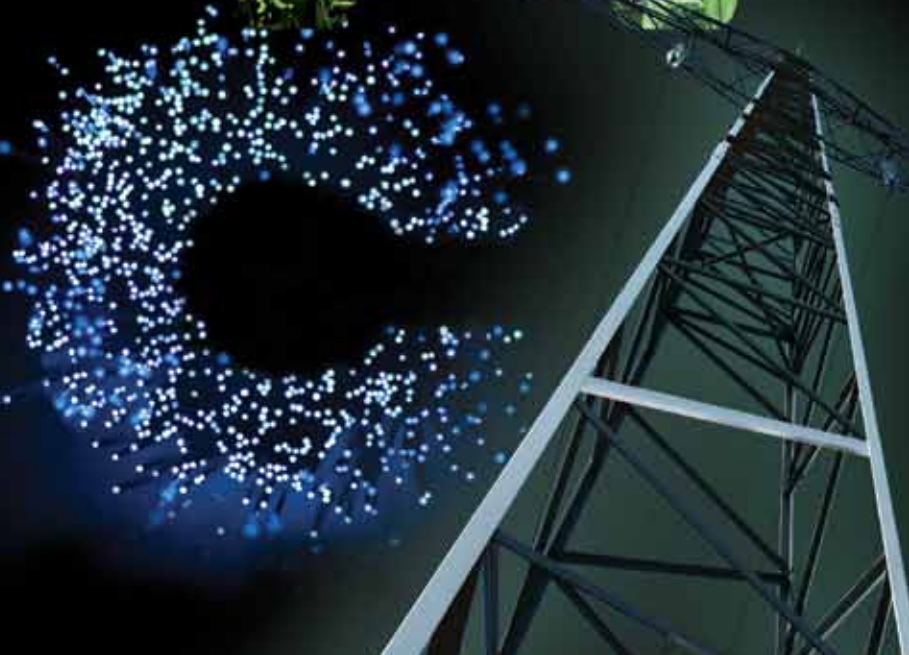
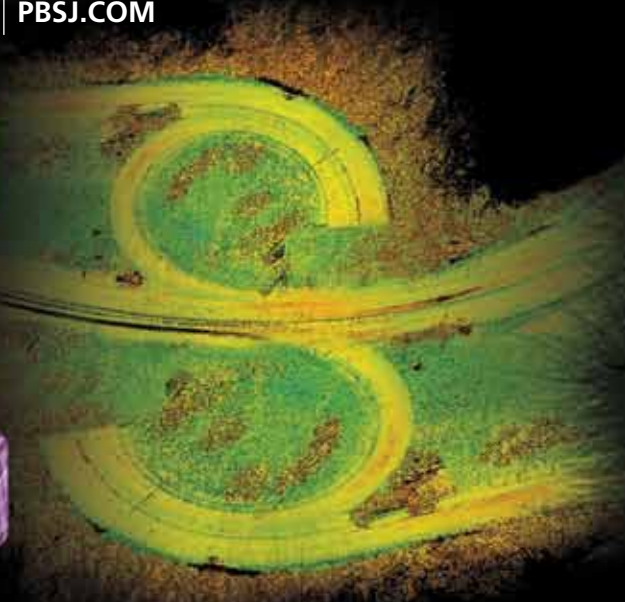


h**ighlights**

PBS & **J**

Spring 2009 | PBSJ.COM

Engineering,
Innovation, and
the Economy:
The Future
Looks **Bright**





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PBS&J VALUES...

Commitment to Our Clients

Commitment to Our Culture and People

Commitment to Our Company

Commitment to Our Communities and Surroundings



We are excited to introduce a new way to share what's happening inside The PBSJ Corporation: www.pbsjbuzz.tv! This fun, fast paced site has:

- Feature flicks on hot topics and projects
- Podcasts and audio presentations
- Interviews with experts
- Project, people, and community service news from across the corporation
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And here's the best part: you can share the buzz with others simply by forwarding the pbsjbuzz homepage URL. Why keep the great things happening at PBSJ a secret?

And keep watching, because we'll be adding new things and changing [pbsjbuzz](http://pbsjbuzz.tv) every month.

Don't miss out! Catch the Buzz in 2009!

PBSJ FYI

Spring, the season of new beginnings, is the perfect time to stand up and say "Yes, We Can!" High-tech tools and new ways of thinking make it easier than ever before for us to overcome seemingly insurmountable problems. And we keep inventing new solutions and tools that are shaping the way the future of the industry unfolds. We only have room in these pages to highlight a few of the many new things out there so please make sure to visit us at www.pbsj.com for more online content and additional information.

And while you're there, please take some time to look around and explore the newly revamped Web site. The redesigned site offers a new look, updated content, and more interactive features. It also has a link to our newest offering: pbsjbuzz.tv.

As always, we would love to know what you think. Drop us an email at 22895@pbsj.com.

Engineering, Innovation, and the Economy: The Future Looks Bright



Using Old Tools in New Ways

In PBS&J's Houston toxicology lab, a procedure used to improve the manufacturing process for World War II munitions provided the key to a marine mystery.

"We test wastewater from industrial and domestic treatment facilities," explains technical director Jim Horne. "Our purpose is to determine whether effluents meet the objectives of the Clean Water Act, and that there are no toxic materials in toxic amounts."

For an industrial client, testing showed that one small crustacean failed to thrive in the lab's water sample.

Horne applied Principal Component Analysis (PCA), a tool invented near the beginning of the 20th century by Karl Pearson that employs orthogonal

decomposition of a data covariance array to identify factors which explain the greatest amount of variation within the data set.

"This methodology isn't commonly applied to aquatic toxicity," says Horne, "but I thought it might work in this situation."

Read the full story and find out if Horne's theory was correct at www.pbsj.com



As we look for ways to heal a devastated economy, banking and finance may seem like obvious places to look for solutions. But over the past 50 years, many studies show technological innovation has accounted for over one-third of U.S. economic growth.

This comes as no surprise to the many engineering, architectural, and environmental service firms that include innovation as part of their working "tool kit," because new and better tools help to achieve remarkable results on difficult projects. And sometimes innovation means using old tools in new ways, or applying previously known theories or practices to new problems. Engineers serve as the bridge between scientific research, new products, and solutions to problems, translating technical principles into goods, processes, and systems for the benefit of all people.

