televion cameras and inductive loops and issues instruction to enter the weigh station if the truck is not in the outside lane or mis-weighed and
- *operator interface* — the computer, monitor, and printer in the scale house.

The WIM scale can be located either on a ramp off of the mainline roadway or they can be located in the outside lane on the mainline roadway. Truck speed on a ramp is typically maintained at 45 mph or less while truck speed on the mainline highway is the prevailing highway speed. The DOTD does not currently operate a WIM system on a ramp and thus ramp-sorting applications are not discussed.

There exist 3 primary types of WIM system technologies that can be used on the mainline roadway. They are

- piezoelectric
- bending plate and
- load cell.

The pertinent differences between these technologies are in their

- accuracy
- durability and
- cost.

A piezoelectric sensor is a piezoelectric cable that is placed transverse to the flow of traffic on or in the pavement. It estimates truck weight and/or presence by producing an electrical charge in response to the pressure sensed from each axle as it passes over the sensor. A bending plate sensor is a steel plate embedded in the pavement, supported on its edges and oriented transverse to the flow of traffic. It estimates truck weight by the measured strain and/or deflection in the bending plate in a proportional response to the weight of each axle that passes over it. A load cell sensor uses a steel plate embedded in the pavement and supported on hydraulic cells. It estimates truck weight by the proportional hydraulic pressure induced in the hydraulic cells in response to the weight of each axle that passes over it.

(Continued on Page 24)

News from the Branches

BATON ROUGE

By David M. Burkholder, PE, President

Looking ahead to the upcoming mayoral election in Baton Rouge this fall, the Branch has been actively involved with several other engineering and construction organizations who are planning to sponsor a candidate's forum focusing on infrastructure issues. The initial planning meeting was held in late June to decide on the length and format of the program, develop the questions to be posed, and discuss the method of cost sharing among the sponsors.

The three announced mayoral candidates have been contacted, and they have expressed interest in participating. The forum is scheduled for August 10, 2004 between 6:00 pm and 8:00 pm in the C.B Pennington, Jr. Conference Center in Baton Rouge. With the Branch, the sponsoring organizations are

- the Louisiana Engineering Society
- the Louisiana Society of Professional Surveyors
- the American Council of Engineering Companies of Louisiana
- the Concrete & Aggregates Association of Louisiana
- the Louisiana Asphalt Pavement Association and
- the Louisiana Associated General Contractors.

Recent Branch membership meetings and luncheons have featured speakers from state and local government, and academia. They covered a variety of timely topics. Baton Rouge Mayor-President Bobby Simpson outlined the accomplishments of the Baton Rouge City-Parish government over the last few years during the April membership meeting. He also highlighted the geographic information systems capabilities now available to the public through the Internet and he fielded questions concerning infrastructure needs and other current issues.

In May, George Voyiadjis, Department Chair of Civil and Environmental Engineering at LSU, discussed the need for graduate education as a requirement for professional registration. He described a new professional master's program being actively developed at LSU for this purpose.

The use of reformulated gasoline in the five-parish capital area mandated by the U.S. Environmental Protection Agency was the topic of discussion during the June membership meeting. Bob Hanna of the Louisiana DEQ described the state's ongoing efforts to obtain a waiver to this mandate. He provided some of the details about air quality compliance standards, the sources of air pollution — particularly ozone — and how it is measured. Hanna explained the progression of penalties that are imposed for non-compliance and that ultimately led to the EPA mandate.

ACADIANA

By John E. Bosch, Jr., PE, President

I hope everyone has enjoyed the summer. Typically, the summer months give the Branch Board members a break and this year was no different. After the enjoyable summer respite, the Board members are eagerly anticipating an exciting year planned for the Branch.

This year the Branch will be host for the Section's Annual Spring Meeting and Conference — a substantial commitment. The Branch Board hopes to plan and build on the success that the Branch had the last time it hosted the Conference.

On behalf of the Branch, I wish to congratulate E. Ray DesOrmeaux, PE who accepted the responsibility to serve the Section by placing his name in nomination for the office of Secretary. Ray was elected to the office during the Section Annual Spring Meeting and Conference hosted in Shreveport by the Shreveport Branch. When he assumes his duties on the Section Board, I am confident that Ray will reasonably ensure that the Branch continues to be well represented in — and contributive to — the Section's activities and operations.

Also on behalf of the Branch, I wish to congratulate Patrick J. Landry, P.E. who was nominated for a second 2-year term as a Director-At-Large on the Section Board. He was subsequently elected to serve in this office and I am also confident that Pat will continue to be an effective representative of the Branch and the Section.

Finally, I hope that all of you have had a safe and enjoyable summer. We look forward to your participation in the planned activities of the Branch during the approaching new administrative year. With the anticipated substantial need for leadership in the Branch activities planned this administrative year, I wish to encourage the Branch members who have the interest and the willingness to volunteer to serve to contact a member of the Branch Board to discuss the possibilities.

SHREVEPORT

By C. Eric Hudson, PE, President

As my term as your President comes to an end, this will be my last branch news entry and president's message to you so I will make it short. I would like to thank everyone in the Branch who provided their support and advice, especially the Branch officers who served with me throughout the years that I have served on the Branch Board in its various offices. Everyone has made this 4-year experience a memorable one. I have learned a tremendous amount about practical governance and administration in a democracy and I have had the opportunity to meet almost every civil engineer in northwest Louisiana and many others throughout the state. This has truly been an enjoyable experience for me and I wish to encourage any of you who have not participated in the ASCE locally to do so. Otherwise I believe that you will be missing a great opportunity and experience that will uniquely serve and enhance your career in ways you cannot imagine. Thanks again for the privilege and opportunity to serve you and I hope by your estimate that I have served you well.

For the Branch Board to better serve your needs, it is important that you communicate how you may be better served. Do you have any comments concerning the Branch and/or its activities? Do you wish to share some news with your fellow members in the Branch or in the Section? Are you interested in publishing an article in the newsletter? To get consideration for these and other interests, please feel free to contact any of your Branch officers.

The 6th Branch membership meeting of this administrative year was held in the facilities of the Petroleum Club April 16, 2004. The featured speaker was Greg Korbelic with Rinker Materials. He provided one of the best presentations on reinforced concrete pipe that I have ever attended.

The 7th and final Branch membership meeting for this administrative year was held at Olde Oaks Golf Course in conjunction with the annual Branch-sponsored golf tournament on June 2, 2004. This membership meeting featured a luncheon during which the newly elected Branch officers were installed into their elected positions. The 11, 4-member teams that participated in the golf tournament attended the membership meeting along with several other Branch members who came for the luncheon only to witness the installation of the new Branch officers. The newly installed Branch officers are

- Kirt M. Nixon, PE, President

From left Section President Barbara Featherston installs Branch officers Kirt Nixon, Ashley Spears, Elba Hamilton and Rusty Cooper.

Golf tournament participants pictured from the left are Kyle Hand with Hand Construction, Lisa Nichols, the Branch Secretary, Logan Hoover with Pintail Realty, Lloyd Hoover with Maxim Technologies and Gerald Adams with AAA Insulators.

From the left Justin Hadel with Camp, Dresser and McKee is pictured with Shreveport Mayor Keith Hightower and Ken Ante with the Mayor's office.

The Aillet, Fenner, Jolly and McClelland, Inc. team shown from the left are Mark Snow, Elba Hamilton and Matt Wallace.

- Ashley T. Spears, EI, President-Elect
- Rusty L. Cooper, EI, Secretary
- Elba U. Hamilton, EI, Treasurer
- C. Eric Hudson, PE, Past President

The 2004 annual Branch Spring golf tournament was very successful and the preliminary accounting indicates that the Branch will be able to fund two scholarships of $500 each to Louisiana Tech civil engineering students this year. The team results of the golf tournament are:

First Place — Balar 59
- J. Hagan
- J. Mitchell
- D. Freeman
- M. Gibson

Second Place — MAXIM 60
- G. Adams
- C. Hand
- B. Hand
- L. Hoover

Third Place — Fenner Consulting 64
- G. Fenner
- B. Stampley
- E. Elberson
- M. Hitchcock

Fourth Place — CenturyTel 64
- B. Smith
- L. Parratt
- R. Pringle
- T. Miles

Fifth Place — Fenner Consulting 67
- E. Hudson
- J. Cottom
- M. Bullock
- J. Bennett

The longest drive award went to Mike Gibson and the closest to the hole award went to Robert Pringle.

Did you know . . .

... that according to the U.S. Bureau of Labor Statistics that the retirement of the estimated 138,000 baby boomers employed in engineering by 2010 will create an 11-year backlog of engineers to be replaced based on a continuing annual availability of approximately 12,400 engineering graduates (the size of the 2001 graduating class). As usual, this does not account for the trends in — and impact of — advancing technology and the changing roles in engineering practice that do affect demand.

...that the Leadership in Energy and Environmental Design program administered by the U.S. Green Building Council is promoting green development as economically compelling. However, despite proven energy savings, finance, design, construction and other industry experts note the failure to demonstrate the general economic benefits of building green. As an apparent result, only 2.3 percent of the 1.6 billion square feet of nonresidential projects that broke ground in 2002 sought certification from the private U.S. Green Building Council.

New York Times 1/15/03.

NEW ORLEANS

By Christopher G. Humphreys, PE, President

Branch business continued through the summer with the May Branch membership meeting held at Andrea's Restaurant in Metairie. A slate of Branch officers was elected to serve on the Branch Board of Directors for the 2004-2005 administrative year. The officers elected include

- Deborah D. Keller, PE, President
- William H. Sewell, Jr., PE, President- Elect
- Christopher L. Sandez, EI, Vice President
- Ronald L. Schumann, PE, Treasurer
- Nathan J. Junius, EI, Secretary
- Benjamin M. Cody, PE, Director
- Mohammad Tavassoli, PE, Director
- Christopher G. Humphreys, PE, Director and Past President

The June membership meeting held at Bravo's Restaurant in New Orleans was our annual awards meeting where life members and outstanding civil engineers in the Branch were recognized. On behalf of the Branch, I would like to thank the awards committee for their work on this year's program. Special thanks go to Angela DeSoto Duncan, PE, for her work throughout the awards selection process and presentation of the awards at the meeting. Thanks go to the Younger Members committee, and in particular Nathan Junius, Ben Cody and Chris Sanchez, for their outstanding job collecting the biographical information of the award winners.