As some of the following highlighted projects prove, 21st-century engineering competence, imagination, and intellectual candlepower are thriving. If innovation, especially through engineering enterprise, is truly at the core of a healthy economy, we can all have faith that the future looks bright.

In the Laboratories...

"We don't run out of ocean water when there's a drought," says Skip Griffin, senior vice president and PBS&J's national desalination manager, who is convinced the age-old concept of desalination has a future in high-tech treatment plants. Simply put, desalination produces drinking water by removing dissolved salts and other impurities from seawater or brackish water. Griffin rates this product "best quality" because the desalination process is much more effective than the conventional granular media-based processes for biological and organics removal.

"Furthermore, improvements in energy recovery devices are bringing overall membrane operating costs down," explains Griffin. "Maintenance is more efficient because the pumps and rotating devices are more durable and last longer. This also makes treatment more affordable."

While a typical municipal water plant has a finite quantity of available water,

"...the desalination process is much more effective than the conventional granular media-based processes for biological and organics removal."

Cities in the Middle East, Australia, and along Europe's coastline have employed desalination for decades, but municipalities in the U.S. have been slow to adopt the technology, primarily due to cost and environmental considerations.

"Potential impacts to marine ecosystems have made this a controversial technology, but now agencies—looking for ways to meet the demands of increasing populations—are paying more attention to it. Every project has environmental impacts. They're solvable problems, we just have to deal with them," he says.

desalinated water is essentially unlimited. That's a big advantage when water is becoming increasingly scarce. "Desalination should be part of a municipality's water portfolio because of its reliability," Griffin points out. "However, water conservation and recycling strategies must also be optimized."



In the Landfills...

If water reclamation is a valid conservation strategy, so too is garbage reclamation. And the technology that is turning refuse into energy is a rediscovered one.

"The decomposition of garbage in our landfills produces gas—a combination of carbon dioxide and methane, with a few volatile organic compounds mixed in. The technology for recovering this gas and converting it to useful heat, power, or electricity has been around for many years,"

explains David Deans, a PBS&J environmental engineer. "But few landfill operators actually convert it to energy. Instead, they burn off the gas in flares much like Bunsen burners to control odors or for safety reasons."

Now, with a changing environmental consciousness and significant financial incentives, landfills as energy resources are coming into their own. "We've also learned how to speed up the conversion process," says Deans, "so we can burn the gas more quickly and stabilize the waste while siphoning off the energy."

Bioreactor landfills inject moisture back into solid waste to accelerate gas production. Deans also points out that the marketplace is now willing to pay for the pipelines, turbine generators, and power lines that get electricity into the switching stations and power grid. Once this collection system—a major investment—is in place, the cost to complete the energy conversion is marginal.

Because of its unique air pollution concerns and stringent regulations, California has been using this technique for many years. Highlands County, Florida, recently began

operating the first asphalt plant in the state powered by landfill gas. Previously, gas was burned because not enough was produced for commercial use.

In addition to saving the county nearly 100,000 gallons of fuel each year, the plant also allows the county to reuse waste materials such as tires, glass, and roofing shingles in asphalt production. The asphalt plant is projected to provide materials for over 2,700 miles of publicly maintained roadways and save thousands of dollars for taxpayers.

On the Highways...

511 is the phone number established in 1999 by the Federal Communications Commission (FCC) to provide interactive voice response (IVR) traveler information. The idea was to help alleviate or reduce congestion by telling drivers which routes to avoid before they got on the road. In 2003, PBS&J joined a consortium of government agencies and private companies to bring 511 to U.S. markets.

Todd Kell, PBS&J associate vice president, believes that soon 511 will be only the base level service with other options likely, including customized email and text message alerts, customized phone calls, and customized routes.

"For example," says Kell, "it's possible to get off a plane and have local information pushed out to me. Let's say I've just arrived in a city and don't know there's a 511 system. My phone would send a message to the cell tower letting the 511 provider know I'm there, and I'd get a message back: 'we have 511!'"

As the developer of Virginia's and North Carolina's 511 systems, PBS&J is bringing innovation to the systems' design and operations.

Ben Morgan, PBS&J lead system designer, describes the objectives: "Much of our effort over the past 18 months has been to pull IVRs together in a way to make it easier to make changes and, where possible, make sure they are database driven.

The innovation was in how "we viewed and approached our work. Before, we had been treating it as esoteric and proprietary. Now, we're applying design principles to systems that allow us to better meet our clients' needs. We're building and making changes much faster. In North Carolina and Virginia, for instance, we cut development time to four months from the industry standard of 6 to 8 months. We can also monitor the systems more closely and effectively, and we have many contingencies that are available in case of emergencies."

The 411 on 511

"511 for Operations" is on the horizon, and according to Kell, "is a PBS&J-coined term for our Next Big Thing."

The proposal turns high-volume 511 phone systems from information-dissemination-only systems to data collection/event notification systems. Real-time call volumes and information requests will alert traffic management center operators to a possible problem on a specific road or area. Alarms are threshold-based and will be established through historical call volumes (hourly and daily).

"This hasn't been developed yet," says Kell, "but Virginia DOT is interested in regional and statewide applications for 2009."



To find out which states have 511 visit www.fhwa.dot.gov/trafficinfo/511.htm

In the Deserts and Mountains...

Not all innovation is forward looking; some techniques and processes help us better map the past so that we may plan more effectively for the future.

Meg Cruse, group manager at PBS&J's archaeological research laboratory in Austin, Texas, explains that states must follow federal guidelines to preserve the nation's archeological assets before undertaking projects that will disturb the landscape—such as a water treatment plant or a transmission line corridor.

"Much of our work involves analysis of the material remains recovered at sites," explains Cruse. "Most often this includes basic identification. New technologies, though, help us to pinpoint specific uses of these materials and the dates of their use. Geographic Information Systems (GIS), Global Positioning System (GPS) devices, carbon dating, and lipid analysis are a few."

GPS devices with submeter accuracy precisely locate archeological sites, enabling archeologists to better protect these properties. Locational data can then be used with GIS to gain information about the geology, geography, and even history of the exact location through map overlays. These, in turn, reveal specific information about soils, water source, and past property ownership, to give a clearer picture of activities that may have taken place centuries ago at the site.

"Accurate identification of materials that relate to everyday activities, such as food preparation and consumption, is key to understanding how people lived in the past," Cruse asserts. "The processes of carbon dating and lipid analysis allow archeologists to do just that."

Carbon dating measures the radioactive decay of organic material to determine age, and lipid analysis identifies the fats deposited on a material by heating.

Cultural Resource Management (CRM) work has been conducted in New Mexico, Arizona, Louisiana, Mississippi, Pennsylvania, and Missouri. "One of our biggest projects took place at Oak Hill Village in northeastern Texas," Cruse says. "We excavated a prehistoric (ca. A.D. 1150-1450) Caddo settlement in the mid-1990s prior to lignite mining activities."



Federal regulations may require historical mapping, but Cruse notes that the general public—especially the citizens of Texas—"have a growing interest in their history, along with a strong connection to their land. Within CRM, we provide the pieces of the puzzle that give people this understanding of their heritage. We're also unique in that we're scientists who use the most modern technologies to learn more about the most ancient technologies, and the people who invented them."



Saving for a Non-Rainy Day

Aquifer storage and recovery (ASR) is a proven method for storing water in a suitable underground aquifer during times when excess water is available, and recovering that water at a later date when it is needed.

"This technique is widely recognized as a cost-effective and efficient water resource management tool," says Mike Micheau, vice president and senior group manager for hydrogeologic services. "Capturing and storing these resources until they are needed reduces the demands on our potable water systems and maximizes the use of alternative sources. It also extends the life of treatment facilities, thus deferring capital expenditures for plant expansions."

Find out more about the economic and environmental benefits of ASR at www.pbsj.com



In the Floodplains...

Digital Flood Insurance Rate Maps (DFIRM) produced by the Federal Emergency Management Agency (FEMA) and its partners are used to set flood insurance rates, regulate floodplain development, and inform those who live in the 1 percent annual chance floodplain. FEMA's maps require continuous maintenance and revision due to land development and natural changes to the landscape over time. In 2003, FEMA created the Map Modernization Program—a \$1 billion, five-year program to update the nation's aging flood hazard information using modern GIS technology.

Existing GIS software used to create FEMA's DFIRMs was cumbersome and left room for improvement. As one of FEMA's premier flood hazard mapping partners, and a leading GIS software developer, PBS&J was in a perfect position to build a better tool for the flood hazard mapping community.

So, explains senior project manager Joshua Price, "PBS&J developed a GIS software extension that gave the floodplain management community a desktop tool with no rigid requirements, that is easy to use and very efficient at making FEMA's maps." Because this software—Flood Map Desktop™ (FMD)—creates better, faster, and less expensive flood hazard maps, "we offer FMD to public and private organizations free of charge so anybody in the flood hazard community can benefit."

Price says there have been more than 300 downloads of the software from www.pbsj.com, with at least "another 300 CDs given away at conferences. Our regular day-to-day users number well over 100 and include private firms and State Cooperating Technical Partners that make the maps themselves."

FMD cuts DFIRM production costs by 25 percent to 40 percent. "With free software,"

Price explains, "the nation as a whole can do more flood hazard identification and mapping work at a lower cost."

According to the National Academy of Sciences, FEMA's Map Modernization Program of 2003 to 2008 resulted in digital flood maps for 92 percent of the continental U.S. population. However, after a \$1 billion investment, only 21 percent of the population has maps that meet all of FEMA's data quality standards.


"The biggest innovation in FMD is how we approached development," says Price. "We designed a GIS tool for a wide range of users, from floodplain administrators to engineers to project managers to GIS professionals. Easy user interfaces let professionals focus on what they are good at rather than dealing with nitty-gritty technical specifications for mapping and data formatting. We eliminated all the complexity. Then, we implemented things like GIS-enabling FEMA flood



hazard profiles, a cartographic labeling engine, Letter of Map Revisions (LOMR) in GIS, and digital quality control tools."

To ensure the program remains state-of-the-art, the FMD Alliance—a consortium of FMD power users—meets once a month to discuss enhancements and test new features before an updated version is released to the public.

"One area that we're excited about is the Coastal Engineering Module," Price offers. "Coastal engineering work is very complicated and the existing engineering models involve a lot of manual processing. FMD simplifies the modeling component by manipulating the model's input data, such as dunes and structures and topography, through a custom

GIS interface and then re-interpreting the model's numeric output back into a visual GIS map of the flood-plain automatically. We'll save weeks' worth of time on our coastal projects." 

Find out more about FEMA's new Risk Map project at www.pbsj.com/Press_Room/press_releases/Pages/PBSJUpdateFEMA-NationalFloodProgram.aspx