The New Orleans Branch is fortunate to have many outstanding engineers among its members who have truly contributed to the advancement of the civil engineering profession and the ASCE. For example, there were 2 former presidents of the ASCE national organization present during the meeting. They are Thomas L. Jackson, PE and Walter E. Blessy, PE — both of whom were recognized for their contributions and Tom Jackson was also presented a plaque in recognition for his service to the ASCE and recognized as a Life Member.

The Branch award winners recognized were

- Christopher L. Sanchez, EI, Outstanding Young Civil Engineer
- David A. Wagner, PE, Outstanding Government Civil Engineer
- Ralph W. Junius, Jr., PE, Outstanding Civil Engineer
- Herbert J. Roussel, Jr., PE, Lifetime Achievement and
- Norma Jean Mattei, PE, President's Medal.

In other business of the Branch, work continues on the Louisiana Civil Engineering Conference and Show sponsored jointly by the Branch and the Louisiana Chapter of the American Concrete Institute. This year's conference is scheduled for September 9 and 10 at the

(Continued on Page 21)

Branch President Chris Humphreys presents commemorative plaque to Tom Jackson for his service as President of the ASCE.

President Humphreys presents plaque to Chris Sanchez recognizing him as the Outstanding Young Civil Engineer of the Branch.

President Humphreys presents plaque to David Wagner recognizing him as the Outstanding Government Civil Engineer of the Branch.

President Humphreys presents plaque to Ralph Junius recognizing him as the Outstanding Civil Engineer of the Branch.

Student Chapter News

LSU

By Mike Viviano

In May, the Chapter elected new officers for the 2004 — 05 school year. They are as follows:

- Michael Viviano, President
- Jason Duhon, Vice President
- Liz Holloway, Secretary
- Misty Daigle, Treasurer
- Garrett Suttley, Fund-raising Chair
- Jen DeHay, Community Service Chair
- Jason Duhon, Steel Bridge Co-Chair
- Anna Wheeler, Steel Bridge Co-Chair
- D. J. Hymel, Steel Bridge Co-Chair
- Duy Nuygen, Concrete Canoe Co-chair, and
- Jen DeHay, Concrete Canoe Co-chair.

These officers hope to bring the Chapter and the Department of Civil and Environmental Engineering to a new level of student interest and activity by getting new students involved early in engineering through Chapter activities.

The Chapter will begin a new outreach program to help raise awareness in the high schools around the state informing prospective civil engineering students of the opportunities in civil engineering at LSU. To accomplish this goal in part, the Chapter will be hosting a new statewide competition that will get high school students involved in projects designed to open their imagination and understanding to the possibility of a career in civil engineering.

This summer the Chapter is participating in the new student orientation to convey the myriad benefits of a career in civil engineering and being a member of the Chapter. The Chapter also plans to be involved in many community service projects throughout the upcoming year. Some of these include

- a Thanksgiving food drive
- Toys for Tots, and
- Habitat for Humanity.

With these new programs, the Chapter hopes to expand its influence in the community and bring a larger influx of students to — and interest in — the Department of Civil and Environmental Engineering at LSU.

The LSU ASCE Student Chapter steel bridge competition team poses with the assembled competition bridge.

Steel Bridge Competition

The Chapter's Steel Bridge Team recently competed in the National Steel Bridge Competition in Golden, Colorado, after taking first place at the regional competition held by the Deep South Conference of student chapters hosted by the University of Mississippi in Oxford, Mississippi. The team, consisting of Chapter members, began work on the competition bridge in September 2003. After months of planning and fabrication, the team spent many hours practicing assembling the bridge. Special credit has to be given to a few people who spent much of their free time for the past 2 semesters designing and building the competition bridge. They are

- David Godbold
- Jason Duhon
- Shane Sterba and
- Dennis Hymel.

Their combined effort totaled over 1500 hours of design and fabrication.

During the regional competition the team and the competition bridge performed very well placing first in the overall competition by nearly doubling the score of the second place team. At the national competition LSU placed 15th overall out of the 45 teams that competed. The competition bridge weighed 176 pounds and its aggregate deflection under load was only 0.72". The team hopes to improve their ranking next year and will begin the design of a new competition bridge in the fall when the new rules arrive.

The Chapter's Steel Bridge Team would like to thank all of the businesses and individuals that contributed to its success. It would also like to express appreciation to the faculty of the Department of Civil and Environmental Engineering for its help and support.

The LSU ASCE Student Chapter steel bridge team members participating in the proof loading of their competition bridge.

Part of the LSU ASCE Student Chapter concrete canoe team preparing for a racing event during the regional competition in Oxford, Mississippi.

Highlights of the May Board of Directors meeting

There is mounting concern that there may be a growing negative attitude toward Section level service and more particularly toward the service in its positions of elected leadership. The suspected problem is in two forms. First, there has been recent inattentiveness on the part of some of the Section's elected officers and directors exhibited by their failure to regularly attend Board meetings to conduct the business of the Section. Second, there have also been problems identifying and recruiting nominees who are enthusiastic to serve effectively in the elected offices on the Board if they are elected.

The source of the nominees for the Section level elected offices is typically the experienced branch level leaders who have recently served in the elected leadership. This along with the particular concern that there are some in the branch leadership who have openly expressed disregard for — and/or objection to — the Section as a superior component in the ASCE organizational structure led to open discussion.

The leadership of the larger branches question whether their branch should be subordinated to a section considering the size of their branch, its extensive membership participation, and its relatively substantial income generated independently of the Section. This attitude may explain some of the inattentiveness and disinterest experienced among some of the Section's leadership.

An opposite attitude was generally sensed among the leadership of the smaller branches. Their members tend to value section support and leadership because of the broader representation their interest receives through the Section Board. However, the same inattentiveness and lack of enthusiasm has been experienced recently to some degree with the section elected leadership from the smaller branches.

It was noted that there is great value in an open, honest assessment of one's own values, priorities and willingness to honor a commitment to volunteer service and then to effectively serve once the commitment is made. Some view the quality of their services rendered whether volunteered or paid as a reflection on their personal and professional integrity. This integrity would also include having the courage not to make a commitment when there is no intention or commitment to honor it and to resign in a timely manner from a commitment if the conditions change in one's personal circumstances that impairs the ability to serve effectively.

It was noted that in the distant past the Board acted to remove an officer for failure to execute the duties of his office. With this precedent, the process was encoded in Article III, Section 4 of the Section's Bylaws giving the Board the prerogative to remove a member for poor performance. To preserve effective leadership at the Section level, it is ultimately the obligation of the Section's members to seek service and enthusiastically serve, the Nominating Committee to nominate candidates who are enthusiastic and experienced, and the Board to establish a baseline of expectations for its officers and directors, evaluate their performance, provide active feedback and initiate appropriate action when necessary.

District 14 Council was advised by the national leadership to support a national dues increase of between $5 and $10 per year or the State Public Affairs Grant program would be discontinued. The Council voted to support a national dues increase of $5 per year.

The progress made in evaluating the future of the Section's website was presented. The importance and the desirability of the Section's commitment to a high quality website was reiterated. To achieve this goal the services required should be contract services with a vendor that is a business entity and that is more likely to provide a stable service as opposed to that of the services of an individual contractor or a volunteer webmaster from the membership. It was noted that the Louisiana Engineering Society pays a monthly fee of $200 for contract services provided by Gator T, Inc. Gator T maintains and services the LES website and this site is generally deemed to be of the quality that the Section is seeking. The hourly rate charged by Gator T for service to the website was $50 per hour. The Board approved the hiring of Gator T to update and maintain the Section's website. This includes the authorization to spend up to $500 for the initial work required and up to $200 per month thereafter. This cost is partially defrayed by the cost of the discontinued toll-free telephone line the Section had previously maintained.

A partial historical listing of the previous recipients of Section awards was developed by Kim Martindale and distributed to the Board. It was suggested that the most direct and reliable source of historical information about the awards and their recipients was the minutes of the Section Board meetings. Some Board members were apparently unaware that the preservation of the historical minutes of the Board is required and that they are available — a small breakdown in corporate memory.

The Board approved the continued collection of the Section dues by the national ASCE as part of the national dues billing. The ongoing national initiative to make section dues mandatory rather than voluntary was discussed. There are concerns about the significant variation in dues rates from section-to-section and the potential loss of ASCE members who are not interested in Section activities and services. It was questioned what portion of the Section's membership currently paid their voluntary Section dues. Overall approximately 60 percent of the Section's members pay their dues. The following is the number of members who paid Section dues versus the

(Continued on Page 21)

- Career Benchmarks -

Gerard S. Satterlee, Jr., P.E.

Recently named Engineering Manager for the New Orleans office of C. H. Fenstermaker & Associates, **Gerard S. (Gerry) Satterlee Jr.,** PE, brings extensive experience in the study, planning, design, and management of civil works projects in the Louisiana area. This experience was gained during his 34 years of service in the New Orleans District of the U.S. Army Corps of Engineers in various design and management positions that culminated as the Chief of Engineering Division prior to his retirement.

Section member **Malay Ghose Hajra,** PE, recently earned his civil and/or environmental engineering license in Louisiana. If you are in contact with him, please offer him your congratulations on his accomplishment.

Louisiana residents, **Khalid A. Alshibli,** PE, **Roger A. Bantz,** PE, **Robert M. Isemann,** PE, recently earned their civil and/or environmental engineering license in Louisiana and are not members of the ASCE. A copy of this issue of the journal is sent to them as an informal introduction to the Section. If they wish to join and/or find out more about the ASCE, they are hereby encouraged to visit the ASCE national website, http://www.asce.org. If you are in contact with any of these engineers, please consider formally introducing them to the Section by inviting them to attend a branch meeting as your guest.

Editor's note: As a matter of interest, there are two other disciplines that are now licensed by the Louisiana Professional Engineering and Land Surveying Board and that may be considered closely related to civil engineering as is the environmental engineering discipline. They are the architectural and structural engineering disciplines. As of January 2004, there were 0 and 55 licensees registered with the Board in these two engineering disciplines respectively.

2004 Louisiana Civil Engineering Conference and Show

Pontchartrain Center • September 9-10, 2004 • Kenner, Louisiana

Announcement

Presented by the New Orleans Branch and the American Concrete Institute Louisiana Chapter this year's Louisiana Civil Engineering Conference and Show features

- on-line information and updates about conference events
- convenient payment with a credit card through our web site
- expanded trade show exhibition space and
- numerous professional development and educational seminars.

Conveniently register on-line with a credit card at www.cpdseminars.com. If you register before August 13 you will get an early registration discount!