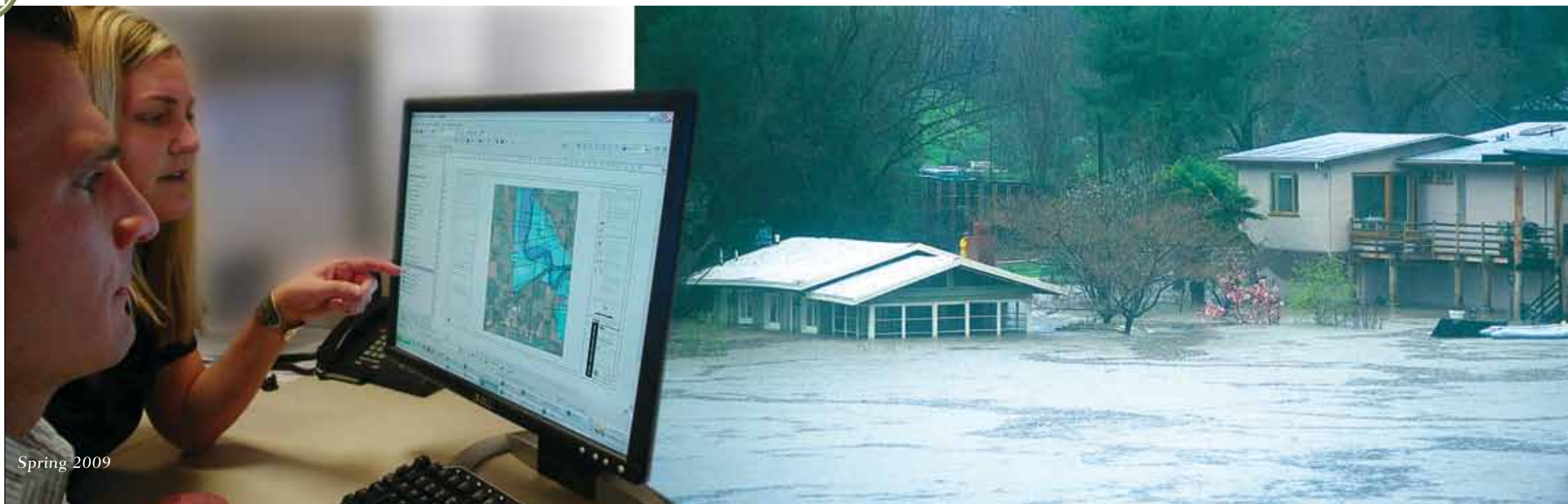
A Promising Alternative

Increasing environmental concerns, safety regulations, and improved equipment designs are making trenchless technology (creating underground pipeline networks without digging a conventional trench to set them in) an increasingly attractive alternative in situations where minimizing disruptions is critical—above ground or below.

When trenchless technologies are employed, a "pathway" is drilled for a pipeline, anywhere from 3 feet to 100 feet below the ground surface. Once the beginning and ending points of the pipeline route have been established, the actual pipe materials are typically pushed or pulled through the drilled trench. Unlike conventional methods, these systems of pipeline construction allow daily activities in congested or sensitive areas to remain largely undisturbed.

Ken Wilson, PE, PBS&J's principal technical professional for large diameter pipelines, describes the innovations that define this technology. "With horizontal directional drilling (HDD), you actually steer the drilling head so you can tell where it's going. The technique gives complete control, whether turning left or right or up or down; you're not limited to a straight line. Micro-tunneling drills in the conventional manner, except a computer steers the machine, and so you have precision. Pipe bursting works by pulling a bursting tool inside a pipe and expanding the tool to break the old pipe. A new pipe attached to the expanding machine then replaces the shattered one. This is effective in sewer line replacements, for instance."

With refinements to HDD constantly on the boards, the technology is becoming more flexible, useful, and prevalent. Wilson estimates PBS&J completed 162 trenchless projects in 2007. Two hundred were finished in 2008.



The Answer, My Friend, Is Blowin' in the Wind

Just weeks ago our nation welcomed a new commander in chief. And in his inaugural speech, President Barack Obama stated, "We will build the roads and bridges, the electric grids and digital lines that feed our commerce and bind us together. We will restore science to its rightful place...we will harness the sun and the winds and the soil to fuel our cars and run our factories...All this we can do. And all this we will do."

But just how, exactly, will we do this? The answer, my friend, is blowin' in the wind, breakin' against our shores, shinin' in our daytime sky, and boilin' beneath our earth's surface.

Earth, Wind, Fire, and Water

Alternative energy—two words that bring hope for a greener planet, reduced dependency on foreign oil, relief from coal-fire carbon emissions, liberation from nuclear waste, and a great topic for political speeches. These two words carry an immense environmental and financial burden. The clean, renewable resources that we are expecting to provide refrigerator-chilling, water-heating, bulb-lighting energy are able to do so—at a cost—and as a team effort. One successful energy source is wind—harnessed by the rotating blades of a wind turbine and converted into electrical current via a generator. Wind farms generally consist of a large number of wind turbines in high-wind locations, connected to a utility power grid.

The U.S. Department of Energy May 2008 report, *20 Percent Wind Energy by 2030*, looks at the feasibility of using wind to provide 20 percent of our nation's energy by the year 2030. It takes into account that our nation's current power grid consists of 200,000 miles of power lines. An additional 19,000 circuit miles of extra-high-voltage transmission lines are needed to support the 2030 goal of 304 gigawatts (GW)—nearly 288 GW more than our current 16+ GW.

To meet this goal, large wind projects, like the one in Rawlins, Wyoming, are crucial according to project manager Dave Winsor of PBS&J. "The site near Rawlins is a premier site because 94 percent of the time the wind blows from the same direction. And with 98,000 acres we have the ability to construct 1,000 turbines, to potentially increase the national grid by 2,000 megawatts." That's enough energy to support over 500,000 homes.

However, as the 2030 report recognizes, "transmission challenges need to be addressed." Delivering this clean, green, renewable energy to utilities customers is currently one of the biggest obstacles to its widespread success.

Winsor says there's hope. "Utility companies need to build the infrastructure to carry the energy to grids. We're beginning to see this happen. In Texas, five utility companies have come together to construct 2,400 miles of high-voltage power lines, to accommodate about 18,500 megawatts." This type of investment needs to continue, but still, the solution to our energy demand will not be a breeze.

Geothermal Energy—It's Hot


The wind does not always blow. And so, like other forms of renewable energy, it must be used as part of a larger smorgasbord of resources. Likewise, the sun does not always shine. But solar power, too, is a viable source of renewable energy, as are, hydropower—energy from moving water; ocean energy—including the energy captured from tides, waves, and thermal conversion; and geothermal energy, or "heat from the earth."

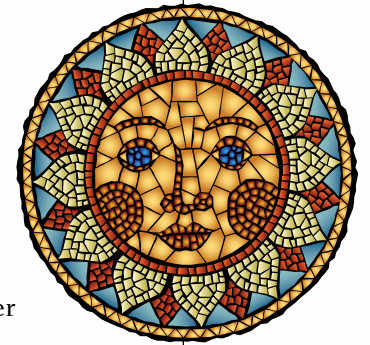
You may be better acquainted with geothermal energy than you realize. If you've ever visited Old Faithful at Yellowstone National Park, or climbed along the slopes of a volcano, you've observed naturally occurring geothermal outlets—areas on the earth's surface where major plate boundaries are located, allowing magma from around the earth's core to rise near the surface. Sometimes this "earth heat" escapes as lava from a volcano, and sometimes it heats deep underground rock that, in turn, heats seeping rainwater, returning it to the surface as steam or hot water, such as in geysers, fumaroles, and hot springs. But more often, the heated water collects underground in geothermal reservoirs. Once located and accessed, these geothermal sources can be converted to energy in one of two ways.

If the resource temperature is over 350°F, and has good permeability, the fluid can be pumped to the surface. As the fluid rises to the surface the pressure reduces and it flashes into steam, providing the motive fluid to turn the turbines and generators that produce electricity. For resource temperatures below 350°F the other method—a binary power plant—is employed. In this case the resource is used to heat a secondary "working" fluid, with a lower boiling point, to produce steam.

People like Ron Hegge and Phil Messer, of PBS&J's geothermal services division, are working to help developers identify resources, define parameters, determine best processes, and design and construct plants for converting geothermal energy into electricity. "Geothermal energy produces electricity 24 hours a day, 7 days a week, 365 days a year," says Messer, geothermal division manager. "Mother Nature provides clean heat with little or no emissions. We at PBS&J are poised to provide engineering and management services to help geothermal developers harness this heat from the earth."

It Takes a Village

The ways to access and provide alternative sources of renewable energy are still being discovered and perfected. We don't have *the* solution. Every alternative has its benefits and challenges. But there is plenty that can be done to reduce our dependency on nonrenewable resources, and there is plenty we can all do—now. 



GEOTHERMAL ENERGY



HYDROPOWER



SOLAR POWER



To learn more about what you can do to implement renewable energy, visit the Web sites of the U.S. Department of Energy (www.energy.gov) and the National Renewable Energy Laboratory (www.nrel.gov).

U.S. DEPARTMENT OF ENERGY
www.energy.gov

NATIONAL RENEWABLE ENERGY LABORATORY
www.nrel.gov



We've got the Whole World in Our Hands

It's ironic that the space race, spawned in the heart of the Cold War, resulted in the evolution of technology that now allows us to locate, explore, and inventory the farthest reaches of our own planet Earth.

With the development of a 24-satellite constellation approved by the Department of Defense in 1973, the NAVSTAR (Navigation Satellite Timing and Ranging) Global Positioning System (GPS) was born. Originally intended as an advanced navigation system for weapons and vehicles, GPS technology has evolved allowing us to "go boldly" (and safely) to map and study places on earth "where no man has gone before." Well, we have been to the Grand Canyon before, but we were not able to study it with the ease and accuracy offered by a handheld GPS.

A handheld GPS unit allowed PBS&J's David Smith, PLS, to climb the walls of the Grand Canyon to map the manmade water creations—a water and wastewater system comprising more than 500 sewer manholes, 400 fire hydrants, hundreds of valves, and 49 miles of waterline, including the 6-inch transcanyon waterline—for the National Park Service (NPS). The as-built location of the transcanyon waterline, which, in many places, hangs securely anchored to the cliff walls, had previously been mapped using

only autonomous GPS positions with accuracy of approximately 10 meters. To meet a 2004 presidential executive order that called for maximizing the life cycles of all park assets, the NPS had to record the assets within submeter accuracy.

Along with 40 pounds of gear and food, Smith and his teammates packed a 2-pound Trimble GeoXH hand-held GPS. The device allowed the team to survey 20 miles in six days. In all, Smith reports, "we mapped more than 3,000 point features at the park and recorded attributes for each feature such as size, type, condition, and other unique data."

Included in the mapping were all sewer cleanouts 4 inches in diameter and larger for the hundreds of buildings and campground comfort stations. "We mapped the perimeters of wastewater septic fields as area features enabling square-footage calculations to be easily made."

Smith says that this level of accuracy would have been impossible even five years ago. Transporting normal-size surveying equipment, which uses big batteries, to the bottom of the Grand Canyon—itsself quite inaccessible—would have been cumbersome and expensive.

"Everybody anticipated using survey grade equipment," Smith states, "then we all realized it wouldn't work given the timeframe and logistics. We presented the hand-held GPS option to the Park Service, and with this success, we're now using it to map other parks for them."

Submeter accuracies are obtained after the fieldwork is done, Smith explains, by applying a differential correction from GPS base stations maintained throughout the country. "We go online and actually access continuously operating reference stations (CORS), then we process our data with reference to the record horizontal and vertical positions of those stations."

The technology facilitates asset management in heavily forested areas and cities as well. Says Smith, "Normal survey-grade equipment becomes much more expensive or logistically difficult for massive undertakings. Now municipalities are starting to use it to map their water and wastewater systems as well as other assets. The small GPS units, supported by Geographic Information System (GIS) technology, do the job perfectly."

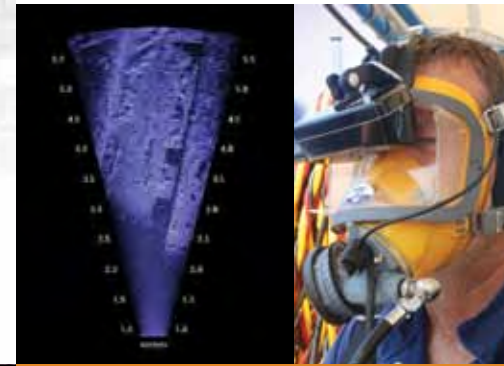


The "SONAR" the Better

While sonar (SOund, NAVigation and Ranging technology) was originally invented to help detect icebergs in the early 1900s, it was later put to use for submarine detection in World War I. Like its land-based GPS counterpart, sonar technology has also evolved allowing us to document and measure with accuracy habitats and locations previously thought to be inaccessible.

"The hand-held underwater acoustic camera—a sonar technology—has added value to our science," says Bob Gearhart, project manager in PBS&J's nautical archaeology/remote sensing facility in Austin, Texas.

"Hand-held sonar gives daylight-quality visibility in pitch-black water. It lets divers take minute measurements and document the smallest details—fasteners, bolts, iron nails—down to the grain in the wood and the seams between the planks."