The Louisiana Civil Engineering Conference and Show continues to be the paramount industry event in Louisiana for everyone involved in civil engineering. This 2-day series of technical sessions accented by trade show exhibits and networking opportunities is an outstanding professional development package that includes up to 11 professional development hours available. The full registration for the reasonable price of just $130 with the early registration discount includes the 2 days of informative and educational technical sessions that are available in three concurrent tracks from which to choose; and on-site breakfasts, lunches and frequent breaks that maximize social interaction.

In conjunction with the Conference, the Louisiana Section will present awards and install its officers Friday night during its Annual Meeting and Banquet hosted by the New Orleans Branch. Enjoy an evening of good food and spirits at the New Orleans Country Club. Entertainment will be by Joe Simon's Jazz Combo. Attending this event requires a separate admission from the Conference and tickets must be purchased in advance. We look forward to seeing you at the 2004 Louisiana Civil Engineering Conference and Show.

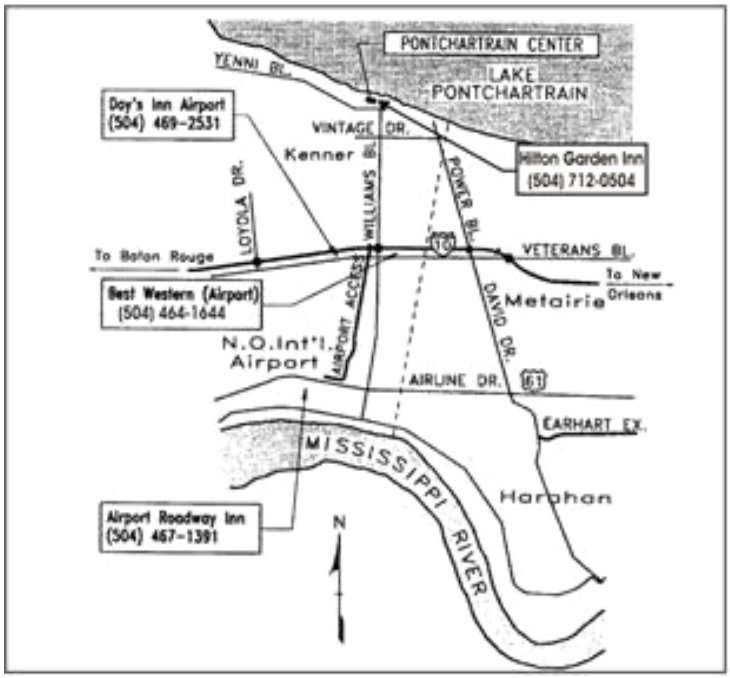
Conference Schedule at a Glance

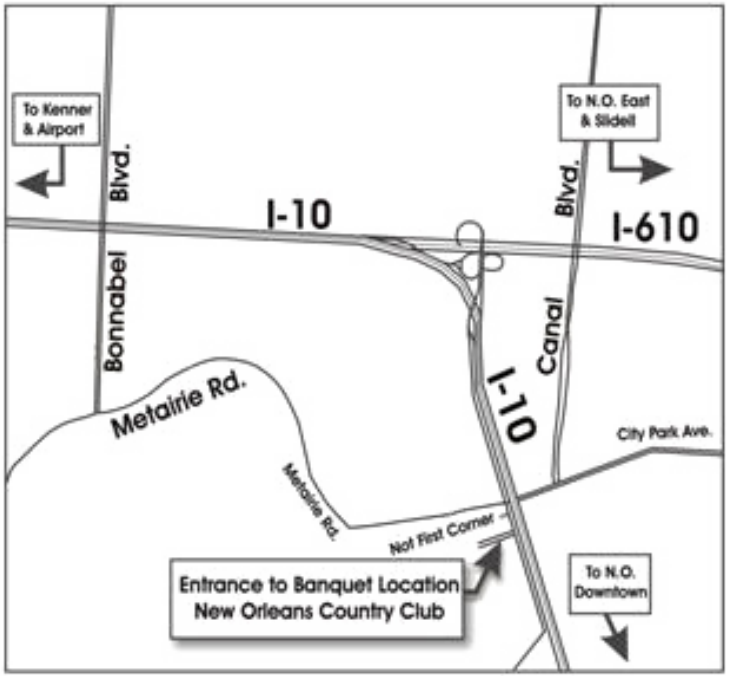
Thursday, September 9, 2004

7:30 am	Registration Opens
8:00 am	Exhibit Hall Opens
7:30 am — 8:30 am	Continental Breakfast in Exhibit Hall
8:30 am — 10:25 am	Technical Sessions
10:30 am — 10:55 am	Break in Exhibit Hall
11:00 am — 11:55 am	Technical Sessions
12:00 noon — 1:25 pm	Po-boy Lunch in Exhibit Hall
1:30 pm — 3:25 pm	Technical Sessions
3:30 pm — 3:55 pm	Break in Exhibit Hall
4:00 pm — 4:55 pm	Technical Sessions
5:00 pm — 7:00 pm	Icebreaker Social

Friday, September 10, 2004

7:30 am	Registration Opens
8:00 am	Exhibit Hall Opens
7:30 am — 8:30 am	Continental Breakfast in Exhibit Hall
8:30 am — 10:25 am	Technical Sessions
10:30 am — 10:55 am	Break in Exhibit Hall
11:00 am — 11:55 am	Technical Sessions
12:00 noon — 1:55 pm	Keynote Luncheon
2:00 pm — 3:55 pm	Technical Sessions
6:00 pm — 10:00 pm	Section Annual Meeting & Banquet New Orleans Country Club





Vicinity maps locating the Pontchartrain Center and the nearby hotels, and locating the New Orleans Country Club.

2004 Louisiana Civil Engineering Conference and Show
Individual Registration Form

Registration Information			
First Name	Last Name		
Street	City	State	Zip Code
Telephone	Facsimile	Email	

Badge Information (This is how your badge will appear.)			
Badge / First Name	Last Name	☐ PE ☐ PLS ☐ PhD	
		☐ EI ☐ AIA	
Company Name			

Individual Registration	Total
Full Registration: ☐ **Professional - $ 175** ☐ **Student / Retired - $ 100** Includes seminars, exhibits and luncheons for one attendee for two days. (Thursday Lunch: Poboys)	$
Friday lunch: Grilled chicken with jumbo BBQ shrimp; a vegetarian plate is available on request at registration desk.	
Thursday Only: ☐ **Professional - $ 125** ☐ **Student / Retired - $ 80** Includes seminars, exhibits and lunch for one attendee on Thursday.	$
Friday Only: ☐ **Professional - $125** ☐ **Student / Retired - $ 80** Includes seminars, exhibits and Keynote Luncheon for one attendee on Friday.	$

Early Registration Discount (Applies only to individual registration.)	
Register prior to August 13, 2004 and receive this discount on an individual registration. To qualify for an early registration discount, register on line or registration must be postmarked by August 13, 2004.	**– $ 45.00**

Louisiana Section Annual Meeting and Banquet Registration		
New Orleans Country Club	**Friday, September 10, 2004**	**6:00 pm to 10:00 pm**
Quantity: _____ × $ 40 each =		$
Spouse / Guest Name: _____		
Entree Choice # 1 (registrant): ☐ **Chateaubriand** ☐ **Trout Meuniere** ☐ **Vegetarian**		
Entree Choice # 1 (spouse/guest): ☐ **Chateaubriand** ☐ **Trout Meuniere** ☐ **Vegetarian**		

Subtotal: $

Visit our website for more information and the speaker list
www.cpdseminars.com
Register on-line with a credit card.

(Continued on next page.)

2004 Louisiana Civil Engineering Conference and Show
Sponsor Registration Form

Sponsor Information			
Sponsor Name (Full company name as it should appear on the Conference program.)			
Street	City	State	Zip Code
Telephone	Facsimile	Email	

Sponsor Level	
Gold ☐ **1st Registrant - $ 400** ☐ **2nd Registrant - Free** Includes two full registrations and recognition as a sponsor at the Conference.	$
Silver ☐ **1st Registrant - $ 250** Includes one full registration and recognition as a sponsor at the Conference.	$
Bronze ☐ **- $ 100** Includes recognition as a sponsor at the Conference.	$

Badge Information (**Two** provided with a gold and **one** with a silver sponsorship. This is how the badge(s) will appear.)

First Name / Badge Name	Last Name
☐ **PE** ☐ **EI** ☐ **PLS** ☐ **AIA** ☐ **PhD**	
Company Name	

First Name / Badge Name	Last Name
☐ **PE** ☐ **EI** ☐ **PLS** ☐ **AIA** ☐ **PhD**	
Company Name	

Total Fees Remitted: $

Make checks payable to: **ASCE Louisiana Civil Engineering Conference and Show**

Mail completed form with payment in full to: **Sheila Plaisance**
118 Farman Street
Westwego, LA 70094

Visit our website for more information and the speaker list
www.cpdseminars.com
Register on-line with a credit card.

For additional conference information, please call Tom Smith @ (504) 836-2155.
For additional sponsorship information, please call Bill Gwyn or Lorraine Nicholls @ (504) 834-0157.

The Conference registration deadline is August 27, 2004. Conference attendance is limited to 500 registrants per day, therefore, any registration received after the deadline cannot be guaranteed. Registrations will not be processed without payment. Fees for registration and ticketed events are not refundable. In the event the Conference is cancelled due to circumstances beyond the control of the ASCE / ACI (such as a hurricane), the Conference will be rescheduled at the nearest available date without the refund of fees.