This information is used to identify and assess the historic value of shipwrecks, especially those that may impede construction. Gearhart recounts the time PBS&J was sent by the Texas Department of Transportation to examine a WWI wooden-hulled boat that had floated down the Neches River in Beaumont, Texas, during

the 1920s to lodge against a bridge which was being planned for reconstruction. Gearhart's divers used the hand-held acoustic camera to document the ship. When it was concluded that the wreck did indeed have historic value, a buffer zone was established around the ship to preserve it.

Similarly, the underwater positioning system (or USBL, ultra short baseline) uses sound waves in the water as a distance finder. "This is a wonderful tool for black water," says Gearhart, "because it lets us accurately map every place the diver goes. The onboard computer always knows where the diver is." Like a GPS tracks a hiker in the mountains or maps your journey to the grocery store, USBL offers the same practical use under water.



At Home in Texas



When disaster strikes, one of the top priorities for local, state, and federal officials is finding a temporary housing solution for displaced victims.

Hurricane Ike, which made landfall at Galveston, Texas, on September 13, 2008, ranked #3 as the most destructive Atlantic hurricane in U.S. history, spawning an estimated \$24 billion in damages¹. The disaster area encompassed 16 counties and generated the need for assistance in over 73 municipalities.

After Ike, the Federal Emergency Management Agency (FEMA) helped Texas families displaced from their homes settle into temporary housing just as it has in the aftermath of countless other disasters.

Safety First

What was different this time was the type of housing that FEMA provided. Texans displaced from their homes as a result of Hurricane Ike were the first to occupy a new type of manufactured home built especially for FEMA under a new initiative.

The new manufactured homes, which feature two bedrooms, one bathroom, and about 616 square feet of living space, are sleeker than the old mobile homes and larger than the travel trailer models FEMA had provided in the aftermath of previous natural disasters.

Most importantly, these new homes are virtually formaldehyde free—following a major effort by FEMA to design a unit that emits no, or low, levels of formaldehyde.

Prior to Ike—and the most devastating storm, Katrina—disaster victims were placed in travel trailers as a temporary means of housing. Since travel trailers are designed for short, temporary habitation, not long-term housing, they are not regulated by the Department of Housing and Urban Development (HUD). When formaldehyde was discovered in the travel trailers, the safety of the occupants became a priority.

By contrast, manufactured housing is designed for long-term habitation and HUD regulates the construction, which includes a provision that limits the amount of formaldehyde that can be used.

“Because these new units are manufactured homes, [and] not travel trailers, formaldehyde is not an issue,” said Ed Mayfield, senior group manager for PBS&J, which is overseeing a portion of the temporary home installation.



“FEMA will be able to respond quickly to the housing needs of displaced Americans in future disasters.”

Another benefit of the new manufactured housing is that the units are more streamlined than mobile homes, making them easier and faster to install. The new housing can also be produced in a timely fashion by several manufacturers making the housing more readily available when needed. As FEMA federal coordinating officer Stephen M. De Blasio, Sr. explains, the combination of these benefits means that “FEMA will be able to respond quickly to the housing needs of displaced Americans in future disasters.”²

The Acadian Community Park, in the southern Orange County, Texas, town of Bridge City, received 30 of the new manufactured homes. To date, approximately 3,400 temporary homes have been installed in Texas (1,200 by PBS&J).

Building a Sense of Community

The temporary community housing program is not new. According to Mayfield, three years ago PBS&J provided temporary housing assistance to disaster-impacted individuals in New Mexico through a similar program.

PBS&J was responsible for developing, designing, and constructing a 75-unit manufactured home park on a 14-acre tract in the Village of Rincon, New Mexico. The project was completed in 44 days from groundbreaking to final turn over of the 75th unit to FEMA. The site included installation of all utilities including electricity, underground sewer, water, paved lighted streets, and two stormwater retention ponds, which contributed to correcting flooding problems in the village.




In an effort to find solutions to expedite the process of installing manufactured homes in Texas, FEMA asked local officials to sign waivers that would allow the temporary placement of manufactured housing in floodplains; and in some cases, FEMA worked with local communities to relax electrical permitting requirements.

FEMA asserts that these communities will not become part of the permanent landscape. As Steve Glenn, PBS&J's risk and emergency management division manager explains, “The units are authorized to remain active for up to 18 months. After that time, the units will be deactivated and shipped back to FEMA staging sites across the country. They are then refurbished and reused or sold under established GSA policies.”

Another positive outcome of the temporary community parks is the boost to the local economy. “About 80 percent of our workforce is from the area, which provides a tremendous boost to the local economy,” said Mayfield.

“We are thrilled to be able to provide these new manufactured homes for Texans, and we hope they will be very happy in them,” adds De Blasio.

When recovery efforts are complete, FEMA plans to survey the residents to get their feedback on the new models. 

“We are thrilled to be able to provide these new manufactured homes for Texans.”

¹ The Honorable Governor Rick Perry and et al., “Texas Rebounds: Helping Our Communities Recover From the 2008 Hurricane Season,” November 2008 report, pp. 2, 10.

² FEMA.gov, “FEMA to introduce new type of manufactured home,” December 18, 2008, release #1791-343, <http://www.fema.gov/news/newsrelease.fema?id=47157>, accessed January 29, 2009.

Managing Change in a Changing Business World

What Constitutes a Change?

- New processes and procedures or changes to existing processes and procedures
- Mergers and acquisitions
- Downsizing or staffing changes
- Implementation of new software and equipment
- Changes in employee benefits
- Scheduling changes or changes in work hours

Greek philosopher Heraclitus said, “Nothing endures but change,” an observation that is still profoundly true today. With the economy in turmoil and change in the business world occurring at breakneck speed, it is now more important than ever for Human Resource (HR) professionals to manage the process of change in their organizations to ensure success.

HR Takes the Lead

The Society for Human Resource Managers (SHRM) describes change management as “defining and adopting corporate strategies, structures, procedures, and technologies to deal with changes in external conditions and the business environment.” By championing change, HR can increase buy-in, comfort, and support for change across departments, thereby, increasing the success rate of such initiatives.