2004 Louisiana Civil Engineering Conference and Show
Technical Sessions Program

	Thursday, September 9, 2004 - Morning Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General Civil	**General Civil**	**General Civil**
Moderator	James R. Danner, Jr., PE	William W. Gwyn, PE	Allison J. "Sonny" Launey, PE
8:30 - 8:55 9:00 - 9:25	***Widening the Huey P. Long Bridge An overview*** William B. Conway, PE Modjeski and Masters, Inc. New Orleans, Louisiana	***How to conduct an effective pre-bid meeting.*** William J. Thomassie, PE Infinity Engineering Consultants, LLC New Orleans, Louisiana	***The advanced circulation model A design tool for hurricane protection*** Harley S. Winer, PE, Chief Coastal Engineering Section, and Alfred C. Naomi, PE, Senior Project Manager US Army Corps of Engineers, NO District New Orleans, Louisiana
9:30 - 9:55 10:00 - 10:25	***I-10 / Southern Railroad bridge underpass drainage pumping station*** Michael G Jackson, PE Executive Vice President Burk-Kleinpeter, Inc. New Orleans, Louisiana	**Charles W. "Buzz" Hair, III Memorial Presentation** ***Movements of structures on Louisiana clays*** Louis J. Capozzoli, PE Louis J. Capozzoli and Associates Baton Rouge, Louisiana	***Physical model feasibility study of sediment diversions in the Mississippi River delta region*** Shannon J. Dupont, PE Senior Staff Engineer Louisiana DNR Baton Rouge, Louisiana
10:30 - 10:55	**Morning Break**		
11:00 - 11:25 11:30 - 11:55	***Advancements in non-traditional concrete reinforcement*** Russell Collins Area Manager SI Concrete Systems Round Rock, Texas	***Determination of interaction between bridge concrete approach slab and embankment settlement with 3D finite element modeling*** George Z. Voyiadjus, Assistant Professor Louisiana State University Baton Rouge, Louisiana	***Advanced hydrologic prediction services National Weather Service products for the 21st Century*** David Reed Hydrologist in Charge National Weather Service Slidell, Louisiana
12:00 - 1:25	**Lunch**		
	Thursday, September 9, 2004 - Afternoon Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	Practice Issues	**Wind / Structural**	**General Civil**
Moderator	Norma Jean Mattei, PE	TBA	Deborah D. Keller, PE
1:30 - 1:55 2:00 - 2:25	***Engineering Ethics*** Thomas L. Jackson, PE Vice President, Chief Engineer DMJM+HARRIS, Inc. New Orleans, Louisiana	***Design considerations of wind borne debris*** Elizabeth English, Associate Professor LSU Hurricane Center Baton Rouge, Louisiana ***Design and construction standard for hurricane shelters*** Marc Levitan, Director LSU Hurricane Center Baton Rouge, Louisiana	***Update on the Southeast Louisiana Drainage Improvements*** Ann L. Springston, PE Project Manager Brown, Cunningham and Gannuch, Inc. New Orleans, Louisiana
2:30 - 2:55 3:00 - 3:25	***Legal developments in the field of engineering*** Richard King, Esq Attorney Galloway, Johnson, Tompkins, Burr and Smith New Orleans, Louisiana	***Analysis and retrofit of a hospital facility for use as a hurricane shelter*** James Gregg LSU Hurricane Center Baton Rouge, Louisiana ***Shelters of last resort for remote, highly exposed locations*** Carol Hill LSU Hurricane Center Baton Rouge, Louisiana	***Overview of hurricane protection projects at the US Army Corps of Engineers*** Peter R. Cali, PE Supervisory Geotechnical Engineer US Army Corps of Engineers - New Orelans District New Orleans, Louisiana
3:30 - 3:55	**Afternoon Break**		
4:00 - 4:25 4:30 - 4:55	***Order of the Engineer Ceremony*** Norma Jean Mattei, PE Associate Professor University of New Orleans New Orleans, Louisiana	***Wind loads on open-frame petrochemical structures*** Sam Amoroso LSU Hurricane Center Baton Rouge, Louisiana ***Safety of long span bridges under hurricane evacuation conditions*** Steve Cai, PE, LSU Department of Civil and Environmental Engineering Baton Rouge, Louisiana	***Maturity meters for any-time strength measurements on concrete*** Mark A. Cheek, PE Vice President Delta Testing and Inspection, LLC Gretna, Louisiana
5:00 - 7:00	**Icebreaker** Snacks and drinks are served in the Exhibit hall, Room MR - 2 & 3		

2004 Louisiana Civil Engineering Conference and Show
Technical Sessions Program (Continued)

	Friday, September 10, 2004 - Morning Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General Civil	**General Civil**	**Geotechnical**
Moderator	TBA	TBA	TBA
8:30 - 8:55 9:00 - 9:25	***Articulated concrete mattresses used for costal navigation channel bank protection*** Edmond J. Russo, PE Operations Manager, Operations Division US Army Corps of Engineers New Orleans District New Orleans, Louisiana	***Strut and tie modeling ACI 318 - Appendix A*** William E. Rushing, Jr., PE Waldemar S. Nelson and Company, Inc. New Orleans, Louisiana	***Negative skin friction and the analysis of pile downdrag*** Christopher L. Saucier, PE Eustis Engineering, Inc. Metairie, Louisiana
9:30 - 9:55 10:00 - 10:25	***Basics of pavement engineering*** Gary L. Mitchell, PE Director of Airports American Concrete Pavement Association Charlotte, North Carolina	***International Building Code 2000 and its impact on present design codes*** Subhash V. Kulkarni, PE, President Kulkarni Consultants, APC Metairie, Louisiana	***Groundwater control for civil engineering projects in alluvial sands*** G. Richard Bird, PE Senior Project Manager URS Corporation St. Louis, Missouri
10:30 - 10:55	**Morning Break**		
11:00 - 11:25 11:30 - 11:55	***Green design and airport energy master planning*** William A. Fife, PE Corporate Vice President, Director of Aviation DMJM+HARRIS, Inc. New York City, New York	***Negotiation skills for project management teams*** Robert Shearer, Professor, and Jeanne Maes, Professor University of South Alabama Mobile, Alabama	***Affects of earthquake and fault movements in Louisiana*** Sherwood Gagliano Consulting Engineer Coastal Environments. Inc. Baton Rouge, Louisiana
12:00 - 1:55	**American Concrete Institute Keynote Luncheon** Keynote Speaker: Johnny B. Bradberry, Secretary, Louisiana DOTD		
	Friday, September 10, 2004 - Afternoon Session		
	Mary Minor Room	Oakland Plantation Room	Esplanade Room
	General Civil	**Structural**	**Environmental**
Moderator	Mark H. Gonski, PE	Parmod M. Patel, PE	TBA
2:00 - 2:25 2:30 - 2:55	***The business of business ethics in engineering*** Ralph W. Junius, Jr., PE, President Linfield, Hunter and Junius, Inc. New Orleans, Louisiana	***The perfect fiber?*** Melvyn A. Galinat Fibrous Concrete Specialist SI Concrete Systems Mableton, Georgia	***Solid Waste landfills past, present and future*** Victor E. Donald, PE, Vice President Acquaterra Engineering, LLC Port Allen, Louisiana
3:00 - 3:25 3:30 - 3:55	***Fire Safety Code*** James R. Danner, Jr., PE Allison J. "Sonny" Launey, PE Denson Engineers, Inc. New Orleans, Louisiana	***Design of short span concrete slab bridges using AASHTO - LRFD*** Mike N. Plei, PE Manager of Transportation Structures Concrete Reinforcing Steel Institute Schaumburg, Illinois	***A challenging landscape: How the proposed "all appropriate inquiry rule" will affect the Environmental Site Assessment (ESA) marketplace*** David E. Lourie, PE, Consulting Engineer Lourie Consultants New Orleans, Louisiana
6:00 - 10:00	**Louisiana Section Annual Meeting and Banquet** New Orleans Country Club		

Note: Although the above seminar presentation have been confirmed, late changes may occur.
Please visit our website www.cpdseminars.com for up-to-date program information and online registration.

- Observation -

Education:

Columnist Robert Samuelson observed a recent move by an academician in journalism to expand the education requirements in journalism. The educator's justification for the need for more education and Samuelson's rebuttal may have a familiar ring to anyone following the action with regard to ASCE's policy statement 465. Samuelson noted:

Lee Bollinger... president of Columbia University... imagines himself as journalism's great redeemer... by overhauling... (the Columbus Graduate School of Journalism) ...and providing an inspiring example for everyone... He believes that most journalists should be credentialed by universities — a graduate process he suggests should be lengthened from one to two years. Journalism, he says, should be a profession — presumably like law, medicine or accounting...

...Journalism is best learned by doing it. Mostly, an aspiring reporter needs a job, preferably for an exacting editor... At best, journalism schools are necessary evils. They provide basic training... that most papers and broadcast stations won't.

Though the pursuit of the goals of policy statement 465 in the ASCE has more breadth of support in the civil engineering profession than one academician, the dialog supporting it sometimes has offered little more if not less in imagination. It has remarkably included some of the same lame reasoning to justify the policy statement. -Editor

Dues update

In anticipation of the annual dues collection process for the Section, the Board recently reviewed the Section's dues structure and briefly discussed the distribution of its income to the branches and student chapters in its boundaries. In the process, it was discovered that there was some confusion about the issue among the Board members. After this experience, it occurred to the Section leadership that it may be worth revisiting the ASCE dues structure and how Section revenues are dispensed within the Section and sharing it here with the Section's members who may be interested.

First, it is important to understand the ground rules. The ASCE is a *national* organization. This means that to be a *member* with any standing in the ASCE, one has to pay national ASCE dues. Once their annual national dues are paid members are *assigned* to the section where their address is located. If a member chooses to additionally pay the assigned section's *voluntary* membership dues, he/she becomes a *subscribing* member of the section with full privileges as a section member that include voting, holding office and participating in committees in the section. The 4 branches — Acadiana, Baton Rouge, New Orleans and Shreveport — are political subdivisions of the Louisiana Section. Though they could, they do not independently assess their members branch dues but share in the Section's income and their subscribing members are the Section's subscribing members.

Be aware this journal is sent to all of the ASCE members assigned to the Louisiana Section whether they are subscribing members of the Section or not. This journal has for some time been funded independently of Section dues income. That is, its costs are covered by the sponsor fees paid for the professional listings and the advertisements that appear herein. So all of the ASCE members assigned to the Section receive this journal compliments of its many sponsors.

After many years of collecting its voluntary membership dues by direct mail billing to each of its assigned members, the Section opted some years ago to allow the national ASCE organization to simultaneously bill its assigned members for their voluntary section membership dues at the same time the national dues are collected. The Section decides annually if it wishes to continue using the national ASCE billing services at no cost or to return to its direct billing that would cost more than $1000 a year excluding the substantial voluntary effort to prepare and dispatch the outgoing mail and manage the incoming mail, the accounting and the bank deposits. Clearly the national collection and distribution by contract is otherwise very efficient and a cost saving to all of the ASCE entities that use it.

At the same time the Section decides whether to continue using the national ASCE billing service, it reviews its dues structure relative to its income and other issues. At this time, the Section is in relatively sound financial condition. Fellow, Member and Associate Member grades pay the $20 Section dues to be a subscribing member of the Section. Student, Honorary and Life member grades are subscribing members exempt from paying Section dues. Several years ago, the Section Board opted to included a Section voluntary dues (not to be confused with membership dues) in its dues structure with a *recommended* amount of $25. This was ostensibly to give Life Members who have been active participants in the Section and relieved of the obligation to pay national ASCE dues an opportunity to contribute to the Section's continuing operation. This year, the Board decided to reduce the recommended amount for voluntary dues to $10 to see if it would draw a larger income from a broader volunteer base.