How critical is it for HR to take the lead? Research has shown that 70 percent of change initiatives fail, and the large majority of these

failures are a direct result of change not being properly managed and facilitated. HR leadership has become so critical that some companies employ full-time change managers, while others hire consultants, many commanding salaries in the six-figure range.

Scope of Change

Organizational changes can vary in scope, from small ongoing changes, to radical and substantial change involving organizational strategy and structure. So what types of situations merit change management from HR?

“All types ranging from something as trivial as the installation of new vending machines in the employee break room to something as serious as corporate downsizing and layoffs,” says Mike Newton, PBS&J director of human resources. “People are naturally resistant to change, but are much more likely to embrace and accept it when it has been adequately planned for and effectively communicated to them.”

HR can play a dual role in change management, first, serving as a change agent initiating and leading change, and, second, as a change facilitator supporting changes initiated by other leaders and departments.

“People are naturally resistant to change, but are much more likely to embrace and accept it when it has been adequately planned for and effectively communicated to them.”

Elements of Successful Change Management

While there is no one-size-fits-all plan to successfully manage change, successful change management solutions generally have some common elements.

Planning: The first step in preparing for change is careful planning. HR should develop a strategic plan that evaluates the planned change, anticipated impacts, problems, benefits, and possible questions and concerns that may arise. The plan should allow for training that may be necessary in the case of new software or procedural changes.

Management Support: If the proposed change is not initiated by senior management, then it is critical to obtain their buy-in and support before attempting to implement the change. Only when top management mandates and supports a firm-wide commitment to the change, will the change initiative be successful.

Communication: After a strategic plan has been developed, it is important that the change be communicated to employees in a clear and concise manner. This can be done through a company-wide email or a series of facilitated group sessions. The change should be clearly explained, as well as the reasoning behind the change, expected benefits, and training and support opportunities that will be available to employees. Communication is a two-way street, so HR should also be prepared to answer employee questions. Interactive communication builds a feeling that “we’re in this together” and helps to alleviate the anxiety that often accompanies change.

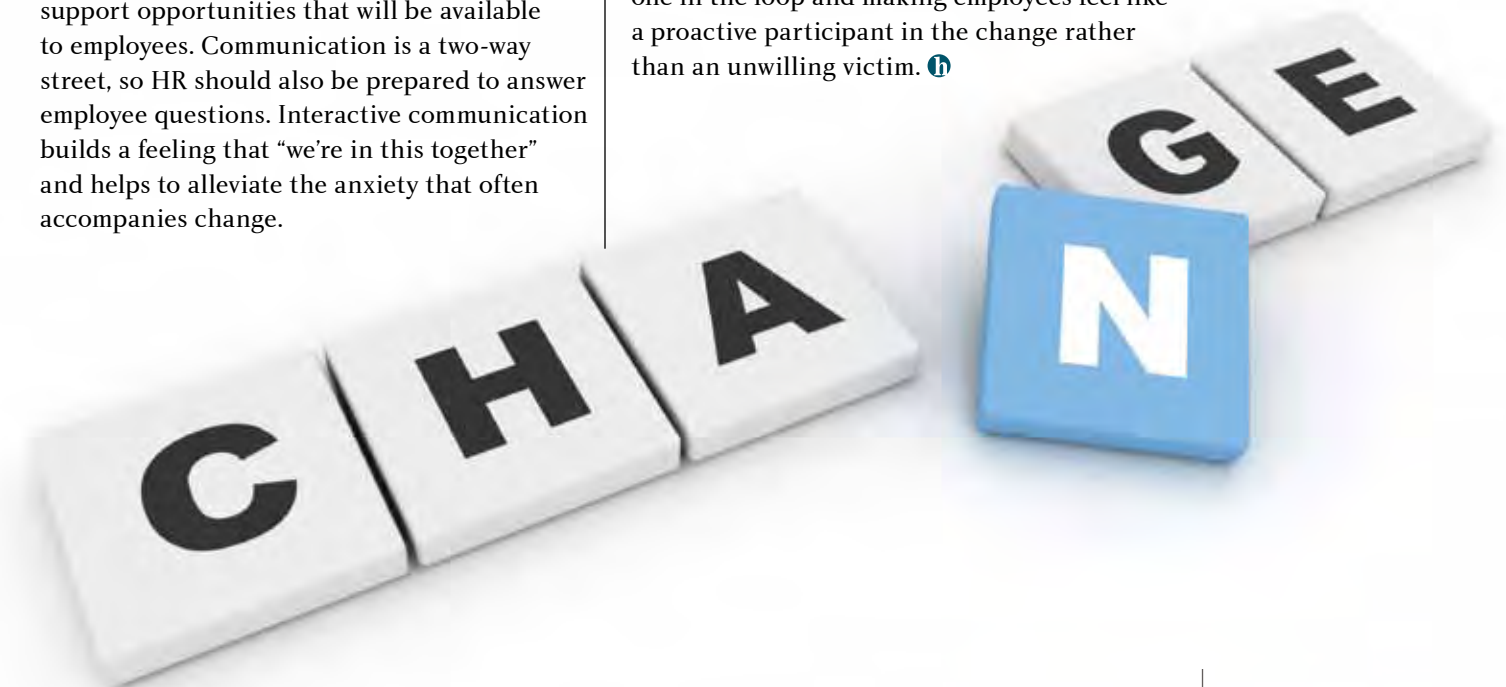
Training and Support:

To help ensure that the transition process is as painless as possible, education, training, and follow-up support are important. These help to close the change loop and involve employees so that they do not feel like they are left hanging after a change occurs.

As Newton explains, “All of these elements were instrumental at various levels this past year as we handled the acquisition of Peter Brown Construction and the firm-wide implementation of a new accounts payable approval system.”

Benefits of Change Management

When HR takes the lead, change management can help to lower risks associated with change and reduce potential conflicts. The strategic planning portion of the change management process can provide a comprehensive picture of the firm-wide impact of change and enable managers to make contingency and follow-up plans. Finally, change management can accelerate increased internal teamwork by keeping everyone in the loop and making employees feel like a proactive participant in the change rather than an unwilling victim.





Clarence Anthony



Don Forbes



Rob Harris



Larry Levis



David Maurstad



Kay McKinley



Joe Platt



Sima Vajdani



PBS&J PEOPLE NEWS

CLARENCE ANTHONY | West Palm Beach, Florida | Business Development

Anthony, PBS&J chief marketing officer, was presented with the Circle of Excellence Award for his outstanding commitment to community service. He was a special guest of honor at the Palm Beach County Caucus of Black Elected Officials' (BEO) black-tie gala held last fall to benefit BEO's Student Assistance Program. An associate member of BEO, Anthony has been a leader in Florida and national politics for more than two decades.

DON FORBES, PE | Seattle, Washington | Transportation

As senior transportation division manager, Forbes brings a wealth of direct leadership experience from both the public and private sectors. His previous positions include serving as the head of the Oregon Department of Transportation. A graduate of the U.S. Air Force Academy, he also earned a master's degree in structural engineering from the University of Colorado and an M.B.A. from Pacific Lutheran University.

ROB HARRIS, PE, CCM | Phoenix, Arizona | Construction

Harris has been appointed to serve a three-year term on the Construction Management Association of America's (CMAA) National Board of Directors. Through CMAA, he received his certified construction manager registration in 2005. He was program chair for the Houston and Arizona chapters and secretary for the Arizona chapter before being appointed to the national level.

LARRY LEVIS, AIA, NCARB | Miami, Florida | Facilities

Levis will serve as program director, specializing in ports and terminals for PBS&J's ports and coastal services division. With more than 24 years of experience in waterfront and port planning, passenger terminal design, and transportation and master planning, he has served as the lead professional for projects spanning four continents. Levis earned his bachelor's of architecture degree from the University of Miami.

DAVID MAURSTAD | Chantilly, Virginia | Federal

Maurstad has joined PBS&J's federal service as vice president and national business sector manager for risk and emergency management. His previous positions include serving as assistant administrator and federal insurance administrator, mitigation directorate, for the Federal Emergency Management Agency (FEMA) and FEMA Region VIII regional director. The former Nebraska Lieutenant Governor holds bachelor's and master's degrees in business administration from the University of Nebraska.

KAY MCKINLEY | Austin, Texas | Transportation

PBS&J's toll services group welcomes McKinley as a program director. With more than 22 years of experience in transportation system planning, infrastructure development, and finance, she has been heavily involved in major transportation infrastructure and system planning projects nationwide. Her toll systems endeavors span project planning, development, and implementation for both public- and private-sector clients. McKinley holds a bachelor's degree in communications and business from Temple University.

JOE PLATT, PH.D. | Orange, California | Environmental Sciences

Platt will serve as an ecologist and project director for PBS&J's California/Southwest sciences and planning division. An experienced teacher and widely published author, Platt has spent more than 30 years in environmental work in the United States, Mexico, Africa, and Arabia. He earned his doctorate in ecology from Cornell University and master's degree in zoology and botany from Brigham Young University.

SIMA VAJDANI, PE | Orange, California | Water

Vajdani brings more than 25 years of engineering and management experience to her new role as vice president and manager of the company's west water group. She is skilled in both financial management and business development across multistate regions. She holds bachelor's and master's degrees in civil engineering from California State University, Long Beach, and The City University of New York, respectively.



CURRENT NEWS

Peter Brown Construction Joins The PBSJ Corporation as a New Subsidiary Company

The PBSJ Corporation (PBSJ), parent company of the engineering, architecture, and sciences company PBS&J, PBS&J Constructors, and PBS&J International, has announced the acquisition of Clearwater, Florida-based **Peter R. Brown Construction, Inc.** They will operate as a wholly owned subsidiary of the corporation.

Founded in 1963 by Peter R. Brown, Peter Brown Construction (www.peterbrownconst.com) has 150 employees located in Clearwater, Destin, and Tallahassee, Florida, and in Warner Robbins, Georgia. The company was purchased by its three current owners, Judy A. Mitchell, John R. Stewart, and Eduardo "Tito" Vargas, in 2000. Today, Peter Brown Construction provides comprehensive construction management and design-build services to public and private clients primarily throughout the southeastern U.S.

Effective immediately, PBSJ will pursue and carry out all new construction management at-risk projects through Peter Brown Construction. According to John B. Zumwalt III, chairman and CEO of PBSJ, the goal will be to integrate over time the best of Peter Brown Construction's and PBS&J Constructors' cultures and practices. Mitchell will remain president of Peter Brown Construction. Partners Stewart and Vargas will continue to serve as executive vice presidents.

PBS&J NEWS



Godby High Students Get EXCITED

PBS&J recently surprised five Godby High School students with laptop computers to mark completion of the firm's six-week EXCITED (Extra-curricular Computer Information Technology Education) program. The program pairs employees in PBS&J's Tallahassee office with students and introduces the kids to computer applications often used in engineering, science, and technology professions.

"This program provides a direct link to professionals who are practicing in the engineering and science fields and who are using the actual software applications they are introducing to the students," said Jean Ferguson, Godby High School principal. "To be paired, one-on-one, with a mentor in a profession of interest can make a world of difference to a student who is trying to decide on a career path."

Miami kidsclassSM Graduates Honored

Ten students from Toussaint Louverture Elementary School in Miami received a big surprise when they graduated from PBS&J's 2008 kidsclassSM (Computer Lab Adventure for Super Students) program in December—their own new HP personal computers. Each of the computers was outfitted with a basic operating system software and Microsoft XP Professional, Microsoft Office Student 2007, and Microsoft Student with Encarta Premium software.



Each of the ten students who participated in the program was chosen based on aptitude, desire to learn, and lack of access to a computer at home. The kidsclassSM program involves training with a PBS&J instructor and one-on-one assistance from an employee mentor. The training sessions, which are held once a week for six weeks at PBS&J, include lessons for new computer users and basic Microsoft applications. At the completion of the course, PBS&J donates a new computer to each child.

Part of the "PBS&J in the Community" nationwide initiative, kidsclassSM was first introduced in 2001. It has since expanded throughout Florida and into Georgia and Nevada.



This \$243 million design-build project for the Florida Department of Transportation (FDOT), District Three, involved the replacement of the I-10/Escambia Bay Bridge structures that were damaged by Hurricane Ivan in 2004.

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