The principal sources of Section income are its voluntary membership dues, a modest allotment from the National ASCE and revenues from the sponsor fees for the journal that are generally a washout covering its publishing costs. The section allotment received is based on a formula accounting the number of subscribing members in a section, and the number of branches and student chapters it has. A requirement to receive the allotment is that a section and its branches must submit a standard form annual report to the national ASCE. By policy, the Section distributes all of its allotment income to its branches and student chapters and any portion of its remaining annual income declared a surplus at the end of the administrative year. The amount of the section allotment has not changed in decades. While once it was a very significant component of the Section's income, its value has declined due to inflation to where it is approximately 20 percent of the Section's total income and it has become an inadequate income to operate the branches that do not have some form of self-generated income from their activities.

Several years ago the Section led a failed national effort to have the section allotment from the national ASCE increased. The prevailing attitude was that the allotment should be considered a nominal portion of a section's income. The substantial part of an individual section's income should come from other sources such as voluntary section membership dues or self-generated income from section activities. It was observed that income varies significantly from section-to-section. For this reason, it was considered a more consistent approach for an individual section to raise the substantial portion of its income to provide services that are consistent with what its members expect.

As a compromise alternative to raising the section allotment, the national ASCE established the State Public Affairs Grant (SPAG) program. The goal of the SPAG program is "...to enhance the image of civil engineers as leaders and experts on America's vital infrastructure systems and to encourage advocacy on behalf of issues that are important to civil engineers." The program was established as a response to what the national ASCE described as the most-often-expressed top priority among individual ASCE members surveyed. Further, the SPAG program has often been touted as the most effective means devised thus far in meeting this goal. Since its establishment, its funding has been steadily reduced.

Current ASCE national membership dues are $185 a year for ASCE Members and there is a national ASCE initiative to increase them by $5 to $10. The District 14 Council reviewed the initiative during its last meeting. The Council was very pleased to be apprised in detail of the effort the national Board of Direction will give to assess the national budget problems that may justify a proposal to raise national ASCE dues and given the opportunity to offer an opinion and recommendation based on this apprisal.

The Council carefully reviewed in detail the same national budget information the Board of Direction was to review during its next scheduled meeting. On that basis, the Council passed a resolution in support of a $5 dues increase. The proposed balanced budgets developed are based on three income scenarios

- no dues increase
- a $5 dues increase and
- a $10 dues increase.

All 3 proposed budgets were balanced with 3 respective projected incomes. For the income with no dues increase, many line items in the current budget were either cut or eliminated including the SPAG program. For the income with a $5 dues increase, some current line items were restored including the SPAG program. For the income with a $10 dues increase, most of the current line items were restored.

Both Lou Aurigemma, Zone II Vice President, and Dennis Truax, District 14 Director, independently assured District 14 Council members that in their assessment the current ASCE budget has been thoroughly scrubbed. Clearly, the 3 budget scenarios are proposed and the Board may or may not select one of the proposals without revisions to the line item actions proposed.

The Section delegates endorsed the $5 national ASCE annual dues increase with the District 14 Council even though it could be viewed as a poor tradeoff for just retaining the SPAG program. As of this date, the Section has 943 subscribing members out of its total 1,472 members assigned. If the Section raises its dues by $5 rather than the national ASCE raising its dues, the Section would collect approximately $4,700. If national ASCE raises its dues $5 and retains the SPAG program it would collect approximately $7,400 from Section members and the Section would realize an annual income from the SPAG program of approximately $2,400 — the average of the past three years.

❖ Quote ❖

Innovation: *The most common reason that great ideas get lost is that people are too busy with "real work" to sponsor them... The ability to produce new and better ways of doing things (whether great or small) is the engine of wealth creation.*

- Ellen Flynn-Heaps, President
SPARKS: The Center for Strategic Planning

Order of the Engineer: Fostering Pride in Our Profession

By Norma Jean Mattei, PE

Most people are aware that many physicians take the Hippocratic Oath when they enter into the professional practice of medicine in which they swear to treat their patients to the best of their ability. Lawyers also take an oath after they pass the bar exam where the lawyer swears to maintain the confidence of the client and practice law in a professional manner. What about professional engineers? *The Order of the Engineer* fills this professional void for the professional engineer.

The Order of the Engineer is the roster of engineers in the United States who have participated in the *Engineer's Ring Ceremony* — a public initiation. The purpose of the Order is to stimulate the formal public recognition by engineers in the United States of two basic principles:

- the primary purpose of engineering is service to the public, and
- all members of the engineering profession share a common bond.

As a civil engineer, you should be clearly aware of the impact that the engineering profession has on all aspects of the quality of life for society today. Probably you go about your daily life, just doing your job. You do not take the time to reflect how much the public relies on civil engineers for clean water, good roads, sanitary conditions, safe buildings and bridges, for example.

Invitation

You are cordially invited to become a member of the Order of the Engineer by participating in the Engineer's Ring Ceremony to be held September 9th at 4:00 pm during the 2004 Louisiana Civil Engineering Conference and Show in Kenner as announced in this journal. There is a one-time initiation fee of $15 to cover the cost of a ring and a certificate. For the most current information about the Conference, please visit the website http://www.cpdseminars.com/hosted/lcecs/.

To qualify for the Order you must be a licensed professional engineer or a graduate of an ABET-accredited engineering program. Students enrolled in an ABET-accredited engineering degree program are also eligible if they are within two academic terms of graduation. Others may be eligible if their credentials are considered equivalent by the approval of the National Board of Governors of the Order.

Anyone may witness this public initiation ceremony. Family members are often invited as guests.

History

The Order of the Engineer was initiated in the United States to

- foster a spirit of pride, individual integrity and responsibility in the engineering profession
- bridge the gap between training and practice and
- present to the public a visible symbol identifying the engineer.

The first Ceremony was held June 4, 1970 at Cleveland State University. Other ceremonies like it have since spread across the United States. Qualified students, and licensed and graduate engineers are invited to participate in the Ceremony.

Engineer's Ring Ceremony

The Engineer's Ring Ceremony is the public initiation of candidates into the Order of the Engineer, during which they formally accept the *Obligation of the Engineer* and receive the Engineer's Ring — a stainless steel ring — to be worn as a symbol and reminder of their acceptance. The Engineer's Ring is worn on the fifth finger of the working hand.

Obligation of the Engineer

The Obligation of the Engineer is the formal statement of the responsibilities of the engineer to the public and to the profession. The Obligation is publicly accepted by an engineer in the induction during an Engineer's Ring Ceremony. The Obligation is similar to the Hippocratic *Oath* attributed to Hippocrates (460-377 B.C.) that sets forth an ethical code and is generally taken by medical school graduates. It is also similar to the *Creed* of the National Society of Professional Engineers and the *Canon* of the Engineers' Council for Professional Development — the antecedent organization of the ABET. Candidates who freely accept the Obligation, pledge to uphold the standards and the dignity of the engineering profession and to serve humanity by making the best use of the earth's resources.

The Obligation is also similar to the engineer's oath of the Canadian *Ritual of the Calling of an Engineer* initiated in Canada in 1926. Engineers when initiated in the Canadian ceremony receive a faceted ring during a private ceremony and accept its engineer's oath that is based on the writings of Rudyard Kipling. During the 1960s, engineers in Ohio unsuccessfully attempted to extend the Canadian ceremony into American engineering schools because it was prohibited outside of Canada by copyright law and some other conflicting factors.

The first Engineer's Ring Ceremony in the United States was conducted in 1970 by the students in the Fenn College of Engineering at Cleveland State University. In 1972, the Order of the Engineer was incorporated in Ohio, and tacit approval was obtained from the Canadian Wardens. The Order's national office remained in Ohio until 1987 when it was relocated to the United Engineering Center in New York City.

Organization

The Order of the Engineer is not a membership organization. There are no meetings to attend or dues to pay other than the one-time initiation fee. Instead, the Order fosters a unity of purpose and the lifelong honoring of one's pledge. Inductees are encouraged to wear the ring and to prominently display their signed Obligation certificate as visible reminders of their publicly accepted pledge as a contract with themselves.

The Order is governed at the national level by a National Board of Governors, composed of no fewer than 8 and no more than 21 engineers who serve 3-year terms. Its officers are a chair, a vice chair, a secretary, and a treasurer. The Board establishes policy, directs the national office, and charters *links* — the local components of the Order. The links are governed by local boards of governors and they are granted the right to conduct the Engineer's Ring Ceremonies.

Being independent, there is no formal connection between the Order of the Engineer and any other organization. However, the Order recognizes the accreditation of engineering programs by the ABET (Accreditation Board for Engineering and Technology, Inc.) as a primary measure of educational credentials for engineers in the United States.

Links have been chartered to universities, engineering societies and government engineering organizations. The national ASCE is a chartered link and regularly conducts Engineer's Ring Ceremonies during national and local events such as the 2004 Louisiana Civil Engineering Conference and Show. The University of Louisiana at Lafayette — Link 43 — was chartered August 1, 1973, the University of New Orleans — Link 118 — was chartered January 15, 1991, and the Louisiana State University — Link 135 — was chartered November 24, 1992. The UNO Link conducts Engineer's Ring Ceremonies at the end of each fall and spring semester. If you meet the requirements and cannot attend the ceremony during the Conference, you may opt to be initiated during one of the UNO ceremonies.

For more information regarding either the Order of the Engineer or the Engineer's Ring Ceremony during the Conference, please feel free to contact the author at nmattei@uno.edu or 504-280-5414.

❖ Quote ❖

Intuition: *Unfortunately, those who have technical competence do not always have sound judgement... Few of (a wide array of structural failures and difficulties I have witnessed) have been solely the result of technical incompetence, miscalculations or lack of intelligence... Intuition and the use of sound judgement are qualities all current structural engineering leaders should strive to develop in young engineers.*

- Richard Weingardt, PE
CEO and Chairman
Richard Weingardt Consultants

Taking out a small business loan?

By Thomas R. Thurmond

As a small business owner, you may feel the need for additional capital to build an inventory, install new equipment or expand your facilities. But you are concerned, because you know that taking out a small business loan is a serious matter that raises several difficult questions. For example:

- When should I borrow — after interest rates have fallen or when they are about to rise?
- Should I borrow at the outset or only after my business can turn a steady profit?
- Should I borrow to acquire cutting edge technology or wait until I have gotten my money's worth from presently installed equipment?

Before you apply

Each of these questions is important, but you should also ask, "How will this loan affect my business over the term of its financing?" Although it may be tempting to leap at a short-lived business opportunity in the hopes of gaining a competitive edge, a hastily made loan decision may not be a sound one. It is important to consider the long-term effects of any proposed business loan before you apply.

In most cases, it is best to avoid taking out a small business loan unless you are reasonably sure of a bottom line payback over the life of the loan. No matter how attractive a new product launch or expansion of facilities may be, these proposals should only be funded through a small business loan if they can increase the value of your company. Unfortunately, some planned improvements will not translate into tangible rewards; devoting time and money to them may endanger your long-term success. Before signing on the dotted line, ask yourself if your proposal is likely to increase efficiency, improve productivity, reduce expenses or increase profits. And even though expanding your market may seem to be a good idea, what if your ongoing loan expenses outweigh the value of any new sales?

Rather than do your own math, it may be best to obtain an independent valuation of your company. For a fee, a professional business appraiser can look objectively at your proposal and help you determine its chances of making your business more valuable. He or she will also be able to help you determine if your company's finances can support the overall cost and payback schedule of the planned loan. It is better to be conservative in your estimates, but even if the figures do not initially add up, your proposal will not necessarily have to be cancelled. You may be able to obtain an alternate means of financing with terms more suited to your company's circumstances.

Financing options

A number of financing options exist that are capable of providing additional capital to the small business owner. Two common examples are commercial lines of credit and term loans:

- *Commercial lines of credit* are usually used to meet short-term needs, such as building an inventory, bridging cash-flow gaps or preparing for a new opportunity. Although most financial institutions offer commercial lines of credit, these offers will not be the same. Compare interest rates and other features as you shop around. Some lines of credit are renewable; some can automatically be accessed through a comprehensive cash management account; still others may feature no principal down payment or cleanup period.
- *Term loans* are generally best suited to help meet longer-term business needs, such as financing the purchase of new equipment or making major improvements to your facilities. Some popular term loan features include fixed or variable interest rates, payback periods of various lengths and flexible terms.

If neither a commercial line of credit nor a term loan meets your needs, there are alternatives — such as securities-based financing, home equity financing, letters of credit or equity financing. If you are seeking a relatively large amount of new capitalization, securities-based financing (which requires a pledge of marketable securities as collateral) may be worth looking into. Or, if you would rather avoid ongoing debt payments, equity financing might be a more viable alternative.

Look beyond the numbers

Although the suitability of a proposed loan agreement will be determined largely by the *numbers*, it should also help support your personal financial aspirations. Some forms of funding, such as equity financing, may have personal as well as business consequences — including dilution or loss of ownership control. Looking ahead, are you willing to invest the time and money needed to complete your plan? Or would you rather retire early to pursue other interests? Because any major decision you make will require some time to implement, before adding to your company's debt be sure your business and personal financial goals do not conflict.

Find out more

Taking out a small business loan may raise some very complicated issues. Fortunately, an experienced financial professional can help you assess the short- and long-term effects of any additional business debt on both you and your company. If you would like more information on funding options for your small business, please contact the author.

Thomas R. Thurmond, Senior Vice President, Financial Advisor with Morgan Stanley in New Orleans, Louisiana. He may be contacted by e-mail at thomas.thurmond@morganstanley.com or by telephone at (504)587-9669 or (800)659-0009. *This article does not constitute tax or legal advice. Consult your tax or legal advisers before making any tax- or law-related investment decisions. Any particular investment should be analyzed based on the terms and risks as they may relate to your circumstances and objectives. Information and data in this article were obtained from sources considered reliable and published for general information purposes. Their accuracy or completeness is not guaranteed and the giving of the same is not to be deemed a solicitation on the part of Morgan Stanley with respect to purchase or sale of securities or commodities.*

— Calendar of Events —

September 9-10, 2004	**Louisiana Civil Engineering Conference and Show in Kenner.**
September 10, 2004	**Section Annual Meeting in New Orleans.**
September 13-14, 2004	**ASCE Seminar * on Storm Water Management for Phase II Communities in Atlanta, Georgia.**
September 16-17, 2004	**ASCE Seminar * on Connection Design for Steel Structures in Atlanta, Georgia.**
September 16-17, 2004	**ASCE Seminar * Highway Bridge Design, Evaluation and Strengthening Using LRFD in Oklahoma City, Oklahoma.**
September 17, 2004	**Tulane Engineering Forum "Advanced Technologies for Homeland Security" in New Orleans (www.eng.tulane.edu/tef). For more information contact Jenny Kottler at 504-891-1044 or jkottler@bellsouth.net.**
September 22-24, 2004	**ASCE Seminar * on Introduction to Mechanistic Empirical Design in Atlanta, Georgia.**
September 23-24, 2004	**ASCE Seminar * on Structural Condition Assessment in Houston, Texas.**
October 28-29, 2004	**ASCE Seminar* on Structural Design of Industrial Facilities, Houston Texas.**
	***For more information, call ASCE toll free at (800)548-2723 or visit the ASCE web page www.asce.org.**

(Continued from Page 10)

Pontchartrain Center in Kenner, Louisiana. Over 500 engineers from throughout Louisiana are expected to attend. A registration form and general information about the Conference are located elsewhere in this issue.

The Branch Outreach and Structures committees are continuing their work on a television advertisement designed to promote the profession of civil engineering by highlighting metropolitan New Orleans area civil engineering projects.

President Humphreys presents plaque to Herbert Roussel recognizing him with the Lifetime Achievement award of the Branch.

President Humphreys presents plaque to Norma Jean Mattei recognizing her receipt of the President's Medal of the Branch.

(Continued from page 12)

total number of members by branch:

- Baton Rouge 301/537
- New Orleans 470/735
- Shreveport 113/197
- Acadiana 183/300
- Section 1067/1769

The LSU ASCE Student Chapter plans to participate in the national steel bridge competition by virtue of its first place finish in the Deep South Conference competition. The Chapter is receiving $500 from the Baton Rouge Branch, $500 from the Section and $1000 from the national ASCE to help defray some of its expenses in traveling to — and participating in — the national competition. The national competition will be hosted by the Colorado School of Mines.

The benefit of experience was provided to the branches planning to move to the e-newsletter mode to reduce the costs associated with printing and mailing a conventional newsletter from those with the experience. Some of the difficulties experienced in implementing a newsletter transmitted by email have been chronic problems with being able to send the email message to members and for members being able to receive it. There is still a small number of Branch members who do not have access to the Internet and they wish to continue to receive a conventional newsletter by snail mail.

Other matters discussed:

- The Board was advised that the rental rates for the environmentally controlled storage facility for the Section's records will increase to approximately $1000 per year.
- All branch leaders were asked to actively encourage their members to participate in the referendum vote concerning governance at the national level.
- The normal method of scheduling and siting of Board meetings was reviewed to reasonably assure that it still meets the needs of the majority of the Board members providing

Did You Know . . .

...that an increasing number of engineers are stealing the spotlight from architects through innovation, by "... creating new forms that technically and aesthetically extend the boundaries of architecture" according to Princeton University Art Museum curator Professor David P. Billington? More young architects are joining forces with engineers, who can rapidly analyze structural schemes in hours with the available computer software. Werner Sobek, a German engineer renowned for his state-of-the-art homes, wants the world to view engineers as inventors, rather than problem-solvers.

New York Times Online 1/30/03

...that China, India, Japan, South Korea and Taiwan annually produce 600,000 science and engineering graduates — almost three times as many science and engineering graduates as the United States — according to the National Science Foundation? Nearly 8 percent of science and engineering degrees from U.S. universities are awarded to Asians who represent 4 percent of the population. China and India specialize in producing engineers, while Vietnam, the Philippines, and other Southeast Asian nations tend to produce professionals that migrate to medicine or other fields.

The Mercury News 2/14/03

— net surfing—

ASCE national organization:
http://www.asce.org

Note: Most ASCE-related pages can also be addressed through links at this website. All section and branch officers are listed at:
http://www.asce.org/gsd/localofficers

ASCE Acadiana Branch:
http://www.asceacadiana.net

ASCE Baton Rouge Branch:
http://branches.asce.org/batonrouge/index.htm

ASCE New Orleans Branch:
http://www.asceno.org

Louisiana Tech ASCE Student Chapter:
http://www.latech.edu/tech/orgs/asce/

UNO ASCE Student Chapter:
http://www.uno/~engr/asce/asce.html

ULL ASCE Student Chapter:
http://www.engr.usl.edu/cive

Tulane ASCE Student Chapter:
http://www.tulane.edu/~asce

LSU ASCE Student Chapter:
http://www.ce.lsu.edu/~asce

ASCE Louisiana Section:
http://www.lasce.com

Louisiana Engineering Society:
http://www.les-state.org

Louisiana Professional Engineering and Land Surveying Board:
http://www.lapels.com

Editor's Journal

By James C. Porter, PE

Education: Who needs it?

After listening to — and reading about — the views on both sides in the debate for and against increasing the minimum formal education as a licensure requirement for civil engineers, I am left to wonder what are the motives that drive both the proponents and the opponents. I have merged these concerns with my motives and perceptions that drove my personal experience and formal civil engineering education that occurred early in my career (1966) when I returned to graduate school to earn a MS degree in civil engineering.

Personal experience

It was never a question of whether or not I could solve the technological engineering problems associated with the work I was assigned, but there was a personal question that affected my confidence in my work. I sensed that I lacked a depth of understanding of some of the problems I was solving to the extent that I could not solve them with the confidence that I believed was appropriate and necessary for a professional engineer to have. I sensed that my lack of a strong intuitive appreciation of my solutions was almost equivalent to not performing an independent check. More importantly, because of this perceived deficiency, I believed that I was not giving my employer my best effort that should be expected of a professional engineer. The deficiency was not in the span of the knowledge I applied, it was in its depth.

Considering the relatively average structural design environment in which I was working and my perceived limitations, my educational goals were essentially achieved by the time I had completed 75% of the MS curriculum. The important point to understand is that the prerequisites for the BS degree in civil engineering that I had earned covered most, if not all, of the undergraduate structures courses that were available at the time. Yet it was not sufficient to provide the depth of knowledge I perceived that I needed as a practicing professional engineer.

Educational needs

Countering my personal perception is the large portion of my fellow civil engineers who worked in the same environment, who had earned the same BS degree and who were content with the extent of their education relative to their practice. It may be that we simply had different needs and/or perceptions about our respective practices and responsibilities as professional engineers. Possibly as better students they may have gotten out of our undergraduate education what I failed to get. This may help explain a part of the extremes in the debate about the educational needs for civil engineering licensure.

It would appear that another part of the extremes in the debate about the educational needs for civil engineering licensure may be explained by the experience, expectations and career choices of the civil engineers participating in the debate. They mostly perceive a strong need to be licensed professional engineers often because it may be viewed as a requirement for their employment rather than for their practice. It is my view that particularly the technological practice of civil engineering that directly impinges on public health and safety uniquely requires engineering licensure and it desperately needs effective educational support substantially beyond the BS degree. I believe that this is typically — but not uniquely — understood by the majority of practicing structural and geotechnical engineers who have come to the conclusion that an MS degree is a more appropriate education level for the typical licensed professional civil engineer in their business.

I believe that graduate engineers who pursue the technological practice of civil engineering that goes well beyond routine processes would necessarily be well served by an extended and advanced education in the technology they practice well beyond the typical undergraduate curriculum. I believe that this is becoming increasingly clear and poignant considering a disturbing trend I am witnessing in government service. Some engineering problems that are modestly outside of the mundane are being assumed to be

(Continued on page 23)

Governance

This is written in anticipation of the sure thing election to adopt a new — not so clear — form of governance for the national ASCE. I am sure those of us who are interested are all aware of the desire for the technical institutes to gain political representation in the direction of the national ASCE. I do not necessarily disagree with the concept but I am deeply concerned about — and disappointed by — the unclear means that are being used to accomplish it.

In implementing the new governance, the ASCE apparently has plans to walk away from the reasonable facsimile of a one man-one vote representative government it currently has. I liked what one institute stated in its pitch to the ASCE leadership to support the change in governance to give it representation on the Board of Direction. Consider the institutes' regions — at least 2 regions. Let's carry this to a logical conclusion.

I believe that it would be unfair for an ASCE member to be permitted to vote outside of his assigned geographic region and surely unfair for a member to be permitted to vote in more than one geographic region in a national election. To this end, why not ask the ASCE members who are assigned to a geographic region and are also a member of one or more of the institutes to vote either in their geographic region or in their institute(s)? Thereby, they would be eligible to vote in either their geographic region or in their institute but not both in a national election. The technical logistics for election security to allow this appear to already be on board if ASCE members can now vote by either letter or email ballot.

This proposal would somewhat preserve the one man-one vote representative government in the national ASCE yet there is no reason it would affect membership or full participation in the local section/branch elections and activities of the institute members choosing to vote with their institute nationally. More importantly, the vote taken as a declaration of allegiance by members to either their institute or geographic region would naturally shake out the appropriate level of representation the institutes and geographic regions should have on the Board of Direction.

I am much more concerned about the wildcard appointments to voting positions on the Board. I believe the diversity excuse — not reason — for the wildcard appointments and the notion of making the Board of Direction some form of a sociological playpen for the under-represented segments of the ASCE is a shameful absurdity. I believe the concept of electing someone with no experience or constituency makes an unhealthy mockery of democracy and representative government. I believe that the wild card appointees with no service as trusted representatives of any constituency but themselves will typically have no sense of responsibility to anyone except themselves. They typically will have no wisdom from progressive experience in — or understanding of — the ongoing issues that drive the ASCE to guide them.

On the other hand, since there is no constituency to intelligently nominate or elect these candidates they will essentially have to be appointed by someone. I feel relatively certain the wildcard appointees will be carefully selected for their like-thinking with — and/or their malleability by — those, whoever they are, doing the appointing behind the scenes.

I believe that the wildcard appointees will surely reinforce the poor nature of the national leadership of the ASCE that has been clearly demonstrated in the past. It has the strong desire to present a unified and orderly political front to the membership and the rest of the world to suggest that there is a sterility of no debate and no disagreement because all enlightened engineers are like-thinkers. Stacking the Board of Direction with like-thinkers or non-thinkers would appear to promote this and maybe other unhealthy goals. Unified and orderly political fronts just do not exist in a healthy democracy. Destroy the messy dissent and the debate apparently so abhorred by our leadership in a real democracy and it (the democracy) will surely die of stagnation and atrophy. With the death of its democracy, will the ASCE emerge as an oligarchy or a dictatorship? This leads me to wonder, who of the small percentage of civil engineers that currently pay ASCE dues to be represented will continue pay dues for someone else to decide for them how they will be represented?

(Continued from Page 22)

and may actually be beyond the capabilities of the graduate engineers in government service. These engineering problems are being considered worthy of research and passed out as contract research.

Confirming this suspicion are the candid observations of some in the research community that some of what passes for research is nothing more than engineering applications. I have to ask, does this practice exist because graduate engineers are not prepared to solve any but the simplest engineering problems? How conventional engineering work can be categorized as research with a straight face is astounding to me. Equally astounding is how a working graduate engineer can be challenged by the pitiful remains that can still be vaguely considered engineering work. This may be a clear symptom of an inadequate undergraduate engineering education and inadequate students taking advantage of it. If not, the more disturbing possibility is that graduate civil engineers are just not interested in the challenges of the technological work.

A large portion of the population of graduate civil engineers takes up careers in sales, administration and other related but relatively non-technological pursuits. They do not pursue a rigorous technological practice in civil engineering that directly impinges on public health and safety. Consequently, they may not necessarily be well served by an expanded and advanced education beyond the typical undergraduate curriculum in civil engineering technology. Surely, for some of them, an education in civil engineering beyond a BS degree for their career choice would be like driving a tack with a sledgehammer. By the nature of their practice, they probably have no need to be licensed professional engineers in the context for which licensure is intended. In any event, it is easy to imagine that graduate engineers on such career paths would necessarily see little if any value in a formal civil engineering education beyond the BS degree.

For engineering students who plan to go into sales, administration and other related but non-technological pursuits or plan to be employed in technological pursuits limited to simple or routine processes, it may be entirely appropriate for them to terminate their education with a BS degree and not consider licensure as either required or necessary. For these jobs, where the employer may currently require engineering licensure, the requirement should possibly be reconsidered. They may be more appropriately assigned to unlicensed graduate engineers working under the supervision of a licensed professional engineer only when required.

NCEES model

The report of the Engineering Licensure Qualifications Task Force of the NCEES dated March 2003 that can be found at www.ncees.org proposes a licensure model that would appear to accommodate different levels of engineering education, testing and experience. It would appear to address uniquely and appropriately the employment situations of graduate civil engineers as identified and discussed herein with three unique levels of practice:

- The Associate Engineer is a graduate engineer with a BS degree having passed the Fundamentals of Engineering examination. An appropriate requirement for the practice of engineers engaged in sales, administration and other related but non-technological pursuits.
- The Registered Engineer is an Associate Engineer having 4 years of acceptable experience. An appropriate requirement for the practice of engineers engaged in technological pursuits typically limited to simple or routine processes under the supervision of a licensed professional engineer.
- The Professional Engineer is a Registered Engineer having passed the Principles and Practice of Engineering examination, and with an MS degree or having completed the equivalent post-BS degree course work. It is the license required for the practice of engineers engaged in unlimited and rigorous technological pursuits in — and/or responsible for — the engineering work that directly impinges on public health and safety.

Though more intricate than explained here to delineate the three levels, the model would appear to keep the extent and opportunity for licensure in a form consistent with existing practices and employment.

Deficiencies in education

The education dilemma for civil engineering is compounded by the crush of a shrinking curriculum and an expanding need for education through the diversification and specialization of its practice and technologies. The emerging reduction in civil engineering curriculum from its historical high of 145 semester hours toward 120 semester hours required for a BS degree and the historically declining classroom contact hours provided per semester result in the expansion of the technical electives and the simultaneous contraction of the prerequisites. I believe that the broadening menu of technical electives includes many of the civil engineering profession-defining prerequisites for graduation for the bygone years and the present. The resulting prerequisites, including the core curriculum for the typical BS degree in civil engineering, inadequately define the breadth of the profession-defining technologies and thereby provide an inadequate education for the licensed professional civil engineer — past, present and future.

The broadening spectrum of technical electives and the corresponding narrowing spectrum of prerequisites that poorly define the academic breadth of the civil engineering practice must be crammed by the students into the current 128 semester hour curriculum and into the approaching 120 semester hour curriculum required for the BS degree. It requires that they make career-defining choices by the end of their sophomore year, long before their career begins and usually before they have enough experience in the workplace to make an informed decision. Further, this can either result in the pursuit of a totally unfocused curriculum based on the least academic resistance at worst or a focused curriculum that will satisfy entry level employment in only a narrow segment of civil engineering. The former strategy may preempt entry level employment and/or practice as a civil engineer and the latter strategy will inappropriately limit career flexibility and opportunities.

The current education limitations would appear to ask civil engineering students to roll the dice and guess at what their career specialty will be and risk investing 4 years in a specialty education — a segment of civil engineering. This will lead to poor working knowledge of the breadth of the civil engineering technologies and it may lead to preparation for a disappointing career choice discovered once experience is gained in the workplace. This leads me to conclude that there is no longer a viable option between the BS degree alone and the inclusion of an extended curriculum of advanced civil engineering studies beyond the BS degree as the educational requirement for professional civil engineering licensure.

ASCE proposal

The advanced education requirement evolving from the ASCE Policy Statement 465 that can be found at www.asce.org acknowledges the limitations of the BS degree and it currently proposes 30 semester hours of formal education beyond the BS degree. It presumes that it will be pursued after the BS degree and ideally after the student is in the workplace. It is apparently intended to adjust and broaden the civil engineering education base to be

- more consistent with personal goals
- less specialized
- more in-depth and
- acceptable for licensure.

With all of this to be achieved, I perceive a thread of weakness in the extended 30 semester hour curriculum to adequately support a technological practice. It appears that Policy Statement 465 may arbitrarily assume that an MS degree or the equivalent is sufficient. I believe that it is necessary to identify an advanced study curriculum and size it to effectively cover the technological breadth of civil engineering practice and a technological specialty in practice. If it is not deemed reasonable to effectively size a proposed civil engineering curriculum to the current technological practice, it may be appropriate to resize the technological practice to the proposed curriculum by separating the structural and/or environmental engineering technologies out of civil engineering.

Conclusion

I conclude that a BS degree is no longer an adequate formal education for a licensed professional civil engineer and it probably has not been adequate for more than 50 years. I suspect that the 30 semester hours proposed beyond the BS is inadequate to cover the breadth and depth of a technological education that effectively supports a licensed professional civil engineering practice. If the curriculum proposed is in fact inadequate to technologically cover the educational needs of a licensed civil engineering practice — not just environmental engineering, structural engineer-

(Continued on page 26)

(Continued from Page 7)

Figure 6. The WIM scale in the outside lane of the first gauntlet is shown with the cabinet that houses the computer on the gauntlet located on the shoulder. The piezoelectric axle sensor shown in the inside lane (foreground) is used to measure the axle spacing to determine the legal weights of vehicles that bypass the WIM scale.

The piezoelectric sensor has the lowest accuracy, durability and cost of the three sensors, and it is the easiest to install. The bending plate sensor is more accurate and durable than the piezoelectric sensor, while it costs more and is more difficult to install. The load cell sensor has the highest accuracy and cost of the three sensors yet it is durable enough to function adequately on an Interstate highway mainline roadway. The cost of a load cell sensor system installed is approximately $50,000 compared to the $10,000 cost of a piezoelectric sensor system installed. Comparison studies show that for mainline applications load cell sensors are twice as accurate and last 3 times longer than a piezoelectric sensor.

Based on the need for accuracy and a higher life-cycle value, the DOTD chose the load cell sensor system for its mainline WIM application. This system consists of two scales each weighing the portion of the axle in each of the 2 wheel lines of a truck. Each scale is a steel plate supported by a single hydraulically driven load cell. The system sums both of the axle weight portions measured by the 2 scales to obtain the total axle weight.

The WIM scale at the first gauntlet shown in Figures 6 and 8 consists of 2 inline scales placed across the outside lane — each with a single load cell that operates independently. Off-scale detectors are placed near the WIM scales to sense if a truck's wheel line will be off the weighing surface. An inductive loop is located upstream to alert the WIM system of an approaching truck followed by a second inductive loop located downstream. Together they are used to estimate the truck speed. A piezoelectric axle sensor located downstream of the WIM scale is — with the truck speed — used to estimate the axle spacing.

The operating software for the WIM functions is supported on two computers — one environmentally hardened computer in housed in a cabinet located on the first gauntlet as shown in Figure 6 and one located inside the scale house as shown in Figure 9. The computer on the first gauntlet interprets signals from the WIM scale, generates the estimated and legal truck weight values, and determines if a truck is required to pull in to or to bypass the weigh station. The computer in the scale house stores weight values, photographs, and decisions generated by the computer located on the first gauntlet and generates the reports for the Captain in charge of the scale house.

AVI Systems

A typical *PrePass* AVI system with advanced tracking capabilities is demonstrated in the schematic shown in Figure 2. The equipment provided by PrePass in addition to that of the WIM system includes the 3 pole-mounted AVI antenna locations that receive information from — and transmit information to — in-cab transponders. They are referred to as the advance antenna, the in-cab notification antenna, and the compliance antenna. The advance antenna is located at the WIM scale in the first gauntlet. The in-cab notification antenna is located in the second gauntlet 1,000 feet upstream of the truck weight enforcement scale exit gore to provide enough distance/time to process the truck information. The compliance antenna is located

(Continued on page 25)

Figure 7. The changeable message sign for truck drivers in the second gauntlet.

Figure 8. A broader view from the median and downstream showing the WIM scale and various inductive loop sensors cut in the pavement and a piezoelectric sensor located downstream of the WIM scale.

Figure 9. A view inside of the scale house showing the operator's console and a bank of monitors (top right) that show split screen images from the various closed circuit television cameras and a computer monitor showing the historical record of the action taken on each truck.

(Continued from Page 24)

in the third gauntlet near the scale entrance.

The *PrePass* AVI equipment in the truck cab is an in-cab transponder. As a truck with an in-cab transponder enters the first gauntlet of an AVI-equipped site, the transponder transmits a unique identifier for the truck to the advance AVI antenna. An environmentally hardened computer housed on the roadside in a cabinet at the first gauntlet proceeds through system and database checks based on the unique identifier for the truck and communicates wirelessly with the computer in the scale house and maintains a database of current information for the truck identified and the motor carrier. The database is maintained on the computer in the scale house and it is updated periodically from a dial-up network connection provided in the scale house.

The truck proceeds downstream as the AVI computer at the first technology gauntlet determines if the truck is eligible to bypass — or must pull in to — the weigh station. As the truck enters the second gauntlet it passes underneath the in-cab notification antenna and the truck driver is given a notification by its transmission to the in-cab transponder. If any weight, safety, or credential information is not acceptable, the driver is notified in the cab by the activation of a red light and a tone alert to pull in for further processing and/or inspection. Otherwise, the truck driver is notified in the cab by the activation of a green light and a different tone alert to bypass the weigh station. This entire process is conducted at the normal Interstate highway speed of 70 mph and takes less than 4 seconds.

The advance AVI/WIM system will operate continuously 24 hours a day, 7 days a week, whether the scale house is manned or not. Therefore, the data obtained during clearance from the WIM system, which includes truck weight, truck speed and axle weight, is available continuously to the DOTD for planning and maintenance purposes, in addition to providing the WIM sorting function for weight enforcement when the scale house is manned.

Shaking hands

The WIM and AVI systems do not share the same computers though it is possible that the two systems could be easily operated with only two computers. The reason for their segregation is mainly due to the proprietary and public nature of the data and the operating policies of their owners. The WIM system is owned and operated exclusively by the DOTD and it was custom designed to uniquely assist the DOTD in effectively carrying out its weight enforcement policies and responsibilities independently. The WIM system must accommodate all trucks to serve the weight enforcement needs of the DOTD.

While the WIM system is operated without regard to the motor carrier responsibilities of other state agencies, the *PrePass* AVI system, owned and operated by HELP, is designed to accommodate these other functions and accommodate a WIM system. However, HELP does not serve all trucks. It only serves the trucks of the motor carriers that subscribe to its services. Also, the DOTD does not currently allow *PrePass* access to the raw truck weight data. However, the DOTD does provide the *PrePass* AVI system with the truck weight decision that is used by the PrePass system along with the credentials to sort their trucks. Managing these automated protocols between the DOTD and HELP was a significant challenge in the design of the interface between these separate but modestly integrated systems.

Benefits

The immediate benefit realized by both the motor carriers and the DOTD with the implementation of the WIM systems on I-12 and I-20 was that almost 2 out of every 3 trucks in the traffic stream were allowed to bypass the weigh station. Based on national statistics, it is estimated that for each bypass the savings per truck is approximately

- $3 to $5 in cost
- 5 minutes of travel time and
- ½ gallon of fuel.

The motor carrier industry believes AVI and WIM technologies have all but eliminated delays and safety conflicts at the exits and entrances of the truck weight enforcement scales and they have resulted in $140 to $190 per hour in transit time savings per truck.

For the I-12 truck weight enforcement scale site at Baptist alone, implementation of the WIM has allowed approximately 4 million legally weighed trucks to bypass the station in a span of 4 years and afforded the DOTD weight enforcement staff the ability to weigh and more closely inspect over 2.3 million trucks. At the same time it saved the motor carriers between $7 million and $12 million less the subscription fees for the *PrePass* system.

From the enforcement and regulatory viewpoint, the AVI and WIM technologies have allowed the DOTD and other state departments of transportation to better utilize their limited resources to more effectively focus enforcement efforts on the more suspect trucks and motor carriers thereby improving public safety and extending the life of the highway system. The number of overweight citations issued since the inception of WIM has increased significantly — over 5-fold in some cases. Traffic accident statistics show that truck-related accidents near truck weight enforcement scale sites have been reduced by nearly 20 percent since AVI and WIM operations began.

Future of commercial truck operations

The DOTD and the other cooperating state agencies in Louisiana have long been committed to improving the safety, efficiency and effectiveness of commercial truck operations for both the government and the motor carrier industry. This commitment is reflected through the WIM initiative of the DOTD, its partnership with HELP and the state's participation in a federal ITS program for commercial truck operations and referred to as the Commercial Vehicle Information Systems and Network (CVISN). The DOTD, the Department of Public Safety, Department of Revenue, the Public Service Commission, and the Louisiana Motor Transport Association have jointly participated in the CVISN deployment training and have developed the Louisiana CVISN systems plan.

The plan reflects the common aim to deliver integrated transportation services to large commercial trucks and enhance traffic operations and safety for the public through automation. A key ingredient of the CVISN is implementation of state-of-the-art technology through the AVI and WIM systems at the truck weight enforcement scales on the Interstate highway system in Louisiana and mainstreaming this technology into the existing business practices of the participating state agencies and the motor carrier industry.

A *one-stop* truck-permitting service was developed in Louisiana in conjunction with the CVISN plan. It is provided by Department of Public Safety and Public Service Commission to administer and provide single state registration primarily for Intrastate motor carriers. The CVISN will provide the necessary interfaces between motor carriers and the administrative databases to integrate the single state registration process.

In an effort to fully support implementation of the CVISN, the DOTD will be installing WIM systems at the 4 remaining truck weight enforcement scales on the Interstate highway system at

- I-10 near Breaux Bridge
- I-10 near LaPlace
- I-10 near Toomey and
- I-20 near Delta

as shown on the map in Figure 1. These sites are in addition to those existing WIM installations at the truck weight enforcement scales at I-12 near Baptist and I-20 near Greenwood discussed herein. A construction project is just now being completed at the I-10 near Breaux Bridge site and it is expected to be fully operational by the fall of 2004. Engineering plans and specifications are being completed for the remaining 3 sites. It is expected the contracts for the construction at these remaining sites will let in 2005. Also, the DOTD has developed the initial deployment of the CVISN with the implementation of an integrated computer database that currently collects and houses commercial truck information and shares it with affected agencies. The realization of this database is due in large part to the hard work and cooperative spirit of the participating state agencies and the motor carrier industry.

Conclusion

The CVISN is no longer just another plan or study or federal program. It is operational in Louisiana and being enhanced continuously to serve the administration of motor carrier operations and highway safety. As technology evolves and the needs change the way state departments of transportation deliver transportation services to the motor carrier industry or the public, the DOTD has positioned Louisiana to capitalize on potential future benefits through its investment in the AVI and WIM systems.

PROFESSIONAL LISTINGS

(Continued from Page 23)

ing or other civil engineering segment — it will only contribute to continuing technological incompetence. I see this as tragic particularly if the extended curriculum is watered down with proposed non-technological subjects. However, I trust that no matter how inadequate the extended formal education requirements are once implemented and met by future professional civil engineers on the job, it will naturally lead them to take the initiative to properly extend their formal education to the full extent of the needs in their licensed practice. This may provide the foundation and momentum for the support to eventually implement an adequate curriculum.

